

**Republic of India
Government of Mizoram
Irrigation and Water Resources Department
Department of Agriculture
Department of Horticulture
Land Resources, Soil and Water Conservation Department**

REPUBLIC OF INDIA

THE PROJECT

ON

**CAPACITY ENHANCEMENT FOR
SUSTAINABLE AGRICULTURE AND
IRRIGATION DEVELOPMENT
IN MIZORAM**

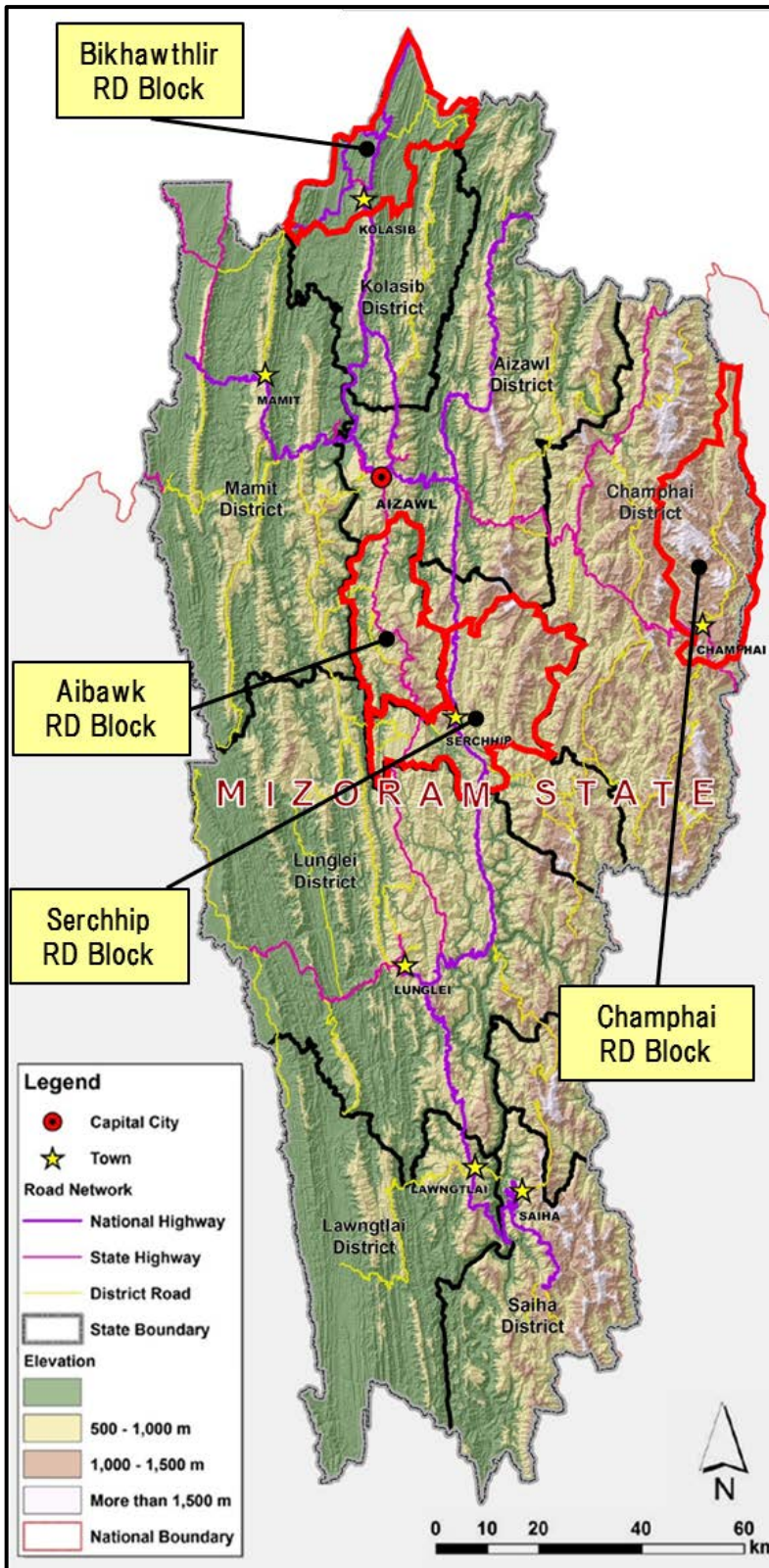
COMPLETION REPORT

March 2023

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.

ED
JR
23-019



Overview for Target Blocks

Bikhawthlir RD block	
Area: 538km ²	Population: 58,487
Village Number: 19	Present WRC Area: 2,739 (ha)
District: Kolasib	
Major Crop: paddy, industrial crops (areca nut, broom grass, rubber and oil palm), vegetable etc.	
Demonstration Effect: High	
Accessibility: 3hrs from Aizawl	
Aibawk RD block	
Area: 530km ²	Population: 17,128
Village Number: 22	Present WRC Area: 132 (ha)
District: Aizawl	
Major Crop: paddy, maize, legumes, vegetable, M.orange etc.	
Demonstration Effect: High	
Accessibility: 3hrs from Aizawl	
Serchhip RD block	
Area: 827km ²	Population: 44,242
Village Number: 22	Present WRC Area: 439 (ha)
District: Serchhip	
Major Crop: paddy, vegetable (bitter gourd, okra, cabbage, eggplant), fruits (banana, Orange) etc.	
Demonstration Effect: High	
Accessibility: 3hrs from Aizawl	
Champhai RD block	
Area: 634km ²	Population: 43,040
Village Number: 11	Present WRC Area: 1,733(ha)
District: Champhai	
Major Crop: paddy, vegetable, fruits, (grape, orange, and kiwi), coffee, tea etc.	
Demonstration Effect: High	
Accessibility: 7hrs from Aizawl	

Project Location Map

**THE PROJECT
ON
CAPACITY ENHANCEMENT
FOR
SUSTAINABLE AGRICULTURE AND IRRIGATION DEVELOPMENT
IN
MIZORAM
IN
REPUBLIC OF INDIA
COMPLETION REPORT**

TABLE OF CONTENTS

Project Location Map	
Table of Contents	
Abbreviations	
Measurement Units and Currency	
	Page
Chapter 1 INTRODUCTION	
1.1 General	1-1
1.2 Background	1-1
1.3 Objectives and Overall Goals	1-1
1.4 Outline of the Project	1-1
1.5 Implementation Structure	1-2
1.6 Summary of Project Activities	1-5
1.7 Discussion on Collaborative Implementation Framework amongst the State Government Departments	1-6
Chapter 2 PROJECT ACTIVITIES	
2.1 General	2-1
2.2 Conduct Pre-Baseline Survey	2-1
2.2.1 General	2-1
2.2.2 Target Villages	2-1
2.2.3 Methodology	2-2
2.3 Preparation of the First Draft of the Methods	2-2
2.3.1 Implementation Guideline	2-2
2.3.2 Officers' Manual for Improving Agriculture Extension	2-3
2.3.3 Officers' Manual for Construction Management	2-4
2.3.4 Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme	2-5
2.3.5 Update of DPR Preparation Guideline for Minor Irrigation Project	2-5
2.4 Establishment of Block Agriculture and Irrigation Development Committee (BAIDC)	2-6
2.5 Selection of First Pilot Villages	2-6
2.5.1 Selection Criteria	2-6
2.5.2 Selection Criteria by PMT and JPT	2-6
2.5.3 Criteria Consisting of Agriculture Characteristics and Development Direction	2-6
2.5.4 Criteria Based on Analysis of Results of Pre-baseline Survey	2-7
2.5.5 Selection by BAIDC Member	2-8
2.5.6 Results of the Selection Based on Each Criteria	2-8
2.5.7 Conduct of Baseline Survey for First Pilot Villages	2-8
2.6 Needs Assessment and Preparation of Overall Development Plan in the First Pilot Villages	2-9
2.6.1 Needs Assessment in Each Pilot Villages	2-9
2.6.2 Training for the BAIDC as Facilitator	2-10

2.6.3	Results of the PRA Workshop and Finalization Procedures for the Overall Development Plan	2-10
2.6.4	Planning Details of the Prioritized Activities and Selection of Pilot Activities.....	2-11
2.7	Implementation and Monitoring of the BAIDC Annual Activity Plan in the 1 st Pilot Villages	2-12
2.7.1	Activities in Buhchangphai Village.....	2-13
2.7.2	Activities in Sailam Village	2-23
2.7.3	Activities in Serchhip II Village (Rehabilitation of Lumtui MIP)	2-34
2.7.4	Activities in Hnahlan Village	2-35
2.8	Conduct Feedback Meeting and Evaluation Seminar.....	2-43
2.8.1	Feedback Meeting for the Activities in 2020/21	2-45
2.8.2	Feedback Meetings by Farmers in Year 2021/22	2-46
2.9	Preparation of the Second Draft of Method	2-48
2.9.1	Implementation Guideline.....	2-48
2.9.2	Officers' Manual for Improving Agricultural Extension.....	2-48
2.9.3	Officers' Manual for Construction Management.....	2-49
2.9.4	Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme	2-50
2.10	Selection of 2 nd Pilot Villages.....	2-51
2.10.1	Selection Criteria and Points to Keep in Mind for Selection.....	2-51
2.10.2	Points in Mind for Selection.....	2-51
2.11	Needs Assessment and Preparation of Overall Agriculture Development Plan	2-53
2.11.1	Mutual Consultation with Village Community	2-53
2.11.2	Formulation of Annual Plan by BAIDC	2-55
2.12	Implementation and Monitoring of the Second Pilot Activities	2-56
2.12.1	Activities of Bikhawthlir North (Bikhawthlir N) Village	2-56
2.12.2	Activities in the Lamchhip Village.....	2-62
2.12.3	Activities of Tlangsam Village.....	2-66
2.13	Conduct Feedback Meeting and Evaluation Seminar.....	2-72
2.14	Finalization of the Method	2-73
2.15	Assessment of the Technical Level of the Counterpart Personnel and Setting Goals of Capacity Development	2-74
2.15.1	General	2-74
2.15.2	Setting the Goals of Capacity Development of Counterparts.....	2-74
2.16	Overseas Training in Japan.....	2-75
2.16.1	First Overseas Training	2-75
2.16.2	Second Overseas Training in Japan.....	2-78
2.17	Training of Counterparts	2-81
2.17.1	Training to BAIDC Members.....	2-81
2.17.2	Nurturing of Core Training Officer (CTO).....	2-83
2.18	Evaluation of Technical Level of Counterparts	2-86
2.18.1	IWRD	2-86
2.18.2	DOA, DOH, and LRSWCD	2-87
2.18.3	Confirmation of Understanding of Methods	2-89
2.19	Conduct of Seminar.....	2-93
2.20	Establishment of Collaborative Implementation Framework.....	2-94
2.20.1	Creation and Implementation of Roadmap for Institutionalization of Methods.....	2-94
2.20.2	Implementation Structure for Institutionalization of Methods	2-96
2.20.3	Issue of Notification and Obtain Approval from Chief Minister.....	2-98
2.21	Development of Action Plan for Deploying Outputs	2-98
2.21.1	Revision and Implementation of Action Plan	2-98
2.21.2	Action Plan from BAIDC 1st Batch to 3rd Batch	2-99
2.21.3	Training for Action Plan Implementation in Collaboration with SAMETI.....	2-99
2.21.4	Support for Implementation of Batch 1 and Batch 2 Training	2-103
2.21.5	Establishment of Monitoring System Using Digital Technology.....	2-105
2.21.6	Development of Promotion Materials	2-107
2.22	Work for Project Monitoring	2-108
2.22.1	Project Management Team Meetings.....	2-108

2.22.2	Joint Coordination Committee Meeting	2-111
2.22.3	Submission of Monitoring Sheet	2-112
2.22.4	Public Relation Activities.....	2-112
2.22.5	JICA Monitoring Mission	2-113
2.22.6	Endline Survey	2-114
2.23	Impact on Farming Activity and Livelihood amid COVID-19	2-116
2.23.1	General Information about Survey	2-116
2.23.2	Survey Results.....	2-116
2.23.3	Countermeasures Proposed	2-119
Chapter 3 ISSUES, FINDINGS, AND LESSONS LEARNED FOR PROJECT IMPLEMENTATION		
3.1	Challenges and Countermeasures in Project Implementation	3-1
3.1.1	Challenges and Countermeasures in Overall Project Implementation	3-1
3.1.2	Challenges and Countermeasures in the Implementation of the BAIDC Plan for the Irrigation Sector.....	3-3
3.1.3	Challenges and Countermeasures in the Implementation of the BAIDC Plan for Agriculture Extension.....	3-4
3.2	Lessons Learned.....	3-6
3.2.1	Lessons Learned in Implementation of Overall Project	3-6
3.2.2	Lessons Learned in Implementing Minor Irrigation Projects.....	3-7
3.2.3	Lessons Learned in Implementing Agriculture Extension Activities.....	3-8
Chapter 4 ACHIEVEMENT OF PROJECT PURPOSE		
4.1	Achievement of Output 1: Methods for Sustainable Agriculture and Irrigation Development are Developed.....	4-1
4.2	Achievement of Output 2: Capacity of the State Government Officials in Planning and Implementation of Sustainable Agriculture and Irrigation Development is Enhanced	4-3
4.3	Achievement of Output 3: Collaborative Implementation Framework Among the State Government Departments in the Field of Sustainable Agriculture and Irrigation Development is Established.	4-6
4.4	Achievement of Project Purpose: Organizational Capacity of the Government of Mizoram to Promote Sustainable Agriculture and Irrigation Development is Enhanced.	4-6
Chapter 5 RECOMMENDATIONS FOR ACHIEVING THE OVERALL GOAL		
5.1	Recommendations for Implementation	5-1
5.1.1	Reliable Operation of JIFAS in Accordance with the Action Plan and Operational Guideline	5-1
5.1.2	Continuous Capacity Building by SAMETI.....	5-1
5.1.3	Strengthening of Implementation Structure	5-1
5.1.4	Promotion of Agriculture Development in Mizoram Based on the Vision and Master Plan.....	5-2
5.1.5	Measure to Address the Shortage of Funds and Human Resources	5-2
5.2	Recommendations for Agriculture Extension Services	5-2
5.2.1	Deployment of Extension Activities by a Method, and Formulation of a System and a Structure to Reinforce/Support it.....	5-2
5.2.2	Measures to Raise Farmers' Will to Produce Agriculture Extension Activities: Reducing a Degree of Dependence on the Jhum Cultivation by Transforming from Self-sufficient Cultivation to Commercial Cultivation	5-3
5.2.3	Positive Consideration on Community Contract	5-7

Attachment

- Attachment-1: Project Design Matrix (PDM)
- Attachment-2: Work Flow Chart
- Attachment-3: Plan of Operation
- Attachment-4: MM Schedule of JICA Experts

Attachment-5:	Report on Training in Japan
Attachment-6:	List of Machinery and Equipment Procured
Attachment-7:	Project Activity Photograph
Attachment-8:	List of Training and Workshop
Attachment-9:	Data Sheet for Pilot Activity
Attachment-10:	Minutes of JCC
Annex :	Operational Guidelines for JICA Sustainable Farming System (JIFAS)
	Officers' Manual for Improving Agriculture Extension
	DPR Preparation Guideline for Irrigation Project
	Officers' Manual for Construction Management
	Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

Table Index

Table 1.4.1	Outline of the Project.....	1-2
Table 1.5.1	Implementation Structure of the Project.....	1-3
Table 1.6.1	Outline of the Project.....	1-5
Table 2.2.1	List of Villages Covered in the Pre-baseline Survey	2-1
Table 2.3.1	Outline of Each Chapter on Officers' Manual for Improving Agriculture Extension	2-4
Table 2.3.2	Contents of Officers' Manual for Construction Management.....	2-5
Table 2.3.3	Contents of Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme	2-5
Table 2.5.1	Selection Method and Procedures	2-6
Table 2.5.2	Results of Village Selection by the Three Selection Criteria.....	2-8
Table 2.6.1	PRA Workshop Schedule.....	2-9
Table 2.6.2	PRA Workshop Procedure	2-9
Table 2.6.3	Summary of BAIDC Annual Activity Plan 2018/19	2-11
Table 2.6.4	Summary of BAIDC Annual Activity Plan 2019/20	2-11
Table 2.7.1	Status of Funds Disbursed by the Four Departments and JICA	2-12
Table 2.7.2	Three Major Crops Cultivated in Each Season in Buchangphai Village	2-13
Table 2.7.3	Issues Related to Areca Nut Cultivation.....	2-14
Table 2.7.4	Technical Issues and Measures for Table 2.7.3.....	2-14
Table 2.7.5	Farmers' Problems and Results of Activities on the Problems	2-15
Table 2.7.6	Results of Harvests in the Three (3) Years.....	2-18
Table 2.7.7	Cultivation Case Example in Wet Rice Cultivation Area	2-19
Table 2.7.8	Comparison of Cropping Intensity – Land Owner and Tenant.....	2-19
Table 2.7.9	Issues Related to WRC Cultivation	2-20
Table 2.7.10	Technical Issues and Measures for Table 2.7.9.....	2-20
Table 2.7.11	Farmers' Problems and Results of Activities on the Problems	2-21
Table 2.7.12	Three Major Crops Cultivated in Each Season in Sailam Village	2-24
Table 2.7.13	Crops Cultivated in Jhum Land	2-25
Table 2.7.14	Issues Related to Settled Agriculture	2-26
Table 2.7.15	Implementation Activities and Focal Points	2-27
Table 2.7.16	Countermeasures and Technical Challenges to Problems of Orange Cultivation.....	2-28
Table 2.7.17	Grading Standard of Orange.....	2-29
Table 2.7.18	Other Important Information for Oranges	2-29
Table 2.7.19	Issues and Action Plans for Rice Farming	2-31
Table 2.7.20	Results of Activities Related to Rice Cultivation	2-32
Table 2.7.21	Results of Paddy Yield in 2019.....	2-32
Table 2.7.22	Results of Paddy Yield in 2020.....	2-33
Table 2.7.23	Results of Paddy Yield in 2021.....	2-33
Table 2.7.24	Three Major Crops Cultivated in Each Season in Hnahlan Village.....	2-35
Table 2.7.25	Details of Jhum Cultivation	2-36
Table 2.7.26	Action Plan against Issues	2-37

Table 2.7.27	Results of Action Plan for The Issue	2-37
Table 2.7.28	Action Plan against Issues	2-38
Table 2.7.29	Results of Action Plan against Issues	2-39
Table 2.7.30	Action Plan against Issues	2-41
Table 2.7.31	Results of Action Plan against Issues	2-41
Table 2.7.32	Results of Paddy Yield in 2019 (Variety: CAU R-1)	2-42
Table 2.7.33	Results of Paddy Yield in 2020.....	2-42
Table 2.7.34	Results of Paddy Yield in 2021.....	2-42
Table 2.8.1	Major Lessons Learned for Sustainable Agriculture and Irrigation Development Collected from Feedback Meeting.....	2-43
Table 2.8.2	Major Contents Summed Up in the BAIDC Feedback Meeting 2020/2021	2-45
Table 2.8.3	Difference of the Evaluation Between Farmers and BAIDC.....	2-46
Table 2.8.4	Features and Issues of Each Village and Measures/ Recommendation	2-47
Table 2.9.1	Contents of the Officers' Manual for Improving Agricultural Extension	2-49
Table 2.9.2	Contents of Officers' Manual for Construction Management	2-49
Table 2.9.3	Contents of Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme	2-50
Table 2.10.1	Proposal of Selection Criteria by BAIDC	2-51
Table 2.10.2	Village Names Shortlisted by BAIDC and Basic Data of the Villages.....	2-52
Table 2.10.3	Results of Selection of the Second Pilot Villages	2-53
Table 2.11.1	Major Subjects of Farmers in the Workshop	2-54
Table 2.11.2	Procedure of the Workshop and General Outline of Activities.....	2-54
Table 2.11.3	Major Development Items Indicated in the Workshop	2-55
Table 2.11.4	General Outline of BAIDC Annual Plan	2-55
Table 2.12.1	Comparison of Agricultural Workers in 1st and 2nd Pilot Villages	2-56
Table 2.12.2	Action Plan against Issues (BN-01).....	2-57
Table 2.12.3	Comparison of Yield by Variety	2-58
Table 2.12.4	Yield Results of Selected Paddy Varieties (BN-01).....	2-58
Table 2.12.5	Action Plan Against Issues (BN-02).....	2-60
Table 2.12.6	Results of Action Plan against Issues (BN-02).....	2-60
Table 2.12.7	Sales Income from Watermelon Cultivation by a Pilot Farmer	2-61
Table 2.12.8	Comparison of Agricultural Workers in 1st and 2nd Pilot Villages	2-62
Table 2.12.9	Action Plan against Issues (LC-01)	2-63
Table 2.12.10	Results of Action Plan Against Issues (LC-01)	2-63
Table 2.12.11	Action Plan against Issues (LC-02)	2-64
Table 2.12.12	Result of Paddy Yield Survey for 2020/21	2-65
Table 2.12.13	Result of Paddy Yield Survey for 2021/22	2-65
Table 2.12.14	Action Plan against Issues (LC-03)	2-66
Table 2.12.15	Comparison of Ratio of Farmers in Total Households of the 1st Pilot Village and the 2nd Pilot village.....	2-67
Table 2.12.16	Action Plan against Issues (TL-01)	2-67
Table 2.12.17	Results of Action Plan against Issues (TL-02).....	2-67
Table 2.12.18	Sales Record of Vegetable in Rabi 2020/21.....	2-69
Table 2.12.19	Yield Survey Results of Paddy - 2020/21	2-70
Table 2.12.20	Yield Survey Results of Paddy – 2021/22	2-71
Table 2.12.21	Results of Field-Pea Yield Survey for 2020/21	2-72
Table 2.13.1	Summary of Discussion in the Feedback Meeting	2-72
Table 2.14.1	Revisions between the Second Draft and Final Version	2-73
Table 2.15.1	Training Implementation Process	2-74
Table 2.15.2	Number of Participants in the Workshops	2-75
Table 2.16.1	Participants in the First Overseas Training in Japan.....	2-75
Table 2.16.2	Training Contents and Schedule of the First Overseas Training in Japan	2-77
Table 2.16.3	Outcomes of the First Overseas Training	2-78
Table 2.16.4	Participants in the Second Overseas Training in Japan	2-79
Table 2.16.5	Training Contents and Schedule of the Second Overseas Training in Japan	2-80
Table 2.16.6	Outcomes of the Second Overseas Training	2-80

Table 2.17.1	List of Counterpart Trainings Conducted	2-81
Table 2.17.2	Tabulation of Core Officer Nurturing Activities.....	2-83
Table 2.17.3	Tabulation of Materials for Nurturing CTO Prepared and Summarized by the JPT....	2-84
Table 2.17.4	Materials Use for Nurturing Training	2-84
Table 2.17.5	Tabulation of Self-Training Materials for CTO/BAIDC Members	2-85
Table 2.18.1	Number of Counterpart Whose Skills Leveled-up.....	2-88
Table 2.18.2	Contents and Mark Weight of the Online Test for Officers’ Manual for Improving Agriculture Extension.....	2-90
Table 2.18.3	Online Test Result on Comprehension Test of Officers’ Manual for Improving Agriculture Extension	2-91
Table 2.18.4	Online Test Result on Implementation Guidelines	2-91
Table 2.18.5	Contents and Mark Weightage of Online Test for Minor Irrigation Project	2-92
Table 2.18.6	Online Test Result on Comprehension Test of Officers’ Manual for Construction Management	2-92
Table 2.18.7	Online Test Result on Comprehension Test of Officers’ Manual for Strengthening of WUA for O&M of Irrigation Scheme	2-92
Table 2.19.1	Outline of JIFAS Seminar.....	2-93
Table 2.19.2	Major Discussion in JIFAS Seminar.....	2-94
Table 2.20.1	Achievement of the Roadmap for Institutionalization of Methods	2-95
Table 2.20.2	Implementation Structure for JIFAS.....	2-97
Table 2.21.1	BAIDC Establishment Schedule in each RD Block	2-98
Table 2.21.2	Number of BAIDC Members Who Participated in the Training and RD Block Names	2-100
Table 2.21.3	BAIDC Training Content and Timetable.....	2-101
Table 2.21.4	BAIDC Annual Activity Plan in 2022/23 for Batch-1	2-104
Table 2.21.5	BAIDC Annual Activity Plan in 2023/24 for Batch-2	2-105
Table 2.21.6	Main Feature of TRESSA.....	2-105
Table 2.21.7	Outline of MIS_JIFAS Operator Training	2-107
Table 2.22.1	List of Project Management Team and BAIDC Meetings.....	2-108
Table 2.22.2	Summary of JCC Meeting	2-111
Table 2.22.3	Submission of Monitoring Sheet	2-112
Table 2.22.4	Outline of JICA Monitoring Missions	2-113
Table 2.22.5	Summary of Endline Survey.....	2-114
Table 2.22.6	Achievement of PDM Indicators	2-114
Table 2.23.1	Schedule of the Impact Survey for COVID-19	2-116
Table 3.1.1	Challenges and Countermeasures on Overall Project Implementation.....	3-1
Table 3.1.2	Challenges and Countermeasures in the Implementation of the BAIDC Plan for the Irrigation Sector.....	3-3
Table 3.1.3	Challenges and Countermeasures in the Implementation of the BAIDC Plan for Agriculture Extension.....	3-4
Table 4.1.1	Rice Production in WRC in the 1 st Pilot Villages	4-1
Table 4.1.2	Annual Income from Cash Crops in the 1 st Pilot Villages	4-1
Table 4.1.3	List of Cultivation Technology Introduced in the 1 st Pilot Villages.....	4-2
Table 4.1.4	List of Technology on Water Management Introduced in the 1 st Pilot Villages	4-2
Table 4.1.5	Seven Implemented Activities Following up on the 1 st Pilot Projects.....	4-3
Table 4.1.6	Implemented Activities in the 2 nd Pilot Projects.....	4-3
Table 4.2.1	Technical and Management Skills Acquired by Nominated Counterparts	4-4
Table 4.2.2	Online Test Result on Comprehension Test of Officers’ Manual for Improving Agriculture Extension	4-4
Table 4.2.3	Online Test Result on Comprehension Test of Officers’ Manual for Construction Management	4-5
Table 4.2.4	Online Test Result on Comprehension Test of Officers’ Manual for Strengthening of WUA for O&M of Irrigation Scheme.....	4-5
Table 4.2.5	Online Test Results on Operational Guidelines.....	4-6
Table 5.2.1	Dependency Ratios on the <i>Jhum</i> Cultivation of Pilot Farmers and Activities Required	5-4
Table 5.2.2	Method and Countermeasure of Profitable Agriculture Depending on Agriculture Type	5-5

Table 5.2.3	List of Extension Model, Organizations, Farmers Concerned to the Pilot Activities	5-6
Table 5.2.4	Comparison of Contractor's and Community's Works in Dilhnuai MIP	5-7

Figure Index

Figure 1.5.1	Project Implementation Structure	1-4
Figure 1.7.1	Collaborative Implementation Framework.....	1-6
Figure 2.7.1	Summary of Paddy Yield Achieved under Pilot Activities.....	2-22
Figure 2.7.2	Pruning Training.....	2-30
Figure 2.7.3	Vegetable Supply Source (production area) & Supply Calendar.....	2-40
Figure 2.7.4	Major Findings from Market Survey for HN-02	2-40
Figure 2.14.1	List of Methods	2-73
Figure 2.16.1	Concept of Overseas Training in Japan	2-76
Figure 2.18.1	Average of Score 2017-2021/22 :DOA	2-88
Figure 2.18.2	Average of Score 2017-2021/22: DOH	2-89
Figure 2.18.3	Average of Score 2017-2021/22 :LRSWCD	2-89
Figure 2.20.1	Roadmap for Institutionalization of Methods.....	2-95
Figure 2.20.2	Difference of Plan A & B in Implementation of JIFAS.....	2-97
Figure 2.21.1	Outline of Annual Activity Plan for BAIDC (Batches 1-3).....	2-99
Figure 2.21.2	Operational System of MIS_ JIFAS	2-106
Figure 2.22.1	Mizo-CESAID Facebook	2-112
Figure 2.22.2	Monthly Newsletter (March 2019)	2-113
Figure 2.23.1	Number of Informants by District	2-116
Figure 2.23.2	Number of Informants by Main Crop.....	2-116
Figure 2.23.3	Share of Informants Who Answered COVID-19 Affected Land Preparation	2-117
Figure 2.23.4	Share of Informants Who Answered COVID-19 Affected Sowing.....	2-117
Figure 2.23.5	Share of Informants Who Answered COVID-19 Affected Transplanting	2-117
Figure 2.23.6	Share of Informants Who Answered COVID-19 Affected Weeding	2-117
Figure 2.23.7	Share of Informants Who Answered COVID-19 Affected Fertilizer Application.....	2-117
Figure 2.23.8	Share of Informants Who Answered COVID-19 Affected Chemical Application	2-117
Figure 2.23.9	Share of Informants Who Answered COVID-19 Affected Harvesting.....	2-118
Figure 2.23.10	Share of Informants Who Answered COVID-19 Affected Marketing	2-118
Figure 2.23.11	Share of Informants Who Answered COVID-19 Affected Dietary Habit	2-118
Figure 2.23.12	Share of Informants Who Answered COVID-19 Affected Area and Income.....	2-118
Figure 2.23.13	Share of Informants about Change of Mindset after COVID-19.....	2-119
Figure 2.23.14	Share of Informants about Future Concerns.....	2-119

Abbreviations

ATMA	Agriculture Technology Management Agency
BAIDC	Block Agriculture and Irrigation Development Committee
B/C	Benefit and Cost Ratio
BPL	Below Poverty Line
CAD	Command Area Development
CAU	Central Agricultural University
CCA	Cultivated Command Area
CE	Chief Engineer
CHC	Custom Hiring Center
CM	Chief Minister
COE	Centre of Excellence
C/P	Counterpart
CPWD	Central Public Works Department
CSS	Centre for Sustainable System
CTO	Core Training Officer
CUDBAS	A Method of Curriculum Development Based on Vocational Ability Structure
CWC	Central Water Commission
DAO	District Agriculture officer
DHO	District Horticulture officer
DOA	Department of Agriculture
DOF	Department of Fisheries
DOH	Department of Horticulture
DPR(s)	Detailed Project Report(s)
DRDA	District Rural Development Agency
EE	Executive Engineer
EIA	Environment Impact Assessment
EMP	Environment Management Plan
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
FOCUS	Fostering Climate Resilient Upland Farming Systems in the North East Project
GDP	Gross Domestic Products
GIS	Geographic Information System
GNP	Gross National Product
GOI	Government of India
GOM	Government of Mizoram
GPS	Global Positioning System
ICAR	Indian Council of Agricultural Research
ICT	Information and Communication Technology
IDC	Inter-Departmental Committee
IFAD	International Fund for Agricultural Development
INR	Indian Rupee
IPM	Integrated Pest Management
IT	Information Technology
IWRD	Irrigation and Water Resources Department
JCC	Joint Coordination Committee
JE	Junior Engineer
JICA	Japan International Cooperation Agency
JIFAS	JICA Sustainable Farming System
JPT	JICA Project team
KVK(s)	Krishi Vigyan Kendra(s)
LAD	Department of Local Administration
LCS	Land Customs Stations
LRSWCD	Land Resources, Soil and Water Conservation Department
MAIDA	Mizoram Agriculture and Irrigation Development Agency

MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MIP	Minor Irrigation Project
MIRSAC	Mizoram Remote Sensing Application Centre
MIS	Management Information System
MiSALT	Mizoram Sloping Agriculture Land Technology
MoU	Memorandum of Understanding
MOWR	Ministry of Water Resources
NABARD	National Bank for Agriculture and Rural Development
NGO(s)	Non Governmental Organisation(s)
NLUP	New Land Use Policy
ODA	Official Development Assistance
OJT	On-The-job Training
PDS	Public Distribution System
PDM	Project Design Matrix
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMT	Project Management Team
PPID	Planning and Programming Implementation Department
PRA	Participatory Rural Appraisal
PWD	Public Works Department
R/D	Record of Discussions
RD	Rural Development
RDB	Rural Development Block
RIDF	Rural Infrastructure Development Fund
SDO	Sub Divisional Officer
SE	Superintendent Engineer
SLCC	State Level Coordination Committee
SNS	Social Networking Services
VC(s)	Village Council(s)
VCP	Village Council President
WRC	Wet Rice Cultivation
WUA	Water Users' Association
YMA	Young Mizo Association

Measurement Units

Area

cm ²	= Square-centimetre(s)
m ²	= Square-metre(s)
km ²	= Square-kilometre(s) (1,000,000 m ²)
ha	= Hectare(s) (10,000 m ²)
acre	= Acre(s) (4,046.8 m ² or 0.40468 ha.)

Length

mm	= Millimetre(s)
cm	= Centimetre(s)
m	= Metre(s)
km	= Kilometre(s) (1,000 m)

Currency

US\$	= United State Dollars
US\$1.0	= Yen 130.121
INR 1.0	= Yen 1.59585
	(as of February 2023)
Yen	= Japanese Yen
INR	= Indian Rupee

Volume

cm ³	= Cubic-centimetre(s)
m ³	= Cubic-metre(s)
L	= Litre(s) (1,000 cm ³)
MCM	= Million Cubic Metre (s)

Weight

g	= Gram(s)
kg	= Kilogram(s) (1,000 gr.)
tonne	= Metric Tonne(s) (1,000 kg)
t	= Metric Tonne(s) (in Table)

Time

sec	= Second(s)
min	= Minute(s) (60 sec.)
hr	= Hour(s) (60 min.)

Chapter 1 INTRODUCTION

1.1 General

This is the completion report prepared in accordance with the Record of Discussion (R/D) on “The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram in the Republic of India” made between the Japan International Cooperation Agency (JICA) and the Government of Mizoram (GOM), Republic of India.

1.2 Background

In Mizoram, 60% of the population is engaged in agriculture even though the cultivable land is extremely limited as 70% of the land is located in the hilly area with more than 35° slope. As in many hilly areas in the region, a large farming population has traditionally been engaged in shifting cultivation (jhum); however, the rapid increase in population has led to the shortening of the fallow period, which in turn prevents the jhum land to regain its productivity. The practice also causes deforestation of the area.

The state government has been implementing the New Land Use Policy (NLUP) since 2009 to shift the farmer from jhum to settled agriculture to achieve high productivity and sustainability of the agriculture sector. However, the sector is still unstable without proper land and water resource development and technology enhancement for settled agriculture supported by strong institution.

An average annual rainfall of 2,600 mm in the state is much higher than in other states of the country. Efficient utilisation of water resources thus should lead to agricultural productivity. However, as discussed above, because of the hilly geographical conditions of the state, irrigation rate is recorded as low as 10%, which is the lowest in the country. In addition, the existing irrigation schemes are not in full-scale use and proper agricultural technologies are not introduced.

Given this background, GOM officially requested JICA for “the Study on Development and Management of Land and Water Resources for Sustainable Agriculture in Mizoram” and the study was implemented from September 2013 to May 2015. As for the results of the study, a master plan for land and water resource development and management for sustainable agriculture was formulated and Detailed Project Report (DPR) preparation procedure for minor irrigation scheme was improved. Furthermore, the master plan was endorsed by the Chief Minister as the road map of GOM for future agriculture and irrigation development in Mizoram.

Although the master plan of the state was successfully compiled and initiated on some parts, it is observed that organisational capacity of the state to implement the master plan is still low. Therefore, Irrigation and Water Resources Department (IWRS) submitted another official request for technical cooperation project to enhance the capacity of the state government officials in order to plan and implement sustainable agriculture and irrigation development according to the master plan.

1.3 Objectives and Overall Goals

This project aims to enhance the organisational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development.

1.4 Outline of the Project

The outline of the project is summarised in Table 1.4.1.

Table 1.4.1 Outline of the Project

Category	Issues
Project period	From July 2017 to July 2022 (60 months)
Overall goal	Sustainable agriculture and irrigation development will be expanded in Mizoram
Project purpose	Organisational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.
Outputs	(1) Output 1: Methods for sustainable agriculture and irrigation development are developed. (2) Output 2: Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced. (3) Output 3: Collaborative implementation framework amongst the state government departments, in the field of sustainable agriculture and irrigation development, is established.
Project sites	The target area of the project is the state of Mizoram, while the pilot sites are the following Rural Development (RD) blocks as agreed in the R/D - Bilkhawthlir RD Block (Kolasib District) - Aibawk RD Block (Aizawl District) - Serchhip RD Block (Serchhip District) - Champhai RD Block (Champhai District) Note : Serchhip RD Block was discontinued based on the recommendation made by JICA monitoring mission Feb. 2019.
Project beneficiaries	(1) Direct (Primary) Beneficiaries: The state government officials from the eight relevant authorities such as Irrigation and Water Resources Department (IWRD), Department of Agriculture (DOA), Department of Horticulture (DOH), and Land Resources, Soil and Water Conservation Department (LRSWCD), are particularly appointed as the counterpart of the project. (2) Indirect (Secondary) Beneficiaries: Farmers at the pilot RD blocks and other relevant organisations.

Source: JPT

The methods for sustainable agriculture and irrigation development mentioned as Output 1 comprise: 1) implementing guideline, 2) officers' manuals, and 3) training materials for farmers, which shall be refined through pilot activities in the project. The contents of the mentioned methods are as follows:

- 1) Implementation guideline: general guideline for relevant officers on project management in planning, implementation, monitoring, and evaluation through close coordination with farmers.
- 2) Officers' manual: procedure and technical guidance on individual theme such as agriculture extension service and construction management.
- 3) Training materials: simple training material for trainings of farmers to demonstrate technical skills.

The above methods shall be developed and finalised through demonstration and verification of the activities in the pilot sites based on the preliminary design prepared by the project. In parallel, the outline and target of the capacity development program for the counterpart officials on planning and implementation shall be prepared. Training, seminars, and on-the-job training (OJT) shall be conducted in the pilot sites as capacity development programmes. Coordination framework amongst the relevant departments shall be proposed based on the findings achieved through the project period. Finally, an action plan of the activities shall be prepared corresponding to the results derived from the pilot activities, which will be applied to the whole states.

1.5 Implementation Structure

The Irrigation and Water Resources Department (IWRD), Department of Agriculture (DOA), Department of Horticulture (DOH), Land Resources, Soil and Water Conservation Department (LRSWCD) will be responsible for the implementation of the project. The counterpart team that takes charge of execution of the activities shall consists mainly of the appointed officers from those four departments. A project management team and Block Agriculture and Irrigation Development Committee (BAIDC) will be established within the counterpart team. The JICA Project Team (JPT) will support

smooth implementation of the project by the project management team (PMT) with necessary technical advice and close communication through periodical meeting and discussion.

A Joint Coordination Committee (JCC) will be established in order to monitor and endorse the work plan and progress of the project activities, to facilitate inter-organisational coordination, and to adopt/legislate the outputs of the project to the state's system.

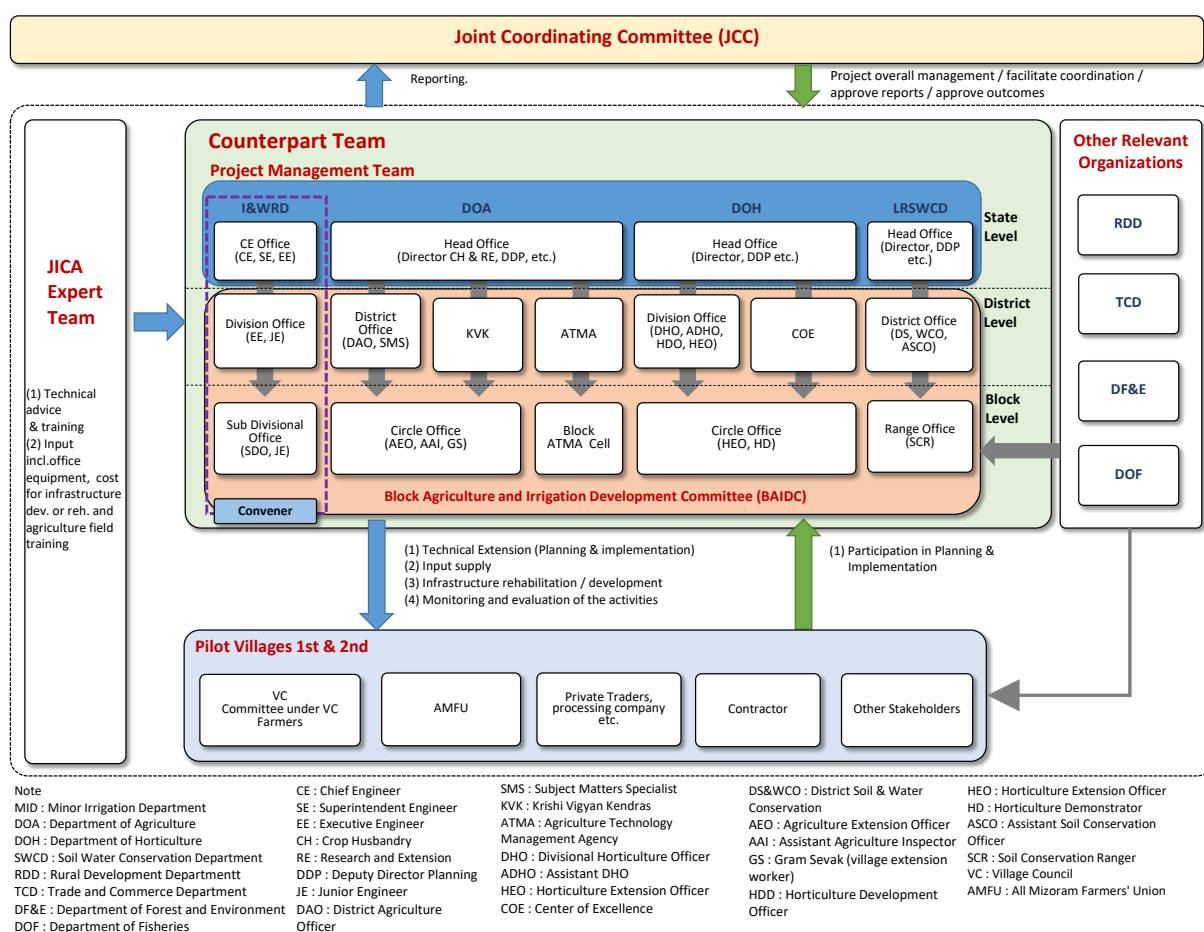
Table 1.5.1 Implementation Structure of the Project

Organisation	Members	Roles
JCC	(Indian Side) <ul style="list-style-type: none"> • Chief Secretary (Chairperson) • Secretary, IWRD (Member secretary) • Secretaries of DOA, DOH and LRSWCD • Secretary of Planning and Programme Implementation Department • Financial Commissioner • Representatives of the Ministry of Water Resources, River Development and Ganga Rejuvenation / Central Water Commission (CWC) (Observer) • (Japanese Side) • JICA Representative • Chief Advisor, JICA Expert Team • Representative of Japanese embassy (Observer) 	<ul style="list-style-type: none"> • Endorsement of project plan • Providing advice on the project activities • Coordination between relevant organisations • Approval on the project progress and intermediary outputs • Approval on the final outputs and application of the project results
PMT	<ul style="list-style-type: none"> • Chief Engineer, IWRD • Directors of DOA (Crop Husbandry and Research & Extension), DOH and LRSWCD • Superintending Engineer of IWRD • Other nominated officers in each department in State level 	<ul style="list-style-type: none"> • Preparation of the preliminary methods and its refining and finalisation. • Set the selection criteria and procedure of pilot sites and approval of the selection • Decision making on first and second pilot activities and management, monitoring, and evaluation of the pilot activities. • Budgeting and budget allocation of the second pilot activities. • Preparation of coordination outline between agriculture and irrigation related organisations. • Preparation of implementation plan of adaptation and expansion of the project outputs to the whole state
BAIDC	District and block level officers in IWRD, DOA, DOH, LRSWCD, Krishi Vigyan Kendras (KVK) and Agriculture Technology Management Agency (ATMA)	<ul style="list-style-type: none"> • Implementation and monitoring of the pilot activities based on the proposed methods (including i) land use plan, ii) resource management plan, iii) village farming and irrigation plan, iv) design and construction of small-scale irrigation facilities, v) technical advice on operation and maintenance (O&M) of the facilities, vi) dissemination skills on farm management and marketing, etc.) and selection of pilot sites
Other relevant organisations to be involved	<ul style="list-style-type: none"> • Rural Development Department • Trade and Commerce Department • Department of Forestry and Environment • Department of Fisheries 	<ul style="list-style-type: none"> • Necessary support, cooperation, and coordination in the implementation of the pilot activities

Organisation	Members	Roles
JPT	<ul style="list-style-type: none"> Chief Advisor/Development planning Irrigation and O&M and Farmers' Organisation Food Crop Cultivation Technologies Cash Crop Cultivation Technologies Farm Management and Marketing Land Use and Resources Management Environmental and Social Considerations Project Coordinator/Training 	<ul style="list-style-type: none"> Necessary technical advice and support to the project management team Necessary advice and support on project management Development of strategy of technical transfer and preparation of plan of operation Implementation of general trainings, inter-state training, and training in Japan Conducting baseline survey and end-line survey

Source: JPT

The project implementation structure is summarised in Figure 1.5.1.



Source: Record of Discussion with minor modification by the JPT

Figure 1.5.1 Project Implementation Structure

1.6 Summary of Project Activities

The following Table 1.6.1 shows the outline of the project activities.

Table 1.6.1 Outline of the Project

Activities	Organisation in-charge	Support Organisation
Activities for Output 1 <Formulation of Draft Methods in the First Pilot Villages>		
• Conduct baseline survey (satellite image, GIS data, land use, farming situation, and socioeconomic conditions) in order to understand the current situation of pilot RD blocks.	PMT/JPT	-
• Collect and analyse existing guidelines, manuals, and training materials in specific subjects and draft the methods.	PMT	JPT
• Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation, and monitoring at each pilot RD block.	PMT	JPT
• Select one pilot village in each pilot RD block.	PMT/JICA	BAIDC
• Conduct participatory rural appraisal (PRA) and elaborate land use plan, resource management plan, village farming plan, and village irrigation plan in each pilot village.	BAIDC/PMT	JPT
• Prepare an implementation plan for each department and implement prioritised activities based on the above plans in each pilot village utilising the project fund and resources.	BAIDC /contractor /farmers	PMT/JPT
• Conduct Initial Environmental Examination (IEE) and prepare Environment Management Plan (EMP).	PMT	JPT
• Monitor and evaluate the progress and results of the activities by BAIDC.	PMT	JPT
• Revise the methods for agriculture and irrigation development according to the results of activities.	PMT	JPT
• Conduct follow-up activities	BAIDC/PMT	JPT
Activities for Output 1 <Verification and Refinement of the Methods in the Second Pilot Villages>		
• Select two or three pilot villages in each pilot RD block.	PMT	JPT
• Conduct PRA and elaborate land use plan, resource management plan, village farming plan, and village irrigation plan in each pilot village.	BAIDC	PMT/JPT
• Prepare an implementation plan for each department and implement prioritised activities based on the above plans in each pilot village utilising the government fund and resources.	BAIDC /contractor /farmers	PMT/JPT
• Conduct Initial Environmental Examination (IEE) and prepare Environment Management Plan (EMP).	PMT	JPT
• Monitor and evaluate the progress and results of the activities by BAIDC.	PMT	JPT
• Finalise the methods.	PMT	JPT
• Conduct end-line survey	PMT/JPT	-
Activities for Output 2 <Capacity Enhancement of the State Government Officials>		
• Assess the technical level of the counterpart (C/P) personnel and setting goals of capacity development	PMT	JPT
• Conduct study visit to learn domestic and foreign advanced practices.	JPT	-
• Conduct basic trainings to the state government field staff	JPT	-
• Conduct on-the-job training (OJT) through activities in the pilot villages.	JPT	-
• Verify the achievement of the goals set by C/P personnel.	PMT	JPT
• Organise seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the project.	JPT	-

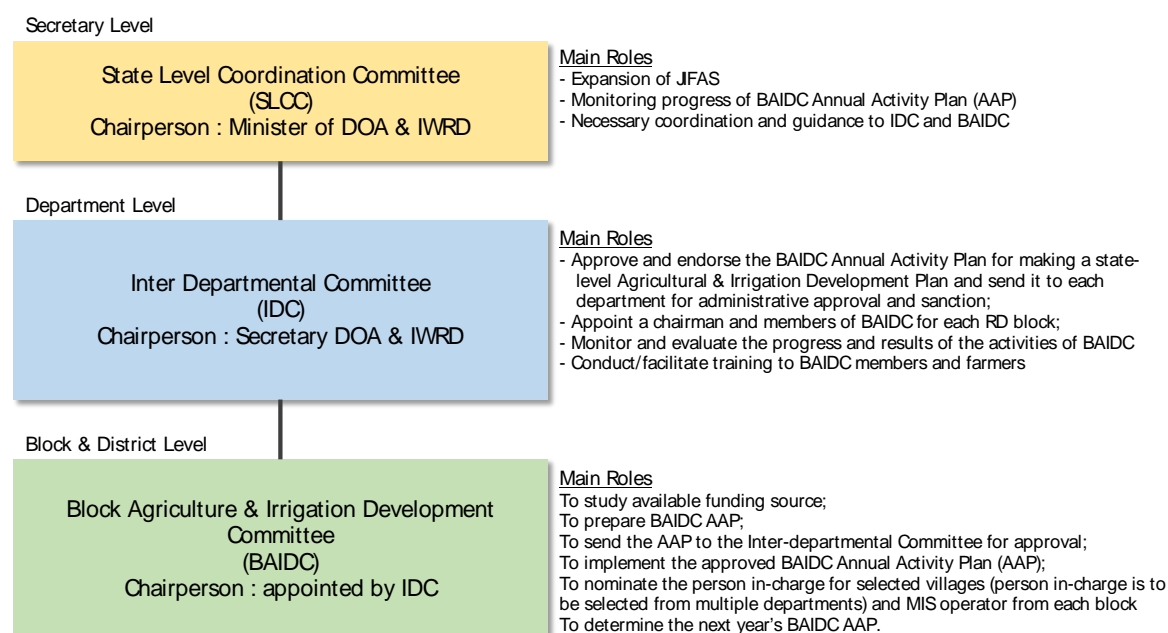
Activities	Organisation in-charge	Support Organisation
Activities for Output 3 <Establishment of Collaborative Implementation Framework amongst the State Government Departments>		
<ul style="list-style-type: none"> Prepare a collaborative implementation framework (institutional and organisational structure, budget allocation, decision-making process, etc.) amongst state departments related to agriculture and irrigation development in Mizoram based on activities 1 and 2. 	PMT	JPT
<ul style="list-style-type: none"> Elaborate an action plan to expand project outputs to all RD blocks in Mizoram. 	PMT	JPT
Other Project Management Activities		
<ul style="list-style-type: none"> Prepare work plan 	PMT/JPT	-
<ul style="list-style-type: none"> Prepare project progress reports and monitoring sheets 	JPT	-
<ul style="list-style-type: none"> Public relations activities 	PMT/JPT	-

Note: PMT (Project Management Team), JPT (JICA Project Team)

Source: JPT

1.7 Discussion on Collaborative Implementation Framework amongst the State Government Departments

During the project implementation period, it was discussed and decided to establish the collaborative implementation framework shown in the figure below as Output 3, “Establishment of Collaborative Implementation Framework amongst the State Government Departments”. The government of Mizoram called this framework the “JICA Sustaibale Farming System (hereinafter referred to as JIFAS)” and decided to officialize it in the state.



Source: JPT

Figure 1.7.1 Collaborative Implementation Framework

In the project, BAIDC was set up on a pilot basis in Bilkhawthlir RD block (Kolasib District), Aibawk RD block (Aizawl District), Serchhip RD block (Serchhip District), and Champhai RD block (Chanpai District). The effectiveness and feasibility of JIFAS was verified through the implementation of the pilot activities.

Chapter 2 PROJECT ACTIVITIES

2.1 General

This chapter describes the records of the project activities that were undertaken from July 2017 and continued to March 2023. The activities are summarized as the following and progress management activities shown in the Project Design Matrix Version 3.0 (revised on 18th February, 2019).

- Activities related to Output 1 : Development of planning and implementation method (draft) for sustainable irrigation and agricultural development by the state government in the first pilot villages
: Validation and refinement of the method in the second pilot villages
- Activities related to Output 2 : Capacity building of state government officials
- Activities related to Output 3 : Establishment of collaborative implementation framework among the state government departments
- Activities related to progress management

2.2 Conduct Pre-Baseline Survey

In consultation with the project management team (PMT), the Japan International Cooperation Agency (JICA) Project Team (JPT) nominated the Department of Economics under the Mizoram University as a sub-contractor of the pre-baseline survey for the selection of the first pilot villages. The outline of the pre-baseline and baseline surveys is as follows:

2.2.1 General

The survey attempted to grasp the general socioeconomic conditions of the four selected RD blocks. It covered the population, number of households, gender, age composition, work force, present agriculture status, land use, types of crops, area for cultivation, production and yield of each product, sale price, destination of produce, infrastructure, irrigation facilities, roads, and institutional setting. The pre-baseline survey was a village survey and all collected data pertain to the concerned villages, rather than information of an individual household. As such, the key informants of the field data collection were the village councils (VCs), leaders of non-governmental organizations (NGOs), and other stakeholders of the villages.

2.2.2 Target Villages

This study covered all the notified villages of the Department of Local Administration (LAD), Government of Mizoram in each of the four selected RD blocks. The list of villages covered is presented in Table 2.2.1.

Table 2.2.1 List of Villages Covered in the Pre-baseline Survey

Aibawk RD Block				Champhai RD Block			
<i>SN</i>	<i>Villages</i>	<i>SN</i>	<i>Villages</i>	<i>SN</i>	<i>Villages</i>	<i>SN</i>	<i>Villages</i>
1	Aibawk	15	Samlukhai	1	Hnahlan	15	Champhai Venglai
2	Chamring	16	Sateek	2	Khuangphah	16	New Champhai
3	Chawilung	17	Sialsuk	3	Lungphunlian	17	Champhai Bethel
4	Falkawn	18	Sumsuih	4	Murlen	18	Champhai Electric
5	Hmuifang	19	Tachhip	5	N. Khawbung	19	Champhai Vengthar
6	Hualngohmun	20	Thiak	6	NE Diltlang	20	Champhai Zion Veng Champhai Vengthlang
7	Kelsih			7	Ngur	21	N
8	Lamechhip			8	Tualcheng	22	Champhai Dinthar
9	Lungsei Melriat			9	Vaikhawtlang	23	Zotlang
10	(Thingdawl)			10	Vapar	24	Chhungte

11	Muallungthu			11	Champhai Vengsang	25	Hmunhmeltha
12	Phulpui			12	Champhai Kahrawt	26	Zote
13	S. Maubuang			13	Champhai Vengthlang	27	Tlangsam
14	Sailam			14	Champhai Kanan Veng	28	Ruantlang
Bilkhawthlir RD Block				Serchhip RD Block			
1	Bilkhawthlir N	18	Kolasib Electric Veng	1	Buangpui	18	Serchhip I
2	Bilkhawthlir S	19	Kolasib Hmarveng	2	Chhingchhip	19	Serchhip II
3	Buhchangphai	20	Kolasib College Veng	3	E. Bungtlang	20	Serchhip III
4	Bukvannei	21	New Diakkawn	4	E. Thinglian	21	Serchhip IV
5	Meidum	22	Kolasib Project Veng	5	Hmuntha	22	Serchhip V
6	N. Chawnpui	23	Kolasib Tumpui	6	Hmunzawl	23	Serchhip VI
7	N. Chhimluang	24	Kolasib Venglai	7	Hriangtlang	24	Serchhip VII
8	N. Thinglian	25	Kolasib Vengthar Kolasib	8	Keitum	25	Serchhip VIII
9	New Builum	26	Khuangpuilam	9	Khawbel	26	New Serchhip N
10	Pangbalkawn	27	Kolasib Saidan	10	Lungpho	27	New Serchhip S
11	Phainuam	28	Rengtekawn	11	Neihloh	28	Chhiahtlang
12	Phaisen	29	Kolasib Gosen Veng	12	Ngentiang	29	Thenzawl E
13	Saihapi K	30	Vairengte I	13	Rullam	30	Thenzawl Kanan
14	Saihapi V	31	Vairengte II	14	Sialhau	31	Thenzawl Vengthar
15	Saiphai	32	Vairengte III	15	Thentlang	32	Thenzawl W
16	Saipum Kolasib	33	Vairengte IV	16	Vanchengpui		
17	Diakkawn	34	Bairabi N and S	17	Vanchengte		

Source: JPT

2.2.3 Methodology

This survey adopted the focus group discussion (FGD) as the main tool for village data collection. All 114 villages in the selected RD blocks were visited by the investigators; and FGD was conducted in each village with the help of the VC. The required data pertaining to the villages were assessed in the FGD using a structured questionnaire schedule. The participants in the exercise were the VC as the chairman, major NGOs, and persons who are sources of information regarding the village; these individuals were invited by the concerned VCs. Development and infrastructure priorities of the villages were identified in the FGD using pair-wise wealth ranking exercise. As far as possible, it was attempted to conduct the FGD at night, when people are free.

In addition to the field data collected through the village survey using FGD, required village data were also obtained from the village census conducted by the Local Administration Department, Government of Mizoram in 2012, the BPL Census by the Planning and Programme Implementation Department, Government of Mizoram, 2016, and other information obtained from the official website of LAD. The field survey started on 15 August 2017 and was completed on 23 September 2017.

Data collected from the field survey were tabulated and analyzed using simple frequency tables and other descriptive statistics. Since the main purpose of the pre-baseline survey is to facilitate the selection of pilot villages, the list of villages along with the various indicators is presented in different tables for all the RD blocks. Based on this information, an attempt was also made to create zones of villages using principal component analysis and K-means cluster (kclust) analysis. The villages belonging to different clusters (zones) are also presented in a tabular form.

2.3 Preparation of the First Draft of the Methods

2.3.1 Implementation Guideline

The working group was formed with the four respective departments. They prepared the first draft of the implementation guideline for government officers in the implementation of sustainable agriculture and irrigation development in Mizoram. The guideline focuses on the preparation of an effective activity plan of government officers based on the farmers' and market needs, available resources of the state, joint monitoring and evaluation of activities of officers and farmers, collaboration of government departments, and effective utilization of central sponsored scheme.

The first draft guideline proposes to implement the irrigation and agriculture development on a village basis by block level officers forming the Block Agriculture and Irrigation Development Committee (BAIDC).

The guideline mainly indicates the responsibility and the necessary step-by-step activity of the BAIDC (as shown in the next figure) to achieve sustainable agriculture and irrigation development in the state. The procedure starts with the collection of necessary village data and map to understand the village in STEP 1 and advises to have a workshop with villagers to decide the village land use and resources management regulation in STEP 2. Based on those regulations, village-based agriculture production and marketing plan is prepared in STEP 3. After conducting the supplemental survey in STEP 4, the BAIDC annual activity plan, which will be the basis of the annual activities of the four relevant departments, is prepared in STEP 5. The BAIDC annual activity plan indicates the development direction of the respective village, the quantitative target, list of activities, and necessary budget and expected financial sources (name of CSS). After the ratification of the BAIDC annual activity plan by higher authority in the state government and village members in STEPS 6 and 7, the BAIDC annual activity plan is implemented in STEP 9 with the relevant departments using the officers' manual, which was also prepared with the initiatives of the four departments. In case of infrastructure development activity, the detailed project report (DPR) is prepared in STEP 8 before implementation in STEP 9 with the "DPR preparation guideline for minor irrigation scheme". Any activity carried out in the field according to the BAIDC annual activity plan is monitored by both the BAIDC and village members and gives necessary feedback to the next renewed BAIDC annual activity plan in STEP 10. The basic village-level data and map, land use and resources management plan, and agriculture production and marketing plan will be renewed every five years.

2.3.2 Officers' Manual for Improving Agriculture Extension

(1) Background and Objectives of the Manual

"Right production at the right place" and "Do not try to sell what you have produced right away, produce what you can sell at the right time" are the keys to successful farming. The purpose of the officers' manual is to provide information on the procedure for the improvement of farm management that guarantees enhancement of productivity and profitability for sustainable agriculture.

In order to ensure a sustainable livelihood, farmers need to improve their skills to increase crop productivity, as well as to improve profitability, market-oriented farming, and efficiency of farm operation. In addition, extension practices focusing not only on general farming but also techniques closely reflecting the conditions of a specific area are required for further development. The main objectives of this manual "Farm Management Manual for Sustainable Agriculture" are to provide the way for:

- Establishment of appropriate farming techniques for more production;
- Implementation of market analysis for stable and profitable farming; and
- Dissemination of technologies through planning, classroom, and on-farm training.

In addition, the manual has the role in providing technical methodologies and practical ways to the implementation guideline, especially on how to prepare the agricultural production and market plan.

(2) Setting up of Working Group and Progress of the Draft Manual Preparation

In order to prepare the manual, a working group on the crop production was established under the PMT. The working group consists of three officers appointed by the DOA, DOH, and LRSWCD. The basic information on crop production, farm management, and extension system were shared, the basic concept and direction of the manual were discussed, and the draft manual and materials were examined by the working group members and Japanese experts.

(3) Structure of the Draft Manual

The draft manual is composed of ten chapters. It can be utilized one-by-one from Chapter 1, or picked up one chapter based on the particular conditions of the target area. Table 2.3.1 describes the outline of each chapter.

Table 2.3.1 Outline of Each Chapter on Officers' Manual for Improving Agriculture Extension

Chapter	Title	Outline
I	Collecting Basic Information	This chapter aims at gathering information and data, which will help the farmers (men and women) to effectively choose the appropriate products. Its exercises include testing of new products, involvement of women, and assessing the risks involved in their farming activities.
II	Market Analysis	This chapter helps the farmers to better understand the structural systems of the markets. This includes learning the flow of products, the service providers involved, and knowing the actual and potential markets for their products. A better understanding of the marketing system will help them choose their products and which markets to sell to.
III	Information Gathering for Production	In this chapter, data and information will be analyzed to help the farmers in their production activities. It involves helping and guiding the farmers in terms of production methods and techniques. It also helps them to know the business services available to them.
IV	Financial Analysis	This chapter aims at helping the farmers to efficiently invest their resources and income for their enterprises. It includes the formation of self-help groups among themselves for financial support and exercises that will help them calculate the costs of products and estimating their income and the profit they earned from their activities.
V	Choosing an Agro-enterprise	After knowing the basis of management of their farms and the risk involved, this chapter will guide the farmers to choose the products effectively for production. Choosing the right product involves knowing the resources, land, and markets that are available to them.
VI	Planning	This chapter highlights the importance of a proper plan for their enterprises. A proper business plan will help them know and understand the various problems they would encounter and help them in solving and mitigating their problems in production. It will also help them in setting up production targets and ways to implement the plans for their production.
VII	Implementation	After the business plans have been prepared, this chapter will enable the farmers to develop an implementation plan for their products. The development of a trial or demonstration plot is crucial in this chapter to compare the counter-activities with that of the conventional one. Field visits should be done to exchange ideas between the farmers and experts.
VIII	Recording	Maintaining a record of various activities of the enterprises is an important management tool. In this chapter, the farmers are acknowledged in the importance of recording their production costs to check the estimates made and ensure that the people involved have done their duties.
IX	Sales	This chapter explains the advantages and benefit of collective marketing where the farmers form a group and sell their product in batches known as bulk selling. This will ensure a better experience for both farmers and traders in terms of quantity, quality, reliability, supply, and higher prices of their products.
X	Monitoring and Evaluation	In this chapter, all activities done should be properly monitored to ensure success and to evaluate the results to make room for improvement. The assessment of the performance of both products and farmers should be done constructively to facilitate room for positive change. After reviewing the previous season, planning for the next season based on their experience should be carried out well before the start of the next season.

Source: JPT

(4) Target Users of the Manual and Preparation of Training Materials

The main users of the manual are BAIDC officials who support the farmers at the village level. Officials at the state level are also required to learn the manual in order to disseminate the methods in the entire state.

2.3.3 Officers' Manual for Construction Management

In order to improve the quality of the construction works on the irrigation and drainage facilities, the manual or guideline for government officers especially in IWRD for the selection of good and capable contractors and proper management of construction works were drafted. The contents and summary of each chapter of the manual are shown in Table 2.3.2.

Table 2.3.2 Contents of Officers' Manual for Construction Management

Chapter	Title	Outline
I	General	This chapter describes the background, objective, scope, and user of the manual as a starting section of the manual.
II	Preparation of the Construction Plan by the Contractor	This chapter describes the preparation of the construction plan to be submitted by the contractor. The contents with format of the plan are shown in this chapter.
III	Conduct Awareness Meeting with Stakeholders	This chapter describes the necessary action before starting the construction works such as introduction of the contractor to the villagers, awareness on the IWRD construction management plan and safety management of the contractor.
IV	Progress Monitoring of the Work	This chapter describes the progress monitoring of the construction works. The chapter specifies the daily monitoring and submission of the weekly monitoring sheet by the contractor, field inspection by IWRD staff and conduct of monthly progress meeting with the stakeholders.
V	Quality Control of the Works	This chapter describes the quality control of the construction works to be carried out for irrigation and drainage project. The works are focusing on dam embankment, concrete work (fresh and hardened), and approach road.
VI	Final Inspection for Handing Over the Facilities	This chapter describes the way of conducting a joint final inspection with stakeholders, regarding defect and liability period, issue of completion certificate and evaluation of contractors' performance.

Source: JPT

2.3.4 Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

To firmly establish the Water Users' Association (WUA) for the proper operation and maintenance of the irrigation and drainage facilities, the "Officers' Manual and Training Material for Strengthening of Water Users' Association for the Operation and Maintenance of Irrigation and Drainage Facilities" was drafted by the PMT and JPT. The manual is composed of six chapters describing the general description, provision of training on organizational management of WUA, technical aspects of water management, and repair of the irrigation and drainage facilities. The contents and summary of each chapter of the manual are shown in Table 2.3.3 below.

Table 2.3.3 Contents of Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

Chapter	Title	Outline
I	General	This chapter describes the background, objective, scope, and expected user of this manual as a starting section of the manual.
II	Establishment of WUA	This chapter contains the way to conduct an awareness meeting with a WUA member and how to facilitate discussion to decide the rules and regulations of the WUA and preparation of documents for registration in the IWRD.
III	Conduct Organizational Capacity Development Training to WUA	This chapter describes how to conduct organizational management training, financial management training, and leadership training to the WUA for their capacity development.
IV	Preparation of Water Management Plan and Conduct Necessary Training	This chapter describes how to prepare the water management plan with the WUA in conducting the training on understanding the characteristics of water, equitable distribution of irrigation water, and preparation of water management plan.
V	Preparation of Maintenance Plan and Conduct Necessary Training	This chapter describes how to prepare the inventory list of facilities and maintenance plan of the facilities by the WUA including training the WUA on minor concrete and earthworks.
VI	Follow-up Activities	This chapter describes follow-up activities on the WUA and information update on the WUA.

Source: JPT

2.3.5 Update of DPR Preparation Guideline for Minor Irrigation Project

The DPR Preparation Guideline for Minor Irrigation Project prepared in the Master Plan (MP) in 2015 has

been reviewed and updated during the Phase-1. The Working Group (WG) composed of IWRD, DOA, and LRSWCD was organized for the purpose of upgrading the guideline. The working group discussions were conducted from October to November 2017.

2.4 Establishment of Block Agriculture and Irrigation Development Committee (BAIDC)

A Project Management Team (PMT) was formed along with the counterpart officers identified in the JCC meeting. The PMT is composed of state level counterparts in the Irrigation and Water Resources Department (IWRD), Department of Agriculture (DOA), Department of Horticulture (DOH), and Land Resources Soil and Water Conservation Department (LRSWCD). While Block Agriculture and Irrigation Development Committee (BAIDC) was established in each pilot RD block. The IWRD was a convener of the PMT and BAIDC. The BAIDC offices were established in the compound of the IWRD of each concerned RD block. However, the BAIDC Office in Serchhip was set at the office of the DOH since the IWRD Office in Serchhip is under renovation.

2.5 Selection of First Pilot Villages

2.5.1 Selection Criteria

As for the pilot villages in the first phase, one village from each of the four blocks, namely: Bilkhawthlir RD Block, Kolasib District; Aibawk RD Block, Aizawl District; Serchhip RD Block, Serchhip District; and Champhai RD Block, Champhai District was selected.

For the preparation of the selection method and selection criteria, the following were considered as a result of the discussions among the BAIDC, PMT, and JPT.

- Development potential such as land and water resources,
- High effect on demonstration of outputs,
- High motivation of farmers,
- Existence of an active leader,
- Degree of group activities, and
- No potential land acquisitions.

2.5.2 Selection Criteria by PMT and JPT

The PMT and JPT jointly prepared three kinds of selection criteria and method. The summarized selection method and selection procedures are shown in Table 2.5.1. Each selection method is described below to select the 1st pilot villages.

Table 2.5.1 Selection Method and Procedures

Main Point of Criteria	Method	Final Selection
Agriculture characteristics and development direction	By checking available resources and market opportunities, and referring to pre-baseline data results	Check villages matching the three criteria Discussion and consensus formation
Balanced village in the figure for development work (development potential)	Eliminated imbalanced figure from the results of the pre-baseline survey results, and sort out villages showing totally balanced figure	
Totally suitable village by the officers' idea/experience	Discussed among the BAIDC members	

Source: JPT

2.5.3 Criteria Consisting of Agriculture Characteristics and Development Direction

“The Study on Development and Management of Land and Water Resources for Sustainable Agriculture in Mizoram” was conducted from September 2013 to May 2015. It demarcated the Mizoram State into seven agriculture zones based on the present agriculture characteristics, available resources, and market opportunities. Agriculture characteristics in each block by zoning are given below:

- Bilkhawthlir RD Block

Zone 1: Region for agriculture is advancing with high productivity and marketability, where agricultural industrialization is progressing.

Development Direction: Progressing of production and processing of industrial crop with wet rice cultivation (WRC) development through development and effective management of better water resources.

- Aibawk RD Block and Serchhip RD Block

Zone 2: Transition from *Jhum* to permanent cultivation is progressing. Semi self-sufficient and market-oriented region.

Development Direction: Production of various products needs for the main inhabitants in the state through enhancement and upgrading of permanent agriculture.

- Champhai RD Block

Zone 4: Accessibility is relatively good and plantation crops are cultivated, together with *Jhum* practice.

Development Direction: Production of market-oriented differentiated horticulture and fruits production suitable for high altitude.

Selection criteria of each block were set out considering the development direction of each block as shown below.

- Bilkhawthlir RD Block

i) Occupation of WRC: more than 10%, ii) Permanent cultivation: advanced, and iii) High need for agriculture development

- Aibawk RD Block

i) Occupation of shifting cultivation: more than 60%, ii) Occupation of permanent cultivation: more than 15%, and iii) High need for agriculture development

- Serchhip RD Block

i) Occupation of permanent cultivation: more than 55%, ii) Occupation of shifting cultivation: low, and iii) High need for agriculture development

- Champhai RD Block

i) Occupation of horticulture: more than 10%, ii) High potential for WRC development, and iii) High need for agriculture development

2.5.4 Criteria Based on Analysis of Results of Pre-baseline Survey

Based on the pre-baseline survey, villages who could not fulfil the following points will be screened out considering those villages do not have enough development potential, demonstration effect, and high motivation for development.

- Number of families in the village is less than 100;
- Ratio of BPL families is 40% or more in a village;
- Families who do not have their own house is 50% or more in a village;
- Families who do not have their own land is 40% or more in a village;
- Ratio of non-resident land owner is 50% or more in a village;
- Number of families whose source of income from agriculture (including livestock and fish culture) is 60% or less in a village; and
- Ratio of families whose occupation is in agriculture is 60% or less in a village.

However, if the pre baseline survey could not define the ratio of paddy farmers and paddy area in a village, other data should be utilized for reference. The distance from a village to the main road can also be considered.

2.5.5 Selection by BAIDC Member

Based on the above screening and evaluation of villages, the BAIDC, with their knowledge, selected three prioritized villages after detailed discussions. These villages are to be the models for the second phase of the project activities.

2.5.6 Results of the Selection Based on Each Criteria

Table 2.5.2 shows the results of the selection based on each criterion. The selected first pilot villages were Buhchangphai Village in Bilkhawthlir RD Block, Sailam Village in Aibawk RD Block, Serchhip II Village in Serchhip RD Block, and Champhai Village in Champhai RD Block. Carrying out selection based on criteria (a), (b), and (c) described above, there are overlapping villages for (a), (b), and (c) criteria, respectively. Therefore, a tripartite meeting among PMT, BAIDC, and JPT finally determined the villages to be selected. Although there was an opinion that the administration of Serchhip II village is done by the town council, not the village, Serchhip II village was selected in the meeting for the phase 1 pilot village since it features the Mat River and flat area, which would be the model for vegetable cultivation. Accordingly, the meeting concluded to include Serchhip II village for studying the future progress of the village in comparison with other pilot villages.

Table 2.5.2 Results of Village Selection by the Three Selection Criteria

a	b	c	RD Block/ Village	a	b	c	RD Block/ Village	a	b	c	RD Block/ Village	a	b	c	RD Block/ Village
Result			Bilkhawthlir RDB	Result			Aibawk RDB	Result			Serchhip RDB	Result			Champhai RDB
		✓	Bilkhawthlir N			✓	Hmuifang		✓		Chhingchhip	✓	✓	✓	Hanhlan
		✓	Bilkhawthlir S		✓		Kelsih			✓	E. Bungtlang		✓	✓	Vaikhawtlang
✓	✓	✓	Buhchangphai	✓			Lamchhip	✓			Keitum	✓			Zotland
	✓		Meidum	✓			Lungsei		✓		Rullam		✓	✓	Tlangsam
✓			Phaisen		✓		Melriat (Thingdawl)	✓	✓		Thentlang	✓	✓		Ruantlang
✓			Saihapui V	✓	✓	✓	Sailam	✓	✓	✓	Serchhip II				-
			-		✓	✓	Samlukhai			✓	New Serchhip N				-
			-				-		✓		Chhiahtlang				-

Remarks : XXXX selected villages

Source: JPT

2.5.7 Conduct of Baseline Survey for First Pilot Villages

After the selection of the first pilot villages, a baseline survey was conducted to collect the baseline data. The work was also sub-contracted to the Department of Economics under Mizoram University as the same package of the pre-baseline survey.

This survey covered all the households in the four selected villages – Buhchangphai, Sailam, Serchhip II, and Hnahlan; the required information was collected by canvassing a well-structured questionnaire schedule. The information being sought in the survey are generally agriculture-related, while those indicating the household socioeconomic conditions were also collected.

All households who are normal residents of the village and are bona fide citizens of India were the target units of the survey. It may be noted that there are some households, within and in the vicinity of the villages, who came from other areas (foreign or from other Indian states) and work there as agricultural laborers. Such households were not given official recognition either from the VC or the government. The number of such households was relatively higher in Buhchangphai where families from Bangladesh and Assam reside in the village area, but they did not obtain any official recognition from the village. To ensure uniformity and homogeneity of the results, such households were excluded in the survey. At the same time, some families were not ready to entertain the survey exercise and were reluctant to furnish the required information due to their religious faith and beliefs.

Given all these situations, the number of households in the villages may not be similar with the census record as well as the record of the pre-baseline survey. A total of 1,384 households were covered in the

survey. The village-wise number of households is 573 in Hnahlan, 463 in Serchhip II, 150 in Sailam, and 198 in Buhchangphai.

Investigators visited the households and canvassed the questionnaire schedule. Although it was targeted to interview the household heads, other family members, who supposedly know about the details and economic activities of their families, were interviewed in some cases. The study simply relied on the information furnished by the respondents and no documentary evidence was demanded from them to support the information they provided. Thus, the reliability of the results presented in this report is subject to the recollection of the respondents who hardly keep proper records of their day-to-day economic activities.

The field survey started on 24 October 2017 and was completed on 30 November 2017.

2.6 Needs Assessment and Preparation of Overall Development Plan in the First Pilot Villages

The overall development plan was prepared in each pilot village through a Participatory Rural Appraisal (PRA) workshop of farmers along the draft ‘Implementation Guideline for Sustainable Agriculture and Irrigation Development’ of Step 2 and 3. The JPT supported the BAIDC with technical advice in the preparation of the development plan. In addition, before this workshop, a preliminary workshop was conducted as trial in Sailam village by the BAIDC and JPT. From the result, it was decided to adopt a one-day PRA-type workshop according to the farmers’ capacity and focused on needs assessment rather than completing the development plan by the farmers within the workshop. The workshop was conducted in November and December 2017 as shown in Table 2.6.1. *Jhum* cultivation was not involved for Buhchangphai and Serchhip II villages since *Jhum* cultivation is practiced in very small scale in these two villages.

Table 2.6.1 PRA Workshop Schedule

Pilot Village	Date of WS	Main Target Area
Buhchangphai	2017/12/17	Wet rice cultivation + fish cultivation farmers, arecanut, and broom cultivation farmers
Sailam	2017/12/01	<i>Jhum</i> cultivation farmers, settled agriculture: orange cultivation farmers, wet rice cultivation farmers
Serchhip II	2017/11/16	Wet rice cultivation farmers, vegetable growers (Serchhip agriculture and horticulture development society)
Hnahlan	2017/11/17	<i>Jhum</i> cultivation farmers, settled agriculture (grape, orange etc.), wet rice cultivation farmers

Source: JPT

2.6.1 Needs Assessment in Each Pilot Villages

As mentioned above, the PRA workshop was conducted to obtain basic information in the respective villages, market, crop production, and other agriculture related information. This workshop, observed and evaluated farmers’ capacity, community resources, skills, and opportunities in order to consider the implementation methods and procedure of the Project in each village.

Some of the contents and methods for the PRA workshop were modified according to information in the pre-baseline survey results and farmers’ capacity. The summarized procedure of the PRA workshop is shown in Table 2.6.2.

Table 2.6.2 PRA Workshop Procedure

Main Activity	Detail of Activity	Method
Awareness session	Ask participants, ‘think of the village’s future and agriculture’: and sharing general common issues and future image of the village	By showing PowerPoint: Mizo, India, and Japan of slope farming
	1) Inducing interest about agriculture, land use, and future perspective of the village 2) Showing available land on 3D map or GIS map	By showing 3D/GIS map
	Talk about agricultural land utilization and resources management system for slope land, settled agriculture, and <i>Jhum</i> .	1) Showing A-frame, 2) explain about Vetiver grass, 3) and improvement of slope farming
Knowing agriculture of the	Asking a variety of cultivation crops (categorized as subsistence crops and marketing crops: mentioning about	Preparing a list of crops and land use/location

village	cultivation land such as <i>Jhum</i> and WRC)	
Seeing possibility of grouping by land use	Checking and considering about land utilization form by farmers through the mentioned list above.	
*if it is difficult to group by land,	1) Asking participant about suitable grouping among village people by considering further agriculture extension work by the BAIDC 2) In addition, ask possibilities to nominate young persons as a village mobilizer	*by using mobile phone and other such equipment through young persons, it might be useful for extension work, monitoring work, marketing development etc.
Up to here, it will take 2 – 3 hours. After this session, implement group work as follows:		
WRC Group	1) Rice cultivation: select one suitable or important variety of rice and ask farmers whether they can improve rice cultivation with showed crop calendar and ask for farmers' ideas how they can increase production of rice. 2) Select three suitable or important rice varieties for cultivation. 3) Preparation of relevant plans by using each format and collect necessary information and observe farmers' capacity etc. 4) Irrigation : pick up main issues and fix the date to visit the irrigation site, if necessary	1) Show crop calendar and other extension materials to farmers. Explain about trial cultivation with crop calendar. 2) Use format 1 - 6
<i>Jhum</i> Group	1) Introduce Mizo's <i>Changkham</i> system as environment conservation system to be applied <i>Jhum</i> cultivation, and knowing possibilities to implement the system at <i>Jhum</i> . 2) Review and decision: How to improve Mixed crop and contour cultivation method 3) Review and decision: Resources management 4) Finalize methods of <i>Jhum</i> cultivation in the future 5) Preparation of relevant plans by using each format and collect information and observe farmers' capacity etc.	1) Explanation by photos etc. 2) Showing and using A-frame 3) Format 1 - 6
Settled Farmer Group	1) Ask about prospect of Orange/Broom/Arecanut cultivation 2) Ask about risks of their cultivation and show several countermeasures 3) Ask about method of sales and issues, countermeasure etc. 4) Diversification of income sources during growing period (years to harvest) 5) Preparation of relevant plans in consideration to the economic growing period by using format.	Showing a simple calculation 1) Area and production: Productivity 2) Amount of necessary income during the growing period 3) Economic growing period of orange 4) Format 1-6
Up to here, it will take 2 – 3 hours		
Presentation by each group : 01 hour		
Final session: Set a defined vision/objective sharing by the village		
Follow up activities by BAIDC: Prepare necessary training/seminar for farmers according to the draft plan. Selection of suitable varieties and cultivation methods of rice, vegetables for trial/demonstration. The long term development plan for <i>Jhum</i> cultivation shall be finalized through the discussion with VC members and other representatives of the village. Action plans recommended by the BAIDC should be confirmed and ratified by the farmers.		

Source: JPT

2.6.2 Training for the BAIDC as Facilitator

In order to implement the PRA workshop, the JPT provided training on participatory workshop to the BAIDC members because almost all the members do not have enough knowledge and experience conducting a PRA workshop. Two officers of the IWRD had experience as facilitators for the participatory workshop during the JICA master plan survey in 2014. Other than these two officers, the PMT nominated one officer from each department as trainees for the PRA workshop. The two-day training was conducted by Dr. Lalnilawma of Mizoram University and JICA Expert.

2.6.3 Results of the PRA Workshop and Finalization Procedures for the Overall Development Plan

Almost all village people who participated in each workshop were very active especially the younger generation (around 30's to 40's). Representatives from farmers group/community, NGOs in the respective villages and village councils, male and female participated in these workshops. They were interested in the 3D map and GIS map of their villages by identifying certain places such as *Jhum* area, source of a stream etc.

It showed that farmers have enough skills for map reading. However, presentation of land use and resources management plan is poor, and it seems difficult to prepare a long-term development plan for agriculture. Especially, farmers who make *Jhum* as main sources of income, expressed that they lack the knowledge and skill in farming other than *Jhum*. Thus, it was difficult to prepare the overall development plan and long-term production plan by considering marketing and other important conditions.

2.6.4 Planning Details of the Prioritized Activities and Selection of Pilot Activities

Based on the needs assessment carried out in each pilot village, the priority activities were discussed among the BAIDC members; whereas a total of 20 projects were selected as the BAIDC annual activity for 2018 for the four pilot villages. The implementing procedure, list of the activities, timing number of direct beneficiaries, cost, responsible department, and fund resources were discussed for the 20 projects and the results of the discussion was compiled in the BAIDC annual activity plans as shown in Attachment 13. Twenty plans were basically classified into agriculture in *Jhum*, slope area, and WRC and six infrastructure-related projects were also included in the list of 20 projects. However, the implementation of infrastructure-related projects is still tentative since the total budget in Phase-2 is not finalized. The summary of the 20 projects is shown in Table 2.6.3.

Table 2.6.3 Summary of BAIDC Annual Activity Plan 2018/19

Village	Target Area	IN No.	Name of Project	Direct Farmers Involved (Nos.)	Responsible Dept.
Buhchangphai	Settled Slope	BU-01	Improvement of areca nuts productivity	20	DOA/KVK
		BU-02	Improvement of broom grass productivity	20	LRSWCD
	WRC	BU-03	Improvement of paddy productivity	10	DOA
		BU-04	Introduce proper benefit sharing system between land owner and tenant farmer	26	DOA
		BU-05	Rehabilitation of Thuikhurlui MIP	25	IWRD
Sailam	<i>Jhum</i>	SA-01	Improvement of <i>Jhum</i> cultivation	5	LRSWCD
	Settled Slope	SA-02	Support for transition from <i>Jhum</i> to settled farming	1	DOH
		SA-03	Improvement of orange productivity	64	DOH
		SA-04	Development of Tuirum MIP	10	IWRD
		WRC	SA-05	Improvement of paddy productivity	5
	SA-06		Promotion of Rabi cultivation	5	DOH
	SA-07		Rehabilitation of Laului MIP	25	IWRD
Sechhip II	Upland	SE-01	Upgrade of technical skills in vegetable cultivation to increase productivity	26	DOH
		SE-02	Development of Chawm Lift MIP	12	IWRD
	WRC	SE-03	Rehabilitation of Lumtui MIP	25	IWRD
Hnahlan	<i>Jhum</i>	HN-01	Improvement of <i>Jhum</i> cultivation	5	LRSWCD DOA
	Settled Slope	HN-02	Promotion of vegetable cultivation in grape field	6	DOH
		HN-03	Construction of Dilhnuai MIP	30	IWRD
	WRC	HN-04	Improvement of paddy productivity	6	DOA
		HN-05	Promotion of Rabi cultivation	6	DOH

Source: JPT

The BAIDC annual activity plan was revised in 2019 after implementation of the feedback meeting with farmers as shown in Table 2.6.4 below.

Table 2.6.4 Summary of BAIDC Annual Activity Plan 2019/20

Village	Target Area	IN No.	Name of Project	Department in charge
Buhchangphai	Settled Slope	BU-01	Improvement of areca nuts productivity	DOA/KVK
		BU-02	Improvement of broom grass productivity	LRSWCD
	WRC	BU-03	Improvement of WRC area productivity	DOA IWRD
Sailam	Settled Slope	SA-02	Support for transition from <i>Jhum</i> to settled farming	DOH
		SA-03	Improvement of orange productivity	DOH

	WRC	SA-05	Improvement of WRC area productivity	DOA DOA IWRD
Sechhip II	WRC	SE-03	Rehabilitation of Lumtui MIP	IWRD
Hnahlan	Jhum	HN-01	Improvement of Jhum cultivation	LRSWCD DOA
	Settled Slope	HN-02	Promotion of vegetable cultivation in grape field	DOH IWRD
	WRC	HN-04	Improvement of WRC area productivity	DOA DOH

Source: JPT

2.7 Implementation and Monitoring of the BAIDC Annual Activity Plan in the 1st Pilot Villages

The 1st pilot activities under the 1st period of the project started in 2018, and the activities had been continued by the fund of the state government and the central government. The follow up activities had started in April 2020 and continued until March 2022. Meanwhile, Japanese experts were not able to mobilize until March 2022. Similarly, the JPT local staff and BAIDC members were also not able to go to the field frequently. Progress meetings were held online and JPT local staff supported the BAIDC activities in the fields under the guidance of the JPT. The activities and monitoring results of each village in the 1st pilot projects by the BAIDC from April 2018 to March 2022 were collected in Attachment-08 as 'Data Sheet for Pilot Activities'.

For the 1st pilot activities, the BAIDC members and PMT had discussions on priority activities along with the outcome of the needs assessment carried out in each village. As the results, 20 projects in four pilot villages of the four RD blocks had been sorted out as BAIDC annual action plan (BAAP), and implemented. The 20 activity plans were basically classified into Jhum, sloping fields, and wet rice cultivation (WRC), including infrastructure plans such as irrigation related construction works. Since agriculture extension under the JIFAS for the agriculture related officers and farmers in Mizoram was the first time ever, the project side provided assistance to the BAIDC and PMT in a phased manner in the 1st year. Further, it was initially proposed that though the 1st pilot activities were to be implemented under the JICA fund, each department poured state government and CSS funds to them. Accordingly, the follow up activities started from April 2021 had been implemented by nearly 100% of the funds of the state government and CSS of the central government. Table 2.7.1 shows the amount of funds and the ratios provided by the four departments and JICA for the period of 2 years (2020/21 – 2021/22) to implement the pilot activities.

Table 2.7.1 Status of Funds Disbursed by the Four Departments and JICA

Three villages for the 1 st Pilot Activities (Buhchangphai, Sailam & Hnahlan village)	Unit	DOA	DOH	LRSWCD	IWRD	JICA	Total
218/19 1 st Pilot – 1 st year	(INR)	42,00	83,500	42,000	-	1,263,900	1,431,400
	(%)	3	6	3	-	88	100
2019/20 1 st Pilot – 2 nd year	(INR)	161,00	98,900	36,000	46,750	1,107,800	1,450,450
	(%)	11	7	2	3	76	100
2020/21 Follow-up Activities	(INR)	320,100	52,000	33,000	78,200	50,000	533,300
	(%)	60	10	6	15	9	100
2021/22 Follow-up Activities	(INR)	242,000	514,690	44,500	65,600	-	866,790
	(%)	28	59	5	8	-	100

Source: JPT

The costs of activities and irrigation rehabilitation works in Serchhip village, which were only carried out in 2019/20 (one year), are not included in this table. During the two years of follow-up activities, the DOA and the DOH spent between 70% and 80% of the total costs of the four departments.

On the other hand, in 2020/21 during the follow-up period, JICA bore INR 50,000 (9%), and it was spent for procuring seeds used for the selection test of an appropriate second crop in paddy fields, as it was not possible to procure the seeds using the state government or CSS funds. The JPT considered that a second crop in the paddy fields was very important as a measure for income generation activities of farmers who had no experience of second crop cultivation. Taking such case into consideration, it is very

much important that the methodology utilize the government fund efficiently and effectively. It had to be studied for future measures to proceed with highly sustainable agriculture development.

2.7.1 Activities in Buhchangphai Village

Buhchangphai village is located in Kolasib District and as there are many flat areas and paddy fields, the village is one of major paddy production areas in the Mizoram. The Kolasib district lays side-by-side with Mamit and Aizawl districts and the northern part is a border with the Assam state. A part of Buhchangphai is located at the border with the Assam, and most of the tenants and agriculture labors come from Assam and Tripura state. They live in the village and engage in agriculture activities. Many Mizoram residents are immigrant settlers from other areas in the state and the 2nd and 3rd generations were engaging in agriculture. However, in recent years many youths leave agriculture, and there is a shortage in agricultural successors like the other areas of Mizoram.

Buhchangphai village produces many marketing crops such as areca nut, sesame, Hatokora lemon, and agarwood. Unlike the pilot villages in the three other pilot RD blocks, traders handle the marketing.

According to the baseline survey, the number of agriculture families in the village is 198. Crops they cultivate for Kharif (rainy season) in the village are broom grass, paddy, areca nut, and paddy (WRC) in order of descending prevalence in cultivation areas as shown in the Table 2.7.2. Characteristics of the agriculture in the village is mainly paddy and cultivation is mostly conducted by the tenants from other states. However, since there are no relevant regulations for tenant cultivation in the state, effective and sustainable agriculture development in Mizoram could not be exerted. In fact, public support on agriculture materials and equipment, and technical guidance are basically provided only to land owners. Crops placed with a marking in Table 2.7.2 are cultivated by tenants coming from the other states and products not consumed by the land owner are generally consumed or sold by the tenants. Cash crops in Table 2.7.2 such as broom grass and areca nut are used to be cultivated by the land owners, and they carry out the cultivation by hiring agriculture labors during the busy cultivation period.

Table 2.7.2 Three Major Crops Cultivated in Each Season in Buhchangphai Village

No	Name of Crops	Farm Families		Cultivated Area (ha)	Cash Crop	Subsistence Crop	Cultivation		
		No.	(%)				Land Owner	Tenant Farmer	Employed Labor
Kharif (Summer Crop: Rainy season)									
1	Broom grass	115	58	252	●		●		●
2	Areca nut	52	26	37	●		●		●
3	Paddy (WRC)	28	14	58		●		●	
*	Paddy (Jhum)	14	7	15	●		●		
Rabi (Winter crop)									
1	Rapeseed	9	5	2	●		●		●
2	Bean	6	3	2	●				
3	Pumpkin	4	2	3	●				

Remarks: ● applicable, ▲ partially applicable, Total House Hold : 198

Source: JPT

In Buhchangphai village, broom grass, areca nut, and paddy are selected by farmers for preparation in annual activity plan of the BAIDC. On the other hand, although an activity targeting the improvement of the present system including laying down official rules on farming between land owner and tenant had commenced, this challenge was given up within a year because it is also one of common issues in neighboring districts including Kolasib and continuous activities by the BAIDC on the subject is difficult. In this regard, the BAIDC commenced an activity in which agriculture extension under the BAIDC activities should be provided to land owners who conduct actual cultivation activities and tenants in a direction to encourage the improvement of agriculture productivity in the area.

(1) BU-01 Improvement of Areca Nuts Productivity

(a) Brief Overview on Crop Cultivation, Technical Agenda, and Formulation of Plan

Areca nut is one of the important cash crops in the village. It is cultivated by 52 farmers out of 198 farm families. The agenda for production and marketing of the nut cleared through the discussions with

farmers is listed in the following three points: i) measures to prevent soil erosion in sloping land; ii) no income from the cultivation for a relatively long period (5-7 years); and iii) difficulty to obtain high grade seeds and nursery plants. At the beginning, although many farmers hoped to conduct the pilot activities, only ten farmers were selected for the activities after discussions among farmers.

As for the problems taken by farmers regarding areca nut cultivation, backgrounds and reasons of the problems were discussed with the BAIDC, KVK, and ICAR, and summarized in the following Table 2.7.3. Technical agenda and suggestions derived from the discussions with the JPT and BAIDC are also indicated in the following Table 2.7.4. Also, in the table are the basic information for conducting guidance and extension of areca nut cultivation that was collected since the cultivation of areca nut is relatively new in Mizoram. It shall be also noted that Areca Nut Farmer Producer Association (Areca Nuts FPA) was established at Bikhawthlir RD Block in Kolasib District and it would become a hub to produce seeds and nursery plants of areca nuts in the district.

Table 2.7.3 Issues Related to Areca Nut Cultivation

Farmers Problems	Reasons of Agenda and Background in Villages and Mizoram State
i) Measures for Soil Erosion	As all farmers other than one pilot farmer are cultivating in sloping land, they all understood that soil erosion measures are related to maintain soil moisture and fertility. However, there is no BAIDC member who could guide and provide the model of soil erosion measures (at a low price and anybody can follow) in the areca nut cultivation area.
ii) Income issue from planting until harvesting time (5-7 years)	There would be no income until the harvest of areca nuts although expenses of weeding labor and others are required continuously. It is a heavy problem for poor farmers.
iii) Procurement of good seeds and nursery plants	Although production of nursery plants of areca nut in the farms of the DOH and DOA had been conducted only for the production depending on the CSS budget and request by other departments, there is no official nursery and/or outlet of nursery plant of areca nut. Private shops that sell seeds and nursery plants of areca nut are limited and it is far to fulfil the demand. Assistance of the central government to areca nut cultivation is based on the variety suitable for South Indian States. It is important to select and consolidate a variety of areca nut appropriate to the climate in the North Eastern region.
iv) Others	As discussed in the preceding section, since officers of the DOH and the DOA conducted only limited activities which are suited to conditions of the CSS fund, no officer specialized on knowledge on areca nut cultivation and appropriate cultivation skills for areca nut are suited to the Mizoram climatic conditions. Further, as areca nut is an article of taste, it is necessary to obtain and provide information in systematic manner as for appropriate areca nut variety required by the consumers, procurement method of good seed and nursery plant, and so on. In addition, in Mizoram selection of variety and confirmation of extension skills depending on areas are necessary since climates are deferred depending on location of areas as the climate of the Kolasib area is mild in the winter, and Champhai area has a microthermal climate due to high elevation.

Source: JPT

Table 2.7.4 Technical Issues and Measures for Table 2.7.3

Farmers Problems	Technical Issues and Measures
i) Measures for Soil Erosion	If the nursery plant is planted, it is necessary to remove surface soil to remove weeds by a hoe which is contrary to soil erosion measures. Accordingly, a one-year nursery plant with height higher than weeds should be planted and weeds should be mowed down for mulching to avoid soil erosion. Changkam which has been traditionally carried out in Mizoram and Mi-SALT method shall be referred. Further, the Project proposed utilization of Vetiver grass as countermeasure to soil erosion, the methods were collected up as 'Areca nut/Betel nut-based inter/mixed Cropping System' and 'The Vetiver Grass' in the 'Technical Guide for BAIDC Members' which is the attachment of 'MANUAL FOR IMPROVING AGRICULTURAL EXTENSION'.
ii) Income issue from planting till harvesting time (5-7 years)	Mixed planting of banana, taro, and ginger should be carried out for income until the areca nut could be harvested. The Project proposed mixed plantation of areca nut and paper as paper shall be planted by making areca nut stem as a support of paper. The mixed plantation method of areca nut and paper for gaining incomes of both areca nut and paper was proposed and collected up as 'Areca nut/Betel nut based inter/mixed cropping System' in 'Technical Guide for BAIDC Members' which is an attachment to the 'MANUAL FOR IMPROVING AGRICULTURAL EXTENSION'. In the future, it is necessary to provide a cultivation guide to farmers after collecting information on mixed cultivation of areca nut and other crops. If intercropping and mixed cropping can lead to the increase in income of farmers, introduction of weed cutter to resolve labor shortage would be also considered.

iii) Procurement of good seeds and nursery plants	In Bikhawthlir RD block, an areca nut production association has been organized and NABARD started to assist it. As Buhchangphai is near to this FPO, information on the procurement of seeds and nursery plant cultivation could be obtained by contacting the FPO closely. Further, information on hopeful variety could be obtained from ICAR at Kolasib.
iv) Others	In the farms of the DOA and the DOH, the mother tree, for encouraging variety of areca nut, has to be retained, and/or by studying the capacity of the NGO, it is also considered to consign cultivation of the mother tree and/or hand it over to the NGO. For cash crop production, it is necessary to cover broad knowledge including selection of variety, cultivation skill, market, sales method, etc. For the purpose of development, take the following actions into account: a) conducting regular exchange of information with organizations such as the aforesaid NGO and so on, b) organizing and fostering model farmers and model groups, c) strengthening lateral linkage of farmers and organization, and d) redeeming specialized knowledge and experience of concerning officers. Further, to strengthen the farmers' organization, accounting skill is important, at the same time opportunity of training and practicing in the various facilities including NGO, meetings for discussions on a purpose and a method of development, information share and exchange, etc. are essential.

Source: JPT

(b) Implementation of Activities and Results

Although the areca nut cultivation had intended to upgrade farmers' income, it had fell on various problems after the actual activities had commenced. The reason should have been assumed that extension workers had no occasion to know the areca nut cultivation as a set of works consisting of 1) procurement of seed, 2) nursery plant cultivation, 3) transplanting, 4) application of fertilizer and chemicals, 5) harvest, 6) processing, 7) marketing, and so on, since their major purpose of works was distributing funds of the state government and CSS to farmers. They understood, through the pilot activities aiming to increase farmers' income and discussions with the BAIDC members on issues and their back ground and countermeasures for them, that various problems with facing real nature in the field should be attended. In addition, they got an opportunity to consider deeply on extension activities. Further, feedback meetings with the farmers were prepared with the cooperation of the other department after conducting the BAIDC annual activity plan (BAAP). Accordingly, for the future, activities focusing on qualitative upgrading of each BAIDC member and farmers have become important. For the purpose, it is very important that a manual of practical cultivation skills of areca nut should be prepared in stages with introduction of mixed cultivation and/or intercropping and in cooperation with KVK and ICR.

Table 2.7.5 indicates farmers' problems and the results of activities for the problems through the activities with BAIDC.

Table 2.7.5 Farmers' Problems and Results of Activities on the Problems

Issues Faced by Farmers	Results of Activities
i) Soil Erosion Problems	<ul style="list-style-type: none"> Although production of nursery plant was conducted by each farmer, it took one year from finalizing the plan until the start of implementation as the production of appropriate seeds were small. Since nursery management conditions of farmers were not so good, quality of nursery plants varied. It was pointed out by farmers that it required much more labors for transplanting a one year nursery plant. Weeding should be carried out before planting sucker of banana: a grass cutter is leased out. Laying cut grasses along contour line for countermeasures of soil erosion. Introducing vetiver grass: Raising vetiver grass at the farm of the DOA in Kolasib and seedlings of the vetiver grass were given out in Mizoram entirely. Making the MANUAL FOR IMPROVING AGRICULTURAL EXTENSION, and introducing vetiver grass to BAIDC as an economical countermeasure to prevent soil erosion'
ii) Income issue for the period (5-7 years) until harvest	<ul style="list-style-type: none"> Before planting the nursery plant of areca nut, sucker of banana was planted as intercropping. Although a mixed cropping of areca nut was discussed in the PMT meeting, because no officer had an experience and there was a difficulty of utilizing the CSS fund, mixed cropping other than banana had not materialized. Since a mixed cropping is essential to increase profits of the areca nut cultivation, JPT prepared the manual 'The Vetiver Grass'
iii) Procurement of good seeds and nursery plants	<ul style="list-style-type: none"> After discussing with the aforesaid areca nut FPO, appropriate seeds in Buhchangphai village were procured through the FPO. It was understood that production of seeds is possible by selecting a mother tree in villages in the days ahead.

	<ul style="list-style-type: none"> • Despite implementation of trainings for nursery cultivation of areca nut, repeated trainings and regular monitoring are inevitable for production of uniform quality of products since the difference of farmers on cultivation management is large. In fact, with the present farmers' capacity, transplanting earlier than one year nursery plant resulted to minimize damages to the nursery plants.
iv) Others	<ul style="list-style-type: none"> • Although in Mizoram, the areca nut FPO possesses the most overall information and cultivation skills, it is necessary to further raise the level of improving overall basic skills and knowledges of areca nut cultivation including introduction of a mixed cultivation and an intercropping. • Further, since it is real and reasonable to improve in stages overall areca nut cultivation skills, a guide book for improving areca nut cultivation in the area should be prepared for KVK to play a central role and a guidance should be provided to BAIDC members and farmers' groups.

Source: JPT

(c) Future Agenda and Countermeasure

It was understood through the pilot activities in Mizoram that there was a traditional and outstanding risk-averse crop production system in the Jhum agriculture. Most cash crops, such as areca nuts and oranges, are monocultures and are often mostly harvested only once a year. And it takes five to nearly ten years from planting seedlings to harvesting. In addition, farm households will face economic hardship if they do not harvest an enough amount each year. The BAIDC, together with relevant agencies, needs to consider how to avoid such risks of farmers and propose Mizoram's own risk-averse cash crop (plantation) cultivation. Areca nuts are under the jurisdiction of the LRSWCD and crops recommended for intercropping such as bananas, taros, and peppers are under the jurisdiction of the DOA and DOH, which is where the BAIDC's functions come into play through the new agriculture extension system, JIFAS.

These measures are proposed precisely in the 'Areca nut/betel nut based inter/mixed cropping systems' as the attachment of 'Officers' Manual for Improving Agricultural Extension' prepared by the Project, based on the experiences of the pilot activities.

There are many examples of intercropping cultivations with areca nuts, oranges, etc., in Assam state. Specific information on this cultivation can be collected efficiently from traders in Assam state. Kolasib is very close to Bhaga Bazar in Assam, less than an hour's drive from Kolasib town. There are also traders in this area who handle agricultural products in Mizoram, and it would be possible to demonstrate a risk-averse and profitable agriculture within a short period if Mizoram's own plantation system is formulated as an extension package by collecting helpful information from traders for farmers and analyzing the market information.

(2) BU-02 Improvement of Broom Grass Productivity

(a) General Outline of Crop Cultivation and Technical Agenda for Plan Formulation

In Buhchangphai village, 115 families (58%) out of 198 farmer families are carrying out broom grass cultivation, and it is a very important economic activity in the village. Farmers in the village cultivate crops other than paddy are all cash crops. Among all cash crops, the broom grass has been cultivated even by many poor farmers because it could be cultivated in steep slope lands and/or vacant lands after Jhum cultivation, where common crops could hardly be cultivated, and they can start the cultivation by selecting marketable varieties among broom grasses grown naturally in the area. Further, it is an appropriate plant to prevent soil erosion, and could be utilized in sloping lands for the purpose.

The market price of broom grasses harvested from January to March is higher as grade 1 quality. There are two methods for marketing, one is drying before marketing and the other is no drying. The market prices to traders in 2021 were INR 110-115/kg for the grade 1 dried, and INR 40-45/kg for the undried. Many farmers who have leeway could earn more than INR 500,000 per family by selling dried broom grasses to traders.

Although farmers who started broom grass cultivation increased during the New Land Use Policy (NLUP Phase III 2011-14), it became apparent in the 1st year activities of the Project that basic knowledge and skill on the cultivation, harvest, and marketing are not necessarily adequate. Further, it was one of the agendas that there were no officers who could specifically provide guidance and advices

to farmers on the cultivation, marketing, etc. like in the case of areca nut. And thus, by consulting a researcher who conducted a baseline survey under the Project, the Saipum village in the same RD block was selected as a model for broom grass cultivation, and improvement of the cultivation in Buhchangphai village was conspired by obtaining advices from the president of the Broom Grass Production Association in the Saipum village. In addition, interviewing the trader in Bhaga area of Assam State who had been procuring broom grasses in Mizoram and studying others, it became possible to contrive countermeasures on the problems farmers were facing. Particulars cleared during the beginning to the 2nd year of the Project are as follows:

- There are three varieties of high market-value broom grasses which are growing naturally in Mizoram. The Phiahpui variety is broadly traded as ‘Green Mizoram Broom Grass’ and market value is high. The three varieties are Phiahpui, Phiahfang, and Phiathir.
- Traders procure broom grass in qualities graded from I to III after the harvest. The condition of the grade I is dried soon after the harvest before flowering from the end of December to February. Only the grade I broom grasses have been sold in the broad market beyond the states and internationally, and grasses harvested from the end of February to March after flowering are the Grades II and III, and traded in local markets or to small-scale broom producers. Thus the prices are very low.
- Under the NLUP, Mizoram Forest Marketing Association (MIFAM) was organized and it had been carrying out broom grass collection, marketing, and processing. However, as the activities had diminished, the traders only in the Bhaga area purchase broom grasses are present. Most traders including in the Bhaga area expressed in the meeting with BAIDC that they could buy any amount of the grade I broom grasses. And if the handling quantity is large, sales to big traders other than Bhaga traders are also feasible.
- Although broom grass cultivation does not require high initial investment cost compared to other cash crop productions, many hired labors are required for harvesting and drying broom grass cultivation within a short period before flowering to sell the products in higher prices. Accordingly, farmers, who do not have adequate fund to hire labors in the period for harvesting and drying before marketing, must sell out products to brokers in a low price.
- To overcome this situation, a marketing system in Saipum village, in which farmers organize a broom grass production association, and the association make a loan from a bank, purchase products of the farmers, keep them, and sell out to traders in higher prices, was put on the move.

Although issues faced by farmers are not complicated as the areca nut case, it came into focus to organize broom grass production farmers and to prepare an activity plan, taking the following three points into account:

- Harvest shall be implemented from January to February,
- The grade I broom grass shall be produced by drying in the sun after harvests,
- And a broom grass production association shall be organized to resolve fund shortage of members for harvesting period and to boost improvement of income.

(b) Implementation of the Activities and the Results

As for establishment of the broom grass production association (BGPA), farmers had several meetings and it was decided that it should be organized by farmers who do not have their own fund during the harvesting period. The BAIDC had organized training workshops by inviting the leaders of the BGPA in Saipum village. Eventually, it was well understood by all farmers that organizing farmers to a BGPA is cumbersome to the farmers who have adequate funds during the harvesting period, to borrow fund by the BGPA, to carry out activities communally and following the rules. But the organization is surely necessary for farmers who do not have enough funding. Although until now, almost all farmers’ organizations in Mizoram were government-initiated, it is assumed that a farmers-initiated organization was at last established for the first time for the BGPA. Although in the plan, the association had to be established in 2019, it took two years to organize. It is important for farmers to organize themselves by their own will, and simultaneously, it is also essential for them to learn theoretically various knowledge on cultivation through SAMETI trainings.

In the 1st year of the Project, the harvest of broom grasses in March at the same time as the past, however, in the 2nd year, 2019/20, the harvest was carried out from January to February, and the results was achieved as shown in Table 2.7.6. And with further improvement of the cultivation method, the yield and income in year 2020/21 increased to 287% and 244% respectively compared to the 2019/2020 results. In 2021/22, sales income increased to 135% compared to 2019/20, despite lower harvest volumes.

Table 2.7.6 Results of Harvests in the Three (3) Years

Year		Unit	Dried	Un-dried	Total	(%)
2019/20	Yield of 10 farmers	kg	1,085	9,587	10,672	100
	Unit Selling Price	INR/kg	100	40	-	-
	Sales income	Rs.	108,500	383,480	502,850	100
2020/21	Yield of 10 farmers	Kg	-	30,637	30,637	287
	Unit Selling Price	INR/kg	110	40	-	-
	Sales income	INR	-	1,225,500	1,225,500	244
2021/22	Yield of 10 farmers	Kg	3,250	6,160	9,410	88
	Unit Selling Price	INR/kg	115	45 - 55	-	-
	Sales income	INR	373,750	307,750	680,750	135

Source : JPT

As Buhchangphai village depends more on external resources compared to traditional villages and cohesion of community is not so good, it is considered one of the difficult villages in Mizoram to carry out extension activities. However, through the result of the conduct of extension works through BGPA's activities, it is assumed that the similar activities by the production association could be sustained in the village after the Project.

(c) Future Agenda and Countermeasures

- In accordance with the manuals of broom grass cultivation in India and neighboring countries, there is one significant difference in the cultivation method of Mizoram. It is generally known that broom grass harvest reaches the maximum in the 4th year after planting and in the 6th year, income reduces drastically and almost no profit is obtained. However, farmers in Mizoram expressed that such phenomenon does not take place in Mizoram, because they cut the stem of broom grasses at a place close to roots after the harvest and fire left plants including stems above the surface after drying. Monthly Newsletter of the NTFP Centre of Excellence - Tripura 'MANJARI' Volume I, Issue I, Oct. 2014 (Published by NTFP Centre of Excellence, JICA Project Tripura) in Tripura State, placed many information about cultivation, marketing, etc. of broom grasses, and the article wrote that yields of broom grasses in five years after planting will be reduced. Hereafter the relevant departments in Mizoram should verify the cultivation method of Mizoram farmers in coordination with guidance of the departments in Tripura and Assam states. And it is expected to establish a new cultivation method of the broom grass for the verification of the views of farmers in Mizoram.
- Although recently, broom grasses produced in Mizoram are traded much in the name of products of Mizoram, the traders knew such fact but the BAIDC side who is responsible for the extension of broom grass cultivation does not know the fact. Further, traders handling broom grasses have information on concrete cultivation method in areas of other states and possess plenty of knowledge on crops in high demand markets. Therefore, the relevant departments in Mizoram should boost intercommunication with these traders, and they could provide tangible information to farmers through the BAIDC.

(3) BU-03 Improvement of WRC (Wet Rice Cultivation) Productivity

(a) General Outline of the Crop Cultivation and Technical Agenda and Plan Formulation

Paddy cultivation in Buhchangphai village depends upon the tenants and agriculture laborers. Since there is no law and customary law on tenancy, a land owner and a tenant exchange a contract every year in the village. Generally, if a land owner will receive a volume of the paddy, which shall be required for consumption of the owner out of the total harvest, the remaining paddy can be taken by the tenant. Then, the tenant can cultivate the 2nd and 3rd crops of paddy in the field, further the tenant can cultivate vegetables in the winter and he/she sells the excess products to the market. Tenants could conduct almost all of the cultivation works including selection of paddy variety, securing required seeds, taking custody

of the seeds to the next season. The paddy which tenants cultivate is mainly Indica, but not Japonica type one which preferred by Mizoram people. Tenants are given residential lands beside the paddy field owned by the land owners, and the tenant with family builds a simple house there and live with a crummy. Now, there are the 2nd generations of the tenants who could speak Mizo, and they work also on agriculture activities.

Tenants cultivate paddy in cultivation fields, specifically in irrigated and/or wet fields they cultivate two crops in principle as shown in the following Table 2.7.7 as Paddy I and Paddy II, and in paddy fields where water is available after December, they could cultivate a paddy (Boro) even for Rabi season as Paddy III in the Table.

Land owners in Mizoram depend on tenants to cultivate paddy once a year as Paddy II (Aug.-Dec) in the table for self-consumption, and the tenant receive the excess harvest of the Crop II other than the contracted quantity. Generally, the tenant can also cultivate paddy (Boro) in Rabi season (winter) in a water available field. However, as discussed in the following section, although in Sailam village farmers selected rapeseeds and green pea for Rabi crop, in Buhchangphai village, after land owners failed to cultivate rapeseeds for Rabi crop, they changed to cultivate red kidney beans (Rajma) which tenants know the cultivation well. Red kidney beans are commonly used for curry in India, and it could be cultivated in Buhchangphai village making it a part of Mizoram and Assam since it is highly transportable as it is dry.

Table 2.7.7 Cultivation Case Example in Wet Rice Cultivation Area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Paddy	III			I				II				
Other												

Source: JPT

Since the livelihoods of tenants' families from Assam are largely dependent on paddy cultivation, level of utilization of the paddy land (cropping intensity) is much higher than that of Mizoram landowners/farmers. The following Table 2.7.8 shows a comparison of crop intensities¹ of the tenants from Assam and the land owner in Mizoram. If a land owner has one ha of paddy field and 0.5 ha in which enough paddy could be produced for a family of four to five members is used for producing self-consuming paddy, the crop intensity is 50%. On the other hand, a tenant, by devising various cultivations in the same field including irrigation and so on, makes the crop intensity to 100% as shown B in the Table. Accordingly, the total crop intensity of the field become 150%. In the Assam state, the crop intensity had been aimed at 140%, and it took 40 years to achieve. In Buhchangphai village, the crop intensity is high because of the impact of tenants. The fact could serve as a useful reference to the BAIDC members for considering crop intensity in other areas in Mizoram.

Table 2.7.8 Comparison of Cropping Intensity – Land Owner and Tenant

Total Area of the Paddy: 1 ha			
Land owner	Cultivation Period	Gross cropped area	Cropping intensity
Case I	Apr. – Jun.	0 ha	0%
Case II	Aug.– Dec.	0.5 ha	50%
Case III	Dec.– Apr.	0 ha	0%
Cultivation in Rabi	Dec.– Mar.	0 ha	0%
合計 (A)		0.5 ha	50%
Tenant	Cultivation Period	Gross cropped area	Cropping intensity
Case I	Apr. – Jun.	0.2 ha	20%
Case II	Aug.– Dec.	0.5 ha	50%
Case III (Boro)	Dec.– Apr.	0.1 ha	10%
Other Field Crop	Dec.– Mar.	0.2 ha	20%
Total (B)		0.7 ha	100%
Total (A) + (B)			150%

Source: JPT

The maximum crop intensity of the paddy area in Mizoram, where no tenants exist, is about 100%. In Mizoram as there are a lot of sloping lands, and flat lands are limited, it is important to increase the crop intensity of the paddy fields. In fact, it is a significant matter to strengthen the agricultural extension

¹ Crop intensity is referred to as the number of crops grown in the same field in one agriculture year. The formula to calculate any crop intensity is: Crop intensity= (Total cropped area / Total sown Area) X 100.

activities for the 2nd cultivation of paddy and other crops in winter, for bringing out self-sufficiency of agriculture products in the state. At the same time, it shall make an explicit prediction about the direction of improvement and development of irrigation facilities and aquaculture ponds. As discussed above, agriculture activities conducted by the tenants who came from the Assam would become a bell ringer for the BAIDC members to imagine the future agriculture in Mizoram. Further, it is an urgent agenda to formulate laws and regulations on tenant farming and irrigable systems.

Tenant farmers mill and sell the harvested rice in the Assam areas. One of the reasons, why tenants mill paddy in the Assam, is that as there is no rice polisher but only rice huller in Buhchangphai area. It is difficult to obtain high quality rice in the Buhchangphai area because of the lack of facilities. Accordingly, by-products, such as rice bran and paddy husk, could not be effectively utilized for agriculture in the area.

In this manner, paddy cultivation in Buhchangphai village could not function without tenants from the Assam, and it is assumed that many cultivation issues in the area exist in relation to the tenant system. Further, similar issues also exist in other areas like Kolasib District. With regards to the WRC cultivation, issues farmers facing and reasons and background on them in the villages and the state, had been discussed with the farmers, BAIDC, KVK and ICAR and wrapped up as shown in the Table 2.7.9. Technical agendas and countermeasures on them are summarized in the following Table 2.7.10.

Table 2.7.9 Issues Related to WRC Cultivation

Issues Farmers Facing	Agendas and Backgrounds in Villages and the State
i) Production Increase of Paddy	Although almost all paddy cultivations were entrusted to tenants and agriculture labor from other states, trainings, and supply of materials and tools provided by the departments are received only by land owners. Accordingly, effects of various supports by the state government have not necessarily appeared in the field. Thus, unless trainings shall be conducted to both land owners and tenants, the effects of increasing agriculture productivities have not materialized. Further, as land owners have not much experience on paddy cultivation, they could not understand the contents of the trainings. Further as tenants may not understand the Mizo language, it is necessary to carry out ingenious attempts for the trainings.
ii) Renovation of Irrigation Facilities	It was confirmed by farmers and the IWRD, that prevention of leakages from irrigation channels are necessary. But it became also clear that effective use of irrigation water has not been necessarily implemented due to lack of proper operation and maintenance (O&M) and absence of O&M organization of farmers after renovations. It is, therefore, essential to organize the WUA of farmers and to train them.
iii) Lack of Heirs	As the result of settlers getting things sorted out after emigrating from other districts in Mizoram, lack of heirs on agriculture activities is arising because many children enroll in universities. It is expected that the younger generation become heirs of farmers by resolving tenant issues through stimulating mechanization of agriculture. Accordingly, it is necessary to think of agriculture to become profitable by mechanization.
iv) Profit Increase	This is a common agenda with resolving iii) 'Lack of Heirs'. As described above, putting mechanization and profitability of agriculture into practice, it could be possible to stop estranging younger generation from agriculture.

Source: JPT

Table 2.7.10 Technical Issues and Measures for Table 2.7.9

Farmers Problems	Technical Issues and Measures
i) Production Increase of Paddy	Since tenants carry out paddy cultivation by applying nomic cultivations using paddy varieties in the home village, it is essential to provide training to them for improvement on paddy cultivation skills in an area, namely production methods of nursery plant, timing of transplant, disease and pest control, etc. At present, although each department provides training and various support to land owners, land owners' capability to provide instructions to tenants are not adequate. Thus, after the BAIDC and farmers' discussion, it was decided that farmers as well as tenants shall attend the trainings provided by each department. Further, it is understood to know the importance for land owners to learn cultivation of paddy and other crops for implementing O&M of irrigation facilities in the area and using irrigation water effectively. In addition, it was also decided that the land owners should implement paddy cultivation by themselves. It was planned that the Project shall prepare a cultivation calendar of paddy and conduct on-the-job training for land owners in every stage of paddy cultivation. From the 2 nd year, narrowing down agendas of land owners and for stabilizing paddy yield, three important points were identified. They are (i) level of a paddy field shall be maintained, (ii) paddy fields shall not be dried, (iii) weeds shall not be grown in paddy fields. Monitoring of the conditions of the three points shall be continued by the leader of the paddy group among land owners by sending photos to the BAIDC and JPT with use of WhatsApp software. In the discussion with ICAR, it was agreed

	that selection of high yield variety of paddy and introduction of seed paddy (supply to farmers) could be made by KVK.
ii) Renovation of Irrigation Facilities	It was discussed that in order to stabilize irrigation water supply for increasing productivity of paddy fields, the formulation of Tuikhurlui MIP renovation plan and the implementation of the renovation was discussed. It was agreed that the renovation works shall be carried out by the WUA and strengthening the O&M structure in future. It was required to start from basic preparatory activities including registration of WUA. Considering sustainable O&M operation after the construction, the renovation works shall be conducted by WUA.
iii) Lack of Heirs	It was concluded that mechanization of agriculture operation is required for resolving lack of heirs of farmers. At present, the DOA established the Custom Hiring Centre (CHC ²) and CHC loans out agriculture machineries, and the function of CHC could be upgraded and expanded. The farmers pinpointed that transplanting and harvesting required the most labor operations. The DOA could introduce a transplanter through CHC. And as an introduction test of transplanting equipment is conducting by KVK, the Project decided to introduce the 'Modified Mat Nursery' of which nursery plant could be also used for a transplanter as IRRI recommends. Additionally, the Project introduced manual weeding equipment which could be fabricated by farmers with accessible materials.
iv) Profit Increase	Tenants get profits by making the maximum use of paddy fields rented from land owners as written above. Under the activities, an introduction of high yielding varieties of paddy and trainings of necessary cultivation skills are conducted. Further, at small scale irrigable area in Tukhurlui, crop intensity of paddy in Kharif (rainy season) would be improved from 50% to 100% and that in Ravi would be improved from 0% to 25%.

Source: JPT

(b) Implementation of the Activities and the Results

The major activities and the results of paddy cultivation in the Buhchangphai village under the pilot project were compiled in the following Table 2.7.11, and the yield results of the pilot farmers are also shown in Figure 2.7.1.

Table 2.7.11 Farmers' Problems and Results of Activities on the Problems

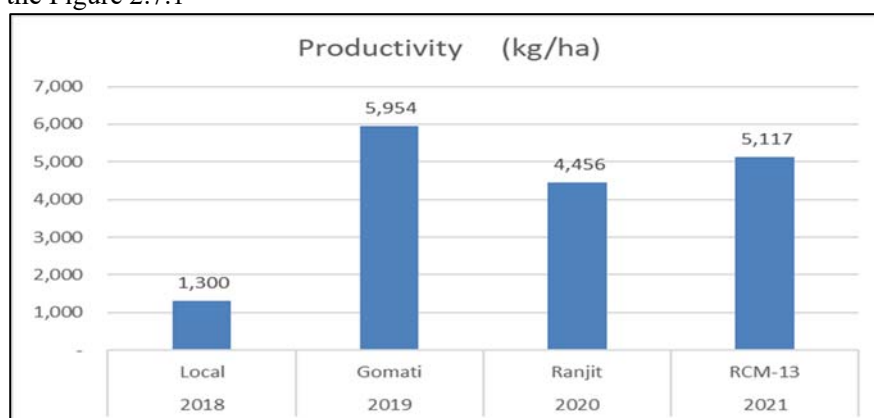
Issues Faced by Farmers	Results of Activities
i) Yield Increase of Paddy	<ul style="list-style-type: none"> • In the 1st year, trainings from raising of seedling by the Modified Mat Nursery to transplanting were conducted for land owners and tenants based on the paddy cultivation calendar (Reference: 'Manual for Improving Agricultural Extension'). However, since the seedlings were transplanted in the poor paddy fields where the land is not flat and water could not be maintained due to a lot of seepage, yields were not good because a lot of weeds were growing in the fields. • Since tenant farmers from Assam and owner farmers in Mizoram do not use chemical herbicides, submerging the paddy fields after transplant is very important. Tenant farmers know this based on their experiences, but land owners do not understand that. • As for a high yield variety, an Indica variety 'Gomati', was selected referring to the ICAR and considered to fit to the tenant farmers. The KVK supplied the seed paddy and the yield of the pilot farmers was 5,954 kg/ha on average. • From the 2nd year, tenants also participated in the meetings of the BAIDC and owner farmers. In one of the meetings, one tenant, who can understand the Mizo, translated the conversations. In the trainings for paddy cultivations attended by both land owners and tenants, a leading person of the BAIDC nurtured such conditions that materials and equipment were received by tenants and it should be confirmed by land owners. • As training was carried out for land owners and tenants together, overall skills level on paddy cultivation in the area were advanced. Although unity of the villagers was not so good, it can be said that skills, which tenants appreciate, were spread out. • As each department's activities were delayed due to the COVID-19 pandemic, paddy seeds which were retained by tenants in the village, an Assam variety 'Ranjith' was utilized for the pilot project. Although the yield decreased compared to the previous year results, the average yield of five model farmers was 4,418 kg/ha, which was still higher than the average yield in the Kolasib District of 2,200 kg/ha. • The monitoring method using WhatsApp application, which had been utilized before the COVID-19 pandemic, was also helpful during the COVID-19 pandemic.

² The Custom Hiring Centre (CHC) offers farm equipment and machineries on rental basis to farmers who cannot afford to purchase due to high-end agricultural machineries and equipment. An important mechanism of the CHC is that the most of small holders can access services of agricultural machinery in India through CHC.

	As for the paddy variety, ICAR selected a high yield indica variety. However, finally, a Japonica type variety from Manipur State, which is preferred in Mizoram, was selected by land owners.
ii) Renovation of Irrigation Facilities	<ul style="list-style-type: none"> The contract for the renovation works of irrigation facilities commenced under the community contract after organizing a WUA in the village. Before commencement of the works, trainings on accounting and various skills required for construction works were executed. At the beginning, all construction works was to be carried out by the WUA, but later, a part of the works was executed by a contractor. Due to this reason, the actual renovation works delayed substantially. <p>After the construction was completed by the WUA, trainings on O&M and water management of the irrigation facilities had been implemented. After the trainings, irrigation facilities were relegated to an irrigation association.</p>
iii) Lack of Heirs	<ul style="list-style-type: none"> As a countermeasure for lack of heirs of farmers, a mechanization of agriculture nursery was thought. Accordingly, plant cultivation by the 'Modified Mat Nursery' and line transplanting had been inherited. Although the DOA facilitated procurement of a transplanting machine as a countermeasure on the shortage of labors, introduction of the machine was not materialized by the CHC. However, a training of 'Modified Mat Nursery' had been conducted to the farmer who personally purchased a transplanter with government subsidy. <p>While production of seedlings for the transplanter was carried out by the request of the DOA, ideas such as a countermeasure for shortage of labor in lieu of tenants, employment of younger generation, etc. eructed and new ideas and activities were presented by participants.</p>
iv) Profit Increase	<ul style="list-style-type: none"> The pilot farmers were able to achieve nearly three times higher paddy yield compared to the average yield of the Kolasib District. It may have been because the joint trainings for land owners and tenant farmers had been conducted by the pilot project even though direct technical trainings and supports to provide materials and equipment had not been provided to tenants before. However, land owners in the village had produced paddy only for self-consumption, and if there is an excess production of paddy, there is no market to handle it in Mizoram. Although it would be possible to sell excess paddy to Assam, the price of paddy is too low there. In addition, polishing facility is necessary in Mizoram to export rice. <p>Since the rehabilitation of irrigation facilities of main the paddy areas (50 ha) of MIP were completed in Tuikhurlui, 100% of paddy production became possible during Kharif (rainy season), and cultivation of other crops during Rabi (winter cultivation) in about 6 ha became feasible. Accordingly, they are cultivating Rajma (red kidney bean) in Ravi.</p>
v) Profit Increase (2)	As described above, tenant farmers, who rented paddy fields, can earn revenue from the maximum use of the fields. The BAIDC is to introduce high yield paddy seeds and to provide trainings required for their cultivation. Further, through improvement of irrigation facilities in small-scale irrigation areas in Tuikhurlui, the crop intensity of paddy in Kharif would be improved from 50% to 100% and the crop intensity in Rabi would be improved from 0% to 25%.

Source: JPT

Paddy productivity by the land owners in the 1st year was not good due to poor selection of paddy fields and shortage of weeding and irrigation water, but from the 2nd year, the yields were drastically increased because of cultivation based on the cropping calendar and monitoring using WhatsApp. The average yields in the last three years showed much higher than the average yield in the Kolasib District, 2.2 t/ha as shown in the Figure 2.7.1



Source: JPT

Figure 2.7.1 Summary of Paddy Yield Achieved under Pilot Activities

From 2018 to 2020, indica varieties are cultivated, which was preferred by tenant farmers in Assam, while in 2021 the Japonica type RCM-30 was selected by the landowner for cultivation.

(c) Future Agenda and Countermeasures

A challenge in this village is the issue of tenant farmers who come from Assam. Taking the problems of this village as a negative role model, the Chemphai area of Bikhawthlir North village in the second pilot is trying to find new relationships with agricultural workers in Assam to implement various land uses and cultivation methods, with the Mizoram farmer leaders at the center of this effort. As mentioned earlier, the cropping intensity of paddy fields by landowners in this village is 50%, and 150% in well-irrigated paddy fields with the Assam tenant farmers.

Measures may be fleshed out to increase agricultural productivity in these areas by considering what measures could be taken to increase cropping intensity, as described above. In Mizoram, the situation varies widely from area to area and village to village. Therefore, it is considered that clarifying the setting of objectives (target values to be reached) shared by the BAIDCs, such as a cropping intensity, will help to materialize various creative ideas by the BAIDCs. Such measures are also an essential agenda for the IDCs to consider in the future more tangibly.

The construction of Tuikhurlui MIP was significantly behind schedule. Initially, the BAIDC Annual Plan 2018 showed that construction was to start in November 2018 and to be completed in March 2019. However, the community contract started in March 2019 and completed in July 2019. Construction work by the contractor started in February 2019 and completed in July 2020 after an interruption during the rainy season and lockdown due to the COVID-19 pandemic.

Before rehabilitation under the project, the existing farmers group had not carried out sufficient maintenance and water management of the facilities by cooperative work. On the other hand, water in the canals was an important resource, utilized for domestic water and for fishponds. However, water distribution was not controlled, managed, and recorded at all.

Then, BAIDC decided to conduct O&M training for the WUA, and under the guidance of PMT and the JPT. The training was conducted for the Tuikhurlui WUA, after the Junior Engineer of IWRD received prior training from a JPT member. The users discussed how to distribute water fairly and were informed of the knowledge for formulating an O&M plan. The irrigation facility has been transferred to the WUA, which will be responsible for the O&M of the facility.

The Tuikhurlui MIP is an irrigation facility using reservoirs as water sources. In Mizoram, although annual rainfall exceeds 2,000 mm, more than 80% of which is concentrated in the rainy season. The construction of irrigation facilities using water storage as water sources is effective from the perspective of effective use of water resources. On the other hand, since there are many farmers who are unfamiliar with irrigated agriculture, they are still not making effective use of the developed water resources. It is expected that the water management method instructed in the Tuikhurlui MIP will be established as a model and deployed in other WRC areas in the State.

2.7.2 Activities in Sailam Village

Sailam village was selected as the pilot village in the Aibawk RD block of the Aizawl District. The village is a traditional village where many Jhum farmers live. Table 2.7.12 below indicates the number of farming families in terms of the top three crops for Kharif (rainy season/summer) and Rabi (dry season/ winter), respectively. Paddy cultivation in Jhum farming, which is in a strong direction moving on to settled agriculture, is indicated as a comparative sample. Such farm families in Sailam village are 42% (63 families), though, in Buhchangphai village, they are only 7% (14 families). In Sailam village, many families, 49% (74 families), are involved in orange cultivation, and almost all families depended on Jhum farming before. And if they could not get adequate income from the orange cultivation, they balanced their livelihoods by doing the Jhum cultivation. Accordingly, it was understood through the activities that the Jhum cultivation has a countermeasure function to poverty risk (household economy risk). Additionally, farming families suffering various risks applied for permission of Jhum cultivation, as it would provide opportunities to rebuild a livelihood while they cultivate Jhum fields. The purpose of the Jhum farming in Sailam village is considered as the traditional cultivation of crops for the self-consumption of a family. On the other hand, Jhum cultivation near the urban area is intending to sell

products to the market in a city, and therefore, it has concerns that fallow cycle of cultivation fields would be extremely short and soil runoff from fields would become significant.

Table 2.7.12 Three Major Crops Cultivated in Each Season in Sailam Village

No	Name of Crops	Farm Families		Cultivated Area (ha)	Cash Crop	Subsistence Crop	Cultivation		
		No.	(%)				Landowner	Tenant Farmer	Employed Labor
Kharif (summer / Rain)									
1	Orange	74	49	65	●		●		▲
2	Paddy (WRC)	26	17	148		●	●		▲
3	Chilli (Dry)	19	13	12	●		●		▲
*	Paddy (Jhum)	63	42	61		●	●		▲
Rabi (Winter)									
1	Cowpea leaf	3	2	1		●	●		
2	Onion	3	2	0.4	●	●	●		
3	Cabbage	2	1	0.3	●		●		

Remarks: ●applicable, ▲partially applicable, Total House Hold : 150

Source: JPT

The point specially stressed on the activities in the meeting with farmers in Sailam village is that they expressed matters in question on the extension activities in the past. They proposed that the supporting activities provided by an external organization shall be discussed in the committee consisting of ex-village council members, ex-board member of the church, leaders of various sectors of agriculture, and so on. The committee shall also monitor the activities of the JICA project. Thus, the JICA Project Monitoring Committee (JPMC) was established. The ultimate purpose of the establishment of the JPMC is that the committee should know the function and activities of the supporting organization and their purposes and notify it to farmers. If necessary, the JPMC can provide appropriate suggestions and supports to the activities.

The JPT conferred with the BAIDC, and accepted the proposal. Then, a log-book was placed in the house of the JPMC leader to record the activities and meetings with the JPMC were held before and after the activities. And when the road was washout by a very heavy rain, JPMC contacted the village council to conduct the rehabilitation works to support the Project. All JPMC activities were volunteer-based.

(1) SA-01 Support for Transition from Jhum to Settled Farming

Jhum fields in Sailam village are not large, but have a function to recover deprived farmers as described above. Therefore, it is necessary to keep the fact in mind as for decreasing the Jhum fields. The cultivation method of the settled farming shifted from Jhum farming to cash crop cultivations like orange, but a method to cultivate sustainably self-consuming crops, which is produced in the Jhum fields at present, is not incorporated in the plan for the settled farming yet.

(a) General Outline on Crop Cultivation, and Technical Agendas and Plan Formulation

Farmers do not continue the Jhum farming taking into consideration the lack of heirs and difficulty of labor. However, farmers do not know (i) crop cultivation methods in settled farming as a substitute of Jhum farming and (ii) right and wrong of land and appropriate location for a settled farming, and they defined that the aforesaid two points are acute issues to attend urgently. Further, they expressed their understanding that labors of the settled agriculture is easier than the Jhum agriculture, and if earning in the settled agriculture is not higher than that of the Jhum, the labor issue could not be resolved. In addition, since there is no market available for procuring vegetables in Sailam village if a farmer would make a shift to the settled farming, he/she has to cultivate vegetables for self-consumption or buy them from another farmer. Accordingly, considering the balance of production and consumption of vegetables in the village, the shifting method from Jhum farming to the settled farming and a production scale of crops in the village shall be considered.

In the meantime, the Jhum farming crop seeds required for cultivation are self-extracted in a farm and if a farmer face a shortage of seeds, a system to accommodate seeds by other farmers to him is available in the village. Jhum cultivations are mainly upland paddy (sticky rice) and mixing of various crops. After

the paddy is harvested, cash crops such as Tabaco, Mizo-chili, pumpkin which is preserved food for winter, and winter melon as a last crop of a year are cultivated and harvested. For farmers who depend much on Jhum cultivation, it would become a cornerstone whether the expected incomes could be earned by such cash crops at the last stage. Every farmer cultivate about 20 kinds of varieties of crops for the Jhum farming, and the total number of crops cultivated in the Jhum farming is more than forty as referred to the following Table 2.7.13. Seeds for cultivation in a next season are retained by each farmer in each village. Crops cultivated in Sailam village are more than ninety varieties and the total crops by adding wild edible crops extensively cultivated are exceeding hundred varieties and all of them are utilized by the villagers.

Table 2.7.13 Crops Cultivated in Jhum Land

No.	Family Name	Crop/ English	Mizo	Botanical Name	Japanese
1	Amaryllidaceae	Spring onion, scallion	Mizo-purunsen	Allium × proliferum	Wakegi or Asatsuki?
2	Amaryllidaceae	Welshonion	Mmizo-purun	Allium fistulosum	Negi
3	Amaryllidaceae	Japanese Chives/ Asatsuki	Mizo-purunsen (?)	Allium schoenoprasum var. foliosum	Asatsuki/ Indo-negi
4	Amaryllidaceae	Hooker chives, Garlic chives	Zorami, Pu-run-jung	Allium hookeri Thwaites	Ooba-nira, Ne-nira
5	Apiaceae	Coriander leaf	Dania	Coriandrum sativum	Pakuchii
6	Araceae	Colocasia	Bal/dawl	Colocasia esculenta	Satoimo
7	Brassicaceae	Mustard	Antam	Brassica napus	Karashina
8	Convolvulaceae	Sweet potato	kawl-bahra	Ipomoea batatas	Satsumaimo
9	Cucurbitaceae	Pumpkin/ Pumpkin leave	Mai/ Maian	Cucurbita maxima	Kabocha
10	Cucurbitaceae	Snake gourd	Be-ru	Trichosanthes anguina	Hebi-Uri
11	Cucurbitaceae	Bittergourd	Chang-kha	Momordica charantia	Niga-Uri
12	Cucurbitaceae	Cucumber	Fang-hma	Cucumis sativus	Kyuuri
13	Cucurbitaceae	Ash gourd	Mai-pawl	Benicasa hispida	Tougan
14	Cucurbitaceae	Luffa	Awm-pawng	Luffa acutangula	Hechima
15	Cucurbitaceae	Bottle gourd	Um-ei/Um	Lagenaria siceraria	Hyoutan
16	Cucurbitaceae	Water melon	Dawn-fawh	Citrullus vulgaris	Suika
17	Euphorbiaceae	Cassava	Pangbal	Manihot esculenta	Cassava
18	Fabaceae	Cowpea	Behlawi	Vigna unguiculata	Sasaghe
19	Fabaceae	Bean/ French bean	Sap Bete	Phaseolus Vulgaries	Ingen
20	Fabaceae	Soybean	Bekang	Glycine max (L.) Merr	Daizu
21	Fabaceae	Winged bean	Be-pui-pawr,	Psophocarpus tetragonolobus (L.) DC	Shikakumame
22	Fabaceae	Hyacinth bean, Lablab bean	Be-pui	Lablab purpureus	Fuji-mame
23	Fabaceae	Garden bean (Pea)	Motor-cha-na	Pisum sativum	Endou-Mame
24	Fabaceae	Climbing acacia	Khanghu	Acacia pennata	Cha-omu (Thai)
25	Fabaceae	Tree bean	Zawngtha	Parkia roxburghii/ javanica	Nejire-husa-mamenoki
26	Fabaceae	Subabul (Ipil-Ipil)	Japan zawngtah	Leucaena leucocephala	Ipil-ipil (Ginnemu)
27	Lamiaceae	Wild basil (mint variety)	Run-hmui	Ocimum americanum	Wild Basil
28	Lamiaceae	Wild Sesame/ Perilla	Chawhchi	Perilla frutescens	Egoma
29	Malvaceae	Okra (Lady's finger)	Bawrh-saia-be	Abelmoschus esculentus	Okra
30	Malvaceae	Roselle	Anthur	Hibiscus sabdariffa	Rhozeru
31	Musaceae	Banana	Balhla	Musa acuminata	Banana
32	Pedaliaceae	Sesame	Chhi-bung	Sesamum orientale L.	Goma
33	Poaceae	Maize	Vaimin	Zea maize	Toumorokoshi
34	Poaceae	Paddy (Non-glutinous/ Glutinous)	Buh/ Buhban	Oryza sativa L.	Kome/ Mochi-gome
35	Solanaceae	Chillies/ Capsicum	Hmarchapui	Capsicum frutescens	Tougarashi
36	Solanaceae	Brinjal	Bawkbawn	Solanum incanum	Nasu
37	Solanaceae	Mok tomato/ Bitter tomato	Samtawk	Solanum aethiopicum	Africa-Nasu
38	Solanaceae	Chillies (Bird eye)	Vankawk hmarcha	C. frutescens	Tougarashi
39	Solanaceae	Indian nightshade	Samtawk-te	Solanum anguivi	Niga-Nasu
40	Solanaceae	Tobacco	Vai-hlo	Nicotiana tabacum	Tabako
41	Zingiberaceae	Turmeric	Ai-eng	Curcuma longa	Ukon
42	Zingiberaceae	Ginger	Sawh-thing	Zingiber officinale	Shouga

Source: JPT

As for agendas faced by farmers, a concrete proposal was not formulated because both the BAIDC and farmers have insufficient knowledge and skills on the settled agriculture and their social capacity is not adequate for the formulation. However, the continuous discussions on the agendas faced by the farmers are analyzed and sorted out as compiled in the following Table 2.7.14.

Table 2.7.14 Issues Related to Settled Agriculture

Issues Farmers Facing	Agendas and Backgrounds in Villages and the State
Do not know how to implement settled agriculture	<ul style="list-style-type: none"> • Although farmers have been continuing traditional cultivation in Jhum farming, they do not have adequate information on a settled farming to cultivate crops for self-consumption. And farmers' view: a change from the Jhum farming to the settled farming is difficult if labors and agriculture materials in the settled farming required more than those in the Jhum farming. • Since the BAIDC members consider that constructing terraces in sloping lands is generally required to develop settled agriculture, dissemination of the settled agriculture is difficult unless a certain level of fund would be available. Therefore, it is required to study methods other than the terrace with practical trainings. • Officers of each department consider that the terrace could provide a chance for farmers to utilize agricultural machinery and chemical fertilizer and to increase agriculture incomes. However, it is not practical because the farmers' funding ability is considered to be very low. • Many people want irrigation development. In order to stabilize income, it is desirable to secure irrigation water and realize more profitable agriculture. • Farmers do not understand well selection methods of lands suited for crops of self-consumption cultivating at present at Jhum fields and an extent of lands for cultivating such crops in the settled farming. • Many farmers expressed worry if lands owned by them are better suited for the settled farming or not. • It is essentially required that farmers' understanding on the settled farming would be deepened through study tours to an advanced area as a model and the farmers shall get basic agriculture knowledge through technical trainings. However, it should be kept in mind that a short-sighted plan may damage existing important resources in the village.

Source: JPT

At the time to shift the Jhum agriculture to settled agriculture, it was understood that the following issues are to be carefully studied. Further, although it was well understood that the shift of the agriculture from Jhum farming to settled farming is an important scheme in Mizoram, social aspects such as the relation of Jhum agriculture and farmers' livelihoods should also be deeply kept in mind.

- Deliberation on the method and timing of implementing the development scheme relating to a change to settled agriculture on villages where the degree of dependence on Jhum cultivation is high and traditional culture centering on Jhum farming has been retained. If possible, a village survey considering cultural anthropological aspects shall be conducted.
- Deliberation on settled agriculture as substitute for Jhum agriculture: conditions including i) cultivation method with easier labor than Jhum farming, ii) utilization method of sloping lands for a settled agriculture by not exceeding funding ability of farmers including measures for soil erosion, iii) cultivation methods not using chemical fertilizer and agriculture chemicals, and iv) renovation for self-extraction method of crop seeds, preservation method, and renewal methods of seeds for running on productivity enhancement of crops
- A Jhum cultivation in the 2nd year and 3rd years continuously: a Jhum field cultivated in the 1st year, and the 2nd and 3rd years of them used to be fallow at present, but the field should be utilized for experimental cultivation also in the 2nd and 3rd years.

Taking the above three points into account, as a result of discussions with the JPMC members and the pilot farmers, it was decided to set up a model entrenched field at the Jhum field in the 2nd year cultivation provided by a farmer.

(b) Implementation of the Activities and the Results

In order to plot out the model field for settled agriculture, the following conditions were considered. The a method of funding for a terrace construction should not depend on outside fund and others.

- No construction of fields for the settled agriculture by providing terraces which requires substantial funds.
- No cultivation and ridge making by hoe and agriculture machinery (except initial land levelling if necessary) and no chemical fertilizer and agriculture chemicals.
- A multi-year cultivation in the same Jhum fields, and a trial usage of organic manure like 'Bokashi'.
- Secure irrigation water from stream nearby.

Activities implemented in the pilot project are integrated in the following Table 2.7.15. They are combinations of various methods such as ZBNF³ in India, MiSALT⁴ in Mizoram, SALT⁵ in the Philippines, ‘Bokashi’ in Japan, and so on, which had been developed by farmers and/or have been continuously utilized by farmers in the fields for a long period and the methods do not depend on external resources.

Table 2.7.15 Implementation Activities and Focal Points

Item of Activities	Focal Points of Activities Implemented
Utilization of Sloping Land other than Terrace	<ul style="list-style-type: none"> • Prevention of soil erosions and green terrace buildings at sloping lands in a village with useful resources, which were substantiated and practiced in SALT and MiSALT. • For acceleration of stabilizing period of natural terrace in sloping lands, construction of bamboo blocks and transplanting vetiver grasses⁶ to prevent soil run-off
Same as the Jhum Cultivation, no ploughing and no ridge making, and no use of chemical fertilizer and agricultural chemicals	<ul style="list-style-type: none"> • Implementing zero tillage cultivation in a sloping land. • Introduction of mulching by referring to ZBNF being implemented in the South India: introduction of mulching and application by weeds, paddy straw, fallen leaves: practices of making soft and fertile soil by mulching regularly for crop cultivation lands. • Referring to ZBNF, production of fermented compost and Japanese bokashi and application test of them. • Application tests of fallen leaves and rice bran without fermentation. • Introduction of high floored nursery plant production method which farmers practiced for the purpose of avoiding insects. • Introduction of a settled planting method with use of mulching materials (gunny bags and straws).
Multi-year cultivation in Jhum fields	<ul style="list-style-type: none"> • Implementation of the 2nd year farming of cultivating corns and Mizoram chili. • Yield comparison in the Jhum cultivation and the settled one: no comparison made due to the worldwide plague of fall armyworm.

Source: JPT

At the Jhum field lent from a farmer, demonstration activities were conducted to show farmers and the BAIDC members. In either method, detailed explanations, PDF manual, and detailed implementation methods in YouTube could be available in websites.

(c) Future Agenda and Countermeasure

The Jhum agriculture in traditional villages has an insurance implication for farmers and villagers. When villagers are unable to maintain the livelihoods of their own households, they can recover their livelihoods without depending on loans by doing Jhum farming. In other words, it is understood that Jhum farming has a function of a risk aversion for villagers.

Therefore, when transitioning from the Jhum agriculture to settled agriculture, the risk aversion system described above needs to be included in the settled agriculture. In Sailam, orange cultivation is described by officers as the settled agriculture, but farmers whose orange yields have declined are unable to sustain their livelihoods and get back to the Jhum agriculture.

In Assam state, farmers stabilize their earnings by intercropping tea and orange. In addition, planting tea functions as a soil run-off control measure. Tea and coffee are already being grown in Sailam under CSS, but they are planted in different locations. Intercropping or mixed cropping is not yet implemented as in Assam. The IDC worked with SAMETI to collect a range of information in other states and select areas

³ Zero Budget Natural Farming (ZBNF) is a set of farming methods, and also a grassroots peasant movement, which has spread to various states in India. It has attained wide success in southern India, especially the southern Indian state of Karnataka where it first evolved. <https://www.fao.org/3/bl990e/bl990e.pdf>

⁴ A pilot project on improving the traditional Jhum system called as the “MiSALT” (Mizoram Slope Agriculture Land Technology) technique was undertaken with funding from the UNDP) and FAO in 2016-17 in Lunglei and Aizawl District by a team of researchers of Mizoram University.

⁵ The objective of implementing the SALT (Slope Agriculture Land Technology) is to stabilize the slope and improve the terrace or the contours in order to control soil erosion along the slopes and improve soil fertility. This practice describes how to implement the SALT method. <https://teca.apps.fao.org/teca/en/technologies/7717>

⁶ Vetiver grass is native to India. It has been used in many tropical countries, and has been shown to be a simple and economical method to conserve soil by slowing the velocity of water and trapping sediment, filtering out nutrients, and stabilizing steep slopes.

that could be models of Mizoram and send the BAIDC members to such selected model areas to learn. The BAIDC activities in that way will be able to be advance dramatically.

(2) SA-03 Improvement of Orange Productivity

Many people explain that orange cultivation is one of the cultivation configurations that shifted from Jhum agriculture to the settled agriculture. In the village, volunteer farmers, who have been looking for marketable cash crops, visited the Mamit District, where orange cultivations are actively implemented, and they returned to their village with nursery plants and the skills of orange cultivation. After the farmers commenced orange cultivation, they tried various methods to propagate orange plants to produce nursery plant from seeds and slips, etc., and put them into effect. As just described above, the farmers themselves started income generation activities in the village, where many farmers have high independence spirit and are coherent, and it should become a valuable model to farmers in other villages for extension activities.

Although there was no opportunity for farmers to learn the orange cultivation in a systematic manner until now, it was observed to be possible that farmers can carry out a sustainable agriculture development by learning basic knowledge on agriculture and receiving sufficient trainings.

(a) Brief Overview on Crop Cultivation, and Technical Agenda and Formulation of Plan

The highest number of farmers in the village who practice orange cultivation is 74 families (49%) out of 150 families. The 2nd is 69 families (42%) for the Jhum cultivation. There are many farmers who practice both orange cultivation and the Jhum farming, and as a reason of the dual cultivation they expressed the following issues on the orange cultivation:

- Orange yields are unstable due to inadequate knowledge of operation and maintenance of orange trees and shortage of labor for clearing under the bush and so on.
- Although aspersion at a time of orange blooming is necessary, as there are no water source and no storage tank available, orange yields are not stable. Accordingly, it is difficult to gain stable income only by orange cultivation.
- Since the buying prices of orange by traders from Assam came down lower than the prices before, it became difficult to get planned earnings.
- As explained above, orange cultivation does not provide stable earnings, therefore, farmers face the necessity to conduct Jhum cultivation to maintain their livelihood.

To overcome these issues, the following measures and technical agendas were taken into consideration.

Table 2.7.16 Countermeasures and Technical Challenges to Problems of Orange Cultivation.

Issues Faced by Farmers	Measures	Technical Agenda
Unstable Annual Yield	Implementation of trainings on cultivation management: management of orange cultivation, prevention of disease, pruning skill, soil improvement, etc.	No officer understands pruning skills theoretically and realize practical skills
	Enhancement of water retaining capacity of orange field, and introduction of measures increasing moisture holding capacity, and introduction of terraces and cover crops which prevent soil runoff	Insufficiency of experience to construct earth retaining works and terraces using locally available materials, and no application sample of cover crops
	Confirmation of agenda and coping technique by listening to traders	How to implement the technique regularly

Source: JPT

(b) Implementation of Activities and Result

It became clear that the BAIDC members had no chance to listen to information in detail which was possessed by traders. Further, many BAIDC members had a negative image of traders by believing a rumor that “traders take a lot of margins by beating down of product prices of farmers”, but they understood a method of closely-focused extension activities by receiving detailed information from traders through the pilot project. For passing on necessary and practical skills of cultivation to farmers, it is necessary to enhance ability of BAIDC members further.

Although the cultivation test of cover crops to strengthen the water retaining capacity and soil fertility of fields conducted by getting seeds of clover and others with the assistance of the DOA of Meghalaya state and KVK, the final selection of the crop has not been made. Therefore, extension activities have not been implemented broadly. On the other hand, as earth retaining works by bamboo and vetiver grasses of orange cultivation in the fields were delayed due to the COVID-19 pandemic, activities to construct half-moon terraces were carried out near the village.

For marketing oranges to other states through traders, knowledge and skills, which are to be disseminated to farmers, are clarified by understanding the trading conditions. It was confirmed that it became possible to take measures to sell oranges to traders and in markets in higher prices. Farmers, who have been involving in the orange cultivation, raised various questions on the training methods. Therefore, two pruning methods were practiced for trainings so that farmers can observe them and select an appropriate method.

Through the interview with traders/middlemen from Assam, the following information were identified; i) the major production area in north-eastern region and Mizoram, ii) highly demanded variety, iii) grading standard, and iv) destination of orange. As for grading, there are two major price-decision factors; size and skin condition. The bigger orange fetches the higher price (Table 2.7.17). Skin condition is also important and skin without stain gives the higher price. Middlemen recommended to orange farmers to increase size and improve appearance to have better profits. Other important information is summarized in Table 2.7.18.

Table 2.7.17 Grading Standard of Orange

Size of Orange	No. of Fruit (per basket)	Price (INR/basket)
Large	110	800-900
Medium	176	600
Small	190	400

Source: JPT

Table 2.7.18 Other Important Information for Oranges

- Major orange production states are Arunachal Pradesh and Tripura followed by Mizoram
- The highly demanded variety is Kashi mandarin
- Middleman buys orange with INR 2/fruit and sell it with INR 6/fruit
- Major destination is Bangladesh
- Duration of transportation from Mizoram to Aggartala* is about 4 days
- Transportation cost per truck from Mizoram to Aggartala is about INR 40,000

* Aggartala is capital city of Tripura and there is the land custom station for trading

Source: JPT

To improve cultivation management of orange trees, training sessions on orange pruning were conducted by the BAIDC members in 2018 and by JPT in 2019. Although the objective of both trainings is to improve productivity by pruning, the pruning method was different from each other. The pruning methods employed by the BAIDC were strong pruning and heading-back, whereas those by JPT were a combination of weak pruning and thinning-out together with strong pruning and heading-back. The canopy was downsized through the practice done by the BAIDC. However, the branch to be borne were also removed, and then it was expected that production would be reduced. On the other hand, the JPT put more emphasis on thinning-out pruning followed by weak pruning; i) to allow light to reach all the branches and ii) to facilitate burgeon emergence, so that farmers would maintain the production to some extent and encourage development of tree branches in the following years (Figure 2.7.2).



Source: JPT

Figure 2.7.2 Pruning Training

(c) Agendas in Future and Countermeasures

According to interviews with traders, the quality and size of oranges were clarified. The future agendas caught up through the pilot activities are the following four points.

- The harvest of oranges is once a year from November to January, and the yield volume is not stable. As securing methods of the income for the balance nine months are not consolidated, many farmers depend on Jhum cultivation. Accordingly, it is necessary to consider plural income sources including intercropping with the orange cultivation.
- In order to maintain the annual yield and orange quality to sell in a high price, it is necessary to provide trainings for cultivation management and skills. For this purpose, it is also essential to foster officers who would have higher expertise on orange cultivation.
- It is necessary to stimulate technological improvement by setting numerical targets on orange cultivation, by collecting basic information on average yields, cultivation management methods, i.e., sugar content, size of fruit, average production per hectare, average production cost, etc. in the orange (Khasi-Mandarin) cultivation area in Assam and orange areas in other states
- There are many unclear points in Mizoram whether the department or farmers should conduct basic activities on orange cultivations such as nursery plant production of appropriate variety for replanting, maintenance of mother tree for production of nursery plants, and so on.

For example, in Assam State, many small-scale tea production farmers carry out intercropping of tea and orange. As a result, they got economical advantage from the increase of orange production. For decreasing Jhum cultivation, it is necessary to consider a cultivation method not to depend only on oranges. In case of the Sailam village, there are many farmers who have to replant orange trees within a few years. Therefore, the transplanting of oranges could be implemented as a model project taking the opportunity to accelerate intercropping with oranges.

After the pilot activities and the follow up activities, agendas and measures for extension activities were clarified as discussed above. A long-term development plan of an orange cultivation introducing an intercropping is formulated. And it is a very important point for the improvement of agriculture in Mizoram that is based on the plan. An extension plan and further refinement of the JIFAS system shall be implemented in order of precedence.

(3) SA-04 Improvement of WRC productivity

In Sailam village, land owners cultivate paddy by themselves and there are no tenants like in Buhchangphai village. However, they use Mizoram people in Myanmar for transplanting in the busy farming season. They face the same problems, which are lack of successors and shortage of labors, as farmers in other areas do. Since their paddy fields are located away from their residence in nearly one hour ride on motorcycle, they built a shed near the field for cultivation. Since the paddy fields in the village was developed on the initiative of farmers with the backup of the state government, cohesion of the farmers is high and extent of dependency on external resources is low. They prefer Japonica type sticky rice. They call this rice in the area as a Manipur variety against Indica type variety of rice. At the central market in Aizawl, the capital of Manipur state, the Japonica type of rice is sold for calling as the Manipur rice, and the price is more than double of Indica type rice.

The paddy cultivation skills of the farmers are not high. Especially, raising seedling is made as same as upland rice nursery of the Jhum paddy. The Jhum paddy nursery is problematic for insect and pest control and in view of efficiency. Paddy seeds are mostly procured from farmers who have a good reputation in Myanmar and Manipur. A farmer used to cultivate a few varieties of paddy for his/her own consumption and eat them with mixing. Farmers have tillers as agricultural machinery, but in recent years, they carry out various preparation works using the four wheel tractors of CHC⁷ until transplanting.

(a) General Outline on Crop Cultivation, and Technical Agendas and Plan Formulation

Since farmers did not have a chance to learn the cultivation of the wet paddy in a systematic manner other than cultivation of the Jhum paddy and their purpose of the paddy cultivation was only for self-consumption, cultivation skills of paddy were not much necessary. However, in recent years, due to effect of the lack of agriculture heirs and a steep rise in labor charges, interest of farmers focuses on agricultural mechanization and growth of earning. And farmers desire introduction of transplanting machine due to increase of labor charges for transplanting.

One of the BAIDC agendas on agriculture extension is that the BAIDC members could not provide appropriate advice to farmers because the names and characteristics of many paddy varieties introduced by farmers are not known. In fact, an unknown variety becomes an obstacle to inexperienced BAIDC members for agriculture extension activities. For example, paddy farmers in the village do not use agriculture chemicals and chemical fertilizers other than herbicide. But if the variety characteristic is known, they can confirm if the variety is resistant cultivar or not, and they can provide appropriate technical guidance. Further, as an experiment, onion cultivation is conducted for a second crop, the cropping intensity was yet too low.

Although there are some paddy fields where farmers are consolidating at present and each farmer is carrying out to strengthen paddy band and to improve soil in the fields, it is considered to be required to renovate irrigation canals and access roads.

Based on discussions among the BAIDC members and JPT, the following plan for farmers' agendas and future development was formulated.

Table 2.7.19 Issues and Action Plans for Rice Farming

Issues	Action Plan
As major objectives to increase productivity in paddy production areas, paddy yield increment and second crop cultivations in paddy field (Rabi cultivation: dry and winter crop) were planned.	
Increment of paddy yield	Selection and introduction of paddy varieties which farmers prefer
	Prepare a crop calendar for paddy cultivation
	Transfer of nursery plant production skills for introduction of transplanting machines
	Introduction of cultivation skills without using chemical fertilizer
Second crop of paddy field (rabi crop: dry and winter crop)	Rapeseed cultivation as oilseed crops
	Field pea cultivation as a cash crop
Improvement of irrigation facilities	Improvement of the Laului small scale irrigation project: enhancement of paddy production in rainy season and promotion of second crop growth in paddy fields in winter

Source: JPT

⁷ CHC (Agricultural Machinery Custom Hiring Centre) - https://agritech.tnau.ac.in/banking/nabard_pdf/Farm%20mechanization/3.Custom_Hiring_Centre.pdf

(b) Implementation of the Activities and Results

Implementation results of the activities are wrapped up in Table 2.7.20. Since farmers themselves started to develop paddy fields and their cohesion was stout, extension activities were easier as their dependence to external resources was low comparing to other villages.

Table 2.7.20 Results of Activities Related to Rice Cultivation

Issues	Activity	Results
Increase of Paddy Yield	Selection and introduction of paddy varieties preferred by farmers	The four paddy varieties, which are preferred by Manipur people, and were obtained with the cooperation of the Central Agriculture University and ICAR Research Centre, were selected and comparison of them had been conducted on (i) cultivation trial, (ii) seed paddy production, and (iii) taste. As a result, a Japonica type of paddy RCM-13 was selected and cultivation of the same variety was also started in other pilot villages.
	Preparation of paddy cultivation calendar	Paddy cultivation calendars for four varieties, such as paddies of which varieties were clarified, newly introduced paddy varieties, etc., were prepared, and farmers conducted cultivation management and BAIDC members carried out monitoring and provided trainings to farmers by stepping forward to paddy fields.
	Skill transfer of rearing seedlings for a purpose of utilizing a transplanting machine	In the same way with the Buhchangphai village, field trainings of the IRRI's 'Modified Mat Nursery', and rearing of nursery plants on a tray developed by a BAIDC member were introduced, and nursery plants were transplanted in line. However, introduction of manual transplanting was not practiced due to abeyance of production of the trans planter.
	Introduction of cultivation without the use of chemical fertilizer	Utilization of Bokashi, rice bran and grass plant ash as organic fertilizers as introduced in SA-1, and demonstration of a weed-eater fabricated by accessible materials were conducted. Fabrication method of the weed-eater was placed in an Annex of the 'MANUAL FOR IMPROVING AGRICULTURAL EXTENSION'.
2 nd Crop Cultivation of Paddy (Rabi Season : Dry Season & Winter)	Rapeseed cultivation as oilseed crop	In the same way as sesame cultivations in Jhum fields as oilseeds, rapeseed cultivation in paddy fields as oilseeds was proposed and implemented. Although farmers were not positive on winter crop cultivation initially, they were in the direction of expanding cultivation areas of rapeseed for oil due to shortage of cooking oil caused by the COVID-19 pandemic. The KVK in Srchhip carried out selection of varieties of rapeseed appropriate to plant after harvesting paddy.
	Cultivation of field pea as a cash crop	Peas, which are easy to sell to neighboring markets, and rapeseed were grown in mixed plantings. The seed cost of peas was high and the COVID-19 pandemic made it difficult to purchase seed itself.
Improvement of Irrigation Facilities	Renovation of the Laului small scale irrigation project: an increase of paddy production in the rainy season and promotion and diffusion of winter (dry season) crop cultivations based on renovation of the irrigation facilities.	Private contractor and the WUA rehabilitated the Laului small irrigation project and the access road. Training of O&M of the facility was provided to WUA. With the irrigation facility, irrigable areas of paddy and areas for winter cultivation were increased.

Source: JPT

In this village, rice cultivation was conditional on not using chemical fertilizers. In 2019, experimental rice cultivation was carried out using bokashi and rice bran, which were used in sloping land agriculture in the preceding year. Subsequently, the cultivation of RCM-13, selected based on farmers' tastes, was implemented, and the paddy yields over the three years were as follows. It should be noted that in 2020 there was a decrease in yield due to the occurrence of 'Rice Tungro Disease', but the following year this was addressed, resulting in an increase in average yield.

Table 2.7.21 Results of Paddy Yield in 2019

Farmer	Variety	Organic Fertilizer	Harvested Area (m ²)	Yield (kg)	(kg/ha)	Remarks
M.S Dawngliana	Hakuchuk-2	Rice bran	80.0	30.0	3,750.0	Indica type
		Rice bran + Neem	76.0	30.2	3,973.0	

Chhuntluanga	Hakuchuk-2	Nil	99.0	11.6	1,171.0	Water deficiency during cultivation
R. Vanlalhriata	Hakuchuk-2	Bokashi	100.0	33.9	3,390.0	Indica type, High yielding variety, Tripura
		Rice bran	191.0	62.5	3,272.0	
		Rice bran + Neem	118.0	48.6	4,118.0	
		Control		200.0	3,252.0	
R. Lalnunzira	RCM 9	Nil	16 (4m ² x 4)	5.3	3,288.0	Japonica type
Rithanga	RCM 30	Nil	174.0	84.2	4,839.0	Japonica type
-	Chhuanawmi	Nil	208.0	80.0	3,846.0	Local variety
Average			167.7	58.6	3,489.9	

Source: JPT

Table 2.7.22 Results of Paddy Yield in 2020

No.	Farmer	Variety	Sowing Date	Harvested Area (m ²)	Production (kg)	Productivity (kg/ha)
1	Lalrithanga	RCM 30	'20 Jun 12	161.0	57.4	3,565
2	M.S Dawngliana	RCM 30	'20 Jun 04	138.5	34.6	2,498
3	R. Vanlalhriata	RCM 30	'20 Jun 05	172.5	61.8	3,583
4	Zoliansanga	Local	'20 Jun 02	240.0	54.0	2,250
5	Lalhualhima	RCM 30	'20 Jun 04	195.9	27.0	1,378
6	R. Lalnunzira	RCM 30	'20 Jun 05	163.5	43.0	2,630
7	Laltluanga	RCM 30	'20 Jun 12	142.0	34.2	2,408
Average				173.3	44.6	2,616
8	Control	DRH775	'20 Jun 12	240.0	131.9	5,496
9	Control	Local	'20 Jun 04	103.7	47.5	4,581
Average				171.9	89.7	5,039

Source: JPT

Table 2.7.23 Results of Paddy Yield in 2021

No.	Farmer	Variety	Sowing Date	Harvested Area (m ²)	Production (kg)	Productivity (kg/ha)
1	Lalrithanga	RCM 30	'21 Jun 11	617.76	264.6	4,283
2	M.S Dawngliana	RCM 30	'21 Jun 15	52.3	19.6	3,748
3	R. Vanlalhriata	RCM 30	'21 Jun 10	153.2	68.6	4,478
5	Lalhualhima	RCM 30	'21 Jun 23	132.06	56.1	4,248
6	R. Lalnunzira	RCM 30	'21 Jun 10	222.06	96.3	4,337
7	Laltluanga	RCM 30	'21 Jun 11	253.93	107.8	4,245
Average				238.6	102.2	4,223
8	Control	DRH775	'21 Jun 11	103.65	47.48	4,581

Source: JPT

(c) Future Agendas and Countermeasures

Since farmers themselves had been conducting paddy field development, extent of dependency on external resources is low and cohesion of the farmers is high compared to other villages. Accordingly, extension activities are easily conducted in the area. As they did not have opportunities to learn paddy cultivation in a systematic manner, they practiced paddy cultivation with that of the Jhum fields and with the skills of neighboring farmers. Therefore, they do not sometimes satisfy with the theoretical explanation of the BAIDC members. The present agendas are i) lack of basic agriculture knowledge as for paddy cultivation and ii) lack of basic knowledge and experiences of the BAIDC members as extension workers. It is generally understood that a manual for cultivation skills of cereals is easily prepared compared to vegetables. However, extension of paddy cultivation could not be simplified as a manual because varieties and historical trails of paddy presently being cultivated in Sailam and other villages are unclear. Thus, extension works for paddy are not so simple and it is also not easy to prepare a manual. Further, some BAIDC members expressed that it is difficult to explain cultivation activities concretely as there is no word in the Mizo language to indicate agricultural words and creations such as microorganisms. Accordingly, it is necessary to establish an environment for implementing efficient and effective agricultural extension after conducting basic trainings as for agriculture.

In the Project, after conducting hearing investigations on taste and varieties of rice, paddy varieties, which could satisfy farmers' relish and are highly productive, were introduced from Manipur. Characteristics of these paddy varieties have been defined and it is possible to refer to the Agriculture University in Manipur and the ICAR Research Centre for unclear points on the paddies. In this manner, till promulgation abilities of the BAIDC members will reach a certain level, an effort is necessary to improve circumstances on extension works in which BAIDC members could easily carry out the activities and farmers could highly satisfy.

Introduction of rapeseed varieties was also conducted in addition to selection of appropriate varieties of paddy. In Mizoram, the commencement of paddy cultivation depends on rainfall conditions in June. Recently, the transplanting of paddy would often carry over to July, and the harvest would be at the end of November. Since yields of rapeseed varieties in India's mainland would become low if they were sowed in December, the KVK selected such varieties that yields would not come down even if they were sown in December, and produced the seeds at KVK. The cultivation was carried out by distributing such seeds. The foregoing activities could become a model of agriculture development which provides the circumstance for easy extension activities and sustainable agriculture. It would boost consolidating the environment for agriculture extension to expand the model broadly in the state.

The construction of Lului MIP was significantly behind schedule. Initially, BAIDC Annual Plan 2018 showed that construction was to start in November 2018 and to be completed in March 2019. However, the community contract started in March 2019 and completed in January 2020. Construction work by the contractor started in February 2019 and completed in May 2020 after an interruption during the rainy season and lockdown due to the COVID-19 pandemic.

The O&M training was conducted. The training was instructed by IWRD's Sub divisional Officer. The JPT provided pre-training to the instructors. In the training, after clarifying the irrigation and drainage facilities that the WUA should maintain and manage, the risks of neglecting maintenance were explained using photographs, and the WUA members devised to think about their own needs. In the end, the activities for fair water distribution and maintenance were summarized. After the training, clearing of the canals were carried out by the WUA themselves.

Lului MIP is a typical WRC irrigation facility in mountainous areas. It was necessary to develop water intake facilities with multiple small rivers as water sources and long canal. Access roads and roads for movement within the cultivation area were also required. As the construction cost per beneficiary area increases, the burden of maintenance costs per beneficiary becomes excessive. In order to maintain the functions even after the transfer to WUA, it is necessary for IWRD staff to continue to provide careful guidance on preventive maintenance. The promote construction work with community contract system will help to secure maintenance costs of the WUA.

2.7.3 Activities in Serchhip II Village (Rehabilitation of Lumtui MIP)

The DPR of Lumtui MIP has been prepared by IWRD as a candidate project for BAIDC Annual Activity Plan 2018 and reviewed by the JPT. The proposed Lumtui MIP is situated in the south of Serchhip Town at a distance of about 6 km. The command area is located on the right bank of the Lumtui River, and belongs to Zone 2 (Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region) as defined in the JICA Master Plan Study, where production of various products needed for main habitants in the state through enhancement and upgrading of permanent agriculture is proposed.

The Lumtui MIP is a completed project of IWRD; however, serious damage occurred in the diversion weir due to huge scouring occurring downstream. Some parts of the main channel and distribution channel need to be repaired and huge amounts of sediments are required to be cleared. The purpose of the Lumtui MIP is to help farmers of the area by providing them with an improved and assured irrigation system and infrastructure in order to improve their economy.

The construction works were carried out with JICA funding and divided into two groups; one was sublet to local contractors of Mizoram and the other to WUAs of local communities.

Based on the list of contractors in the state prepared by the Financial Commission, the questionnaire survey was conducted in Phase 1 and eleven companies were shortlisted for the tender. The designated

competitive bidding was conducted based on the JICA Guidelines in April 2017, referring to the criteria of IWRD.

In a JCC meeting held on the 5th of July 2018, a community contract was suggested, based on which some suitable works for the community were selected by EE and accepted by CE, IWRD in the meeting on the 6th of December 2018. On the 5th of March 2019, a memorandum of understanding (MOU) was signed after explanation of the contents of the contract including the payment terms to the WUA of the Lumtui Irrigation System. For the contract price, the standard rate of the government was applied.

Construction was significantly behind schedule. Initially, BAIDC Annual Plan 2018 showed that construction was to start in November 2018 and to be completed in March 2019. However, the community contract started in March 2019 and was completed in February 2020. Construction work by the contractor started in February 2019 and completed in January 2020 after interruption during the rainy season and the lockdown due to the COVID-19 pandemic. On the other hand, IWRD has a plan to repair the intake weir, the scouring portion of downstream with its own funds, hence; it was excluded from this JICA project.

In Keitum Village, the farmers' group was not officially registered at the beginning. When construction was sublet to the WUA, formal registration was required. Hence, it was officially registered under the Mizoram Societies Registration Act, 2005 before the start of construction. After the rehabilitation, training was provided on operation and maintenance, and a maintenance management plan was developed.

2.7.4 Activities in Hnahlan Village

Hnahlan village of Champhai RD block in Champhai district was selected as a pilot village. The population of the village is over 3,000 which is three to four times more than that of Buhchangphai and Sailam villages. Since there are a lot of high mountains in Champhai district, many farmers' livelihood depends on Jhum cultivation as 164 families in the village were practicing such farming. There are also many farmers involved in grape cultivations as shown in Table 2.7.24. Grape cultivation started back in 2001 and a winery was constructed assisted by the DOH regardless the rule to abstain from drinking. It was recorded that at the peak 80% of villagers were involved in wine cultivations. However, since the government of INC (Indian National Congress) lifted the ban on the abstention from drinking in January 2015, the consumption of alcohol drinks from the outside districts was restarted. Accordingly, the production and sales of wines in Hnahlan were reduced drastically, and farmers cultivating grapes in the village became only 157 families in 2018. At that time, the production of wine was basically permitted to be produced for the sacramental wine.

Therefore, many farmers producing grapes made the shift in their farming to paddy and vegetable or Jhum cultivation. Although the newly selected MNF (Mizoram National Front) state government banned alcohol again, and production and sales of wines were not officially permitted in 2019, the same government permitted production and sales of wines from 2022. This banned period while the activities had been implementing under the pilot project of JICA, overlapped with the period while the farmers who abandoned grape cultivations had been trying to find out an alternate farming. Accordingly, the pilot activities became the extension activities to assist these farmers.

Table 2.7.24 Three Major Crops Cultivated in Each Season in Hnahlan Village

No.	Crop	Farm Families		Cultivated Area (ha)	Cash Crop	Subsistence Crop	Cultivation		
		No.	(%)				landowner	Tenants	Employed Labour
Kharif (summer crop: Rainy season)									
1.	Grape	157	27	99	●		●		●
2.	Paddy (WRC)	143	25	158		●	●		▲
3.	Ginger	77	13	30	●		●		●
*	Paddy (Jhum)	164	29	138	●	●	●		▲
Rabi (Winter crop)									
1.	Mustard	2	0.3	1		●	●		
2.	Cabbage	1	0.2	0	●		●		
3.	Pulse	1	0.2	0	●		●		

Note: ●applicable, ▲partially applicable, Total farm household: 573

Source: JPT

(1) HN-01 Improvement of Jhum Cultivation

As a purpose of improving the Jhum cultivation, basic activities were focused on i) measures to prevent soil erosion and ii) increment of cultivation profits. In addition, a shift from the Jhum farming to settled farming was also aimed. The population dependent on the Jhum cultivation in the Hnahlan village was 205 families in 2018. Although the number of households depending on the Jhum cultivation is higher than that of Bihchangphai and Sailam villages, the ratio against the total household number is 36% and an average cultivation area per household is 0.6 ha in the village which are lower than those of the Sailam village.

Table 2.7.25 Details of Jhum Cultivation

Village	No. of Household	% in the total house hold	Average area (ha)
Buhchangphai	14	7	0.9
Sailam	68	45	0.7
Hnahlan	205	36	0.6

Source: JPT

However, due to high household numbers, the management of VC (village council) was relatively poor, and the cultivation methods were rather extensive ones and many farmers practiced mono-cropping such as paddy or ginger not like the farming in the Sailam village where many farmers conducted mixed-cultivation of cropping for self-consumption. Further, intentional burning areas became broad due to large households; there were cases in which the fire extended also to the areas not planned for the Jhum fields. Therefore, the representatives of the YMA (Young Mizoram Association) proposed methods to leave the trees at the peaks of mountains and to plant trees after the Jhum cultivation. But the proposal was not accepted in the activity plan. There are many trees of *fagaceae quercus spp.* (oak) in the Champhai areas at a higher elevation and these trees are stout against wildfires, therefore, such trees are appropriate varieties for plantation in the Jhum areas. Since they are the trees having broad leaves, the leaves are effectively used for compost and mulching materials. Further, the trunk and branches of the trees are suitable for charcoal⁸, about 13 families are involved in the charcoal production. Then, the oak is also a useful resource in the future, as it can be used to feed the wild silkworms of Oak Tussah Silk.

(a) General Outline of Crop Cultivation and Technical Agendas, and Formulation of Plan

It was proposed as a countermeasure to prevent soil erosion that the remaining woods, after firing for the Jhum fields, should be placed along the counter lines. This method is called Changkam as a traditional method adopted in the Jhum fields. Although it was also discussed that the Jhum fields finished off in a year, it should be tried to be extended for two or three years continuously, the VC expressed to continue the present one-year system as such change of the Jhum cycle would make complications of the system management for more than 200 farmers involving. And finally, the VC's opinion was agreed upon.

Further, although the discarded grape cultivation fields were restarted to use for the Jhum cultivation, there were some cases that farmers demanded to substitute the field since fertility of the allocated Jhum fields had not yet been restored. In Sailam village farmers were conducting mixed cultivations of different varieties of paddies for self-consumption and cultivations of cash crops for avoiding a risk. On the other hand, in the Hnahlan village many farmers were conducting a single crop cultivation of paddy and cash crops like ginger, which were observed to be required for an improvement of effective use of land, countermeasures for soil erosion, and so on. Accordingly, it was proposed to have a study tour to Sailam village. But it was not accepted by the farmers in the Hnahlan village because they expressed that the Champhai area should be the main stream of the Jhum farming and had technically higher skills. The following shows major activities planned during the pilot and follow-up periods.

⁸ In Hnahlan village, about 13 farmers are engaged in the charcoal making as of 2018. Improved charcoal-making methods and planned afforestation enable sustainable charcoal production with low environmental impact. Meanwhile, in Chinchhip village, Serchhip district, some farmers have constructed Japanese-style charcoal kilns to produce high-quality charcoal and wood/ bamboo vinegar solution, which can be recommended as a suitable model for the development of charcoal-making in Mizoram. In addition, products of wood/ bamboo vinegar solution and charcoal dust are essential materials for agriculture, especially for organic agriculture.

Table 2.7.26 Action Plan against Issues

Agenda	Activity
Countermeasure for Soil Erosion	Implementation of field trainings measuring contour lines with use of the A-frame
	Revival of Changkam ; Strengthening of measures on soil erosion by placing remaining woods after firing for the Jhum field along the counter line
Increment of Earnings by Mixing Cultivation	Selection of mixing crops with paddy: Mizo chilli, sesame, perilla, etc.
	Guidance and implementation of a mixed cultivation of crops
Others	Trip to observe the fields to produce charcoal and wood vinegar in the Chhinchhip village, and the Jhum cultivation method in the Sailam pilot village

Source: JPT

(b) Implementation of Activities and Results

Major activities and the results are compiled in the following Table 2.7.27.

Table 2.7.27 Results of Action Plan for The Issue

Issues	Activity	Result
Countermeasure of Soil Erosion	Implementation of field trainings measuring contour lines with use of the A-frame	In the 1 st year, the A-frame was made by JPT and BAIDC, and the training and implementation to place the remaining woods along contour lines after firing as countermeasures for stopping the soil erosion were conducted. In the 2 nd year, the activities were initiated by the Department of Soil.
	Revival of the Changkam system; strengthening to avoid the soil erosion by placing remaining woods along the counter line in the Jhum area after the firing	In the 1 st year, the pilot activities for the Jhum farming were conducted in an oak resurgent forest by placing remaining woods along the count line to make terraces after the firing. In the 2 nd year, there were a lot of grape fields abandoned and woods for countermeasures to prevent the soil erosion were not enough, while the forests were not recovered yet. In addition, extreme weather conditions also caused disruption, including the death of chili seedlings for mixed planting.
Increment of Earnings by Mixing Cultivation	Selection of mixing crops with paddy: Mizo chilli, sesame, perilla, etc.	Considering an income increase, the Mizo chilli which is highly marketable in Mizoram, and the perilla which is also marketed to Manipur were selected.
	Guidance and implementation of a mixed cultivation of crops	It was understood that the mixed cultivation of paddy and sesame requires to follow the traditional cultivation method as for a growing period including the seeding and the climate. The Mizo chilli was required to apply fertilizers for the derelict grape fields
Others	Trip to observe the fields to produce charcoal and wood vinegar in the Chhinchhip village, and the Jhum cultivation method in the Sailam pilot village	It was decided that the training of the Jhum cultivation in Sailam village is not necessary since the Jhum cultivation method in the Champhai village was the most valiant. As for the charcoal production, farmers in Chhinchhap understood that the technical support through the telephones and the WhatsApp was adequate. Therefore, a guidance and trainings for production of the wood vinegar were at first provided to the farmers.

Source: JPT

(c) Future Agendas and Countermeasures

It was well understood by farmers in the Sailam village as well as the Hanhlan village that the Jhum cultivation had large functions as a safety net for farmers in each village. For the pilot activities in the 2nd year, it was agreed upon as a result of the discussions between the VC and farmers that the abandoned grape fields would be divided among farmers as the Jhum fields. However, since the land fertility had not been recovered, a part of farmers who noticed a risk, demanded alternative fields and negotiated with the VC. At that time, since the rainfall in April was low and it took three weeks for paddy seeds to germinate, and as the nursery plants of Mizo chili dried up, it was necessary for farmers to replant the Mizo chili. All such events overlapped with the abnormal climate. In the Sailam village, farmers kept crop seeds to overcome risks like the abnormal climate and knew the cultivation management methods to correspond to such conditions. However, such a situation might vanish for the next generations

In Nagaland state, the alder tree was used as a mark tree to measure the fallow period of the Jhum lands, and mixed cultivation methods and crop cultivation periods in the Jhum fields are explained in 'Jhum

Cultivation System Based on Alder Tree⁹. In Hnahlan village, umpty trees of ‘*Fagaceae Quercus spp.*’ (Oak) are growing thickly, and as they are stout to a fire, they should be useful trees for Jhum farming and the cultivation of sloping lands. It would be possible to innovate a method for curtailing the reproduction period of forests after the firing. They are desired for the extension works, not only to improve the Jhum lands, but also to upgrade the Jhum farming as well as the settled farming by utilizing the alder trees like the Nagaland, and to show particularly a boosting method to revive afforestation¹⁰. For upgrading the improvement of the Jhum cultivation and boosting up the settled agriculture as farmers’ acceptance, the safety net to the various risks should be considered and provided. For this purpose, a coalition with the Rural Development Department and the Environment, Forests, and Climate Change Department would be essential.

(2) HN-02 Promotion of Vegetable Cultivation in Grape Field

There were discarded grape fields located sloping lands with irrigation facilities, and the farmers were groping to find out alternative crops to the grape in the area, and it was selected for an implementation area of the pilot project. Although a reservoir tank constructed by the IWRD before was a good condition, the irrigation facilities were not functioning as the distribution pipelines were lost by theft. Thus, renovating the irrigation facilities and new construction, the promotion of vegetable cultivation during the Kharif (summer) and Rabi (winter) seasons was planned for upgrading income. However, since the Hnahlan village locates on the border with Myanmar, it is necessary to select thorough varieties of vegetables to cultivate and cultivation period since cheaper vegetables and fruits could come from Myanmar.

(a) Outline of Crop Cultivation and Technical Agenda, and Formulation of Plan

It was confirmed that since the pilot farmers at the discarded grape fields did not have high-level knowledge and experience in vegetable cultivation, practical cultivation training at the fields were inevitable. It was also considered to confirm the necessity to conduct trials for selecting cultivation methods to introduce appropriate varieties of vegetables and to boost productivity during the Kharif (rainy season) period and Rabi (dry and winter season) period, and to find out a possible way to get appropriate seeds by farmers and products of the market needs.

Since the Hnahlan village is located in a faraway place about three hours by vehicle from the district office of each department, the activities for coordination and extension of the plan had been conducted through the telephones and WhatsApp, etc. during the follow-up period under the COVID-19 pandemic after 2020 as shown in the following Table 2.7.28.

Table 2.7.28 Action Plan against Issues

Agenda	Activity
Selection of Appropriate Vegetable Varieties	Confirmation of market needs and procurement methods of seeds by farmers, etc.
	Selection of appropriate crops and varieties, and cultivation trial: Cultivation tests by changing seeding periods at the demonstration fields
Technical Level of Farmers	Practical trainings at the fields of the pilot farmers
	Market survey and confirmation of appropriate cultivation period
	Survey of yields and marketing
Vegetable Cultivation by Renovation of Irrigation Facilities	Construction of terraces at sloping fields of beneficiaries by irrigation and for cultivation of vegetables
	Practices of vegetable cultivation

Source: JPT

(b) Implementation of Activities and Results

It was recognized that effective utilization of discarded grape fields would be a key to increasing farmers’ income and thus the activities were started for the purpose of promoting vegetable cultivation at the discarded grape fields. As the farmers’ experience on the cash income of vegetable cultivation was not

⁹ <https://focus.nagaland.gov.in/wp-content/uploads/2018/03/JHUM-CULTIVATION-SYSTEM-BASED-ON-ALDER-TREE.pdf>

¹⁰ The necessary information on Alder-based cash crop systems and Jhum system in Nagaland is explained in the book listed below: “Building Upon Traditional Agriculture in Nagaland, India”, ISBN: 0-942717-72-4, <https://idl-bnc-idrc.dspacedirect.org>

much, the regular training utilizing the fields of the pilot farmers had been conducted during the two years of the pilot project period.

The renovation of the irrigation facilities had been delayed behind schedule and completed in August 2020. On the other hand, the construction by a WUA as a community contract had been implemented and completed in December 2019. The WUA had registered based on the Mizoram Societies Registration Act, 2005 so that WUA could place an order for construction works. And, it was agreed that the WUA took back the renovated irrigation facilities to continue the O&M of the facilities. The training to the WUA on technical skills, construction management, and accounting before the construction started were conducted by JPT and BAIDC. Although the follow-up period started in 2020 was affected by the COVID-19, training for irrigation beneficiaries were carried out before the construction was completed and the 17 beneficiaries were conducting vegetable cultivations such as tomato, cabbage, broccoli, and pea as shown in Table 2.7.29.

Table 2.7.29 Results of Action Plan against Issues

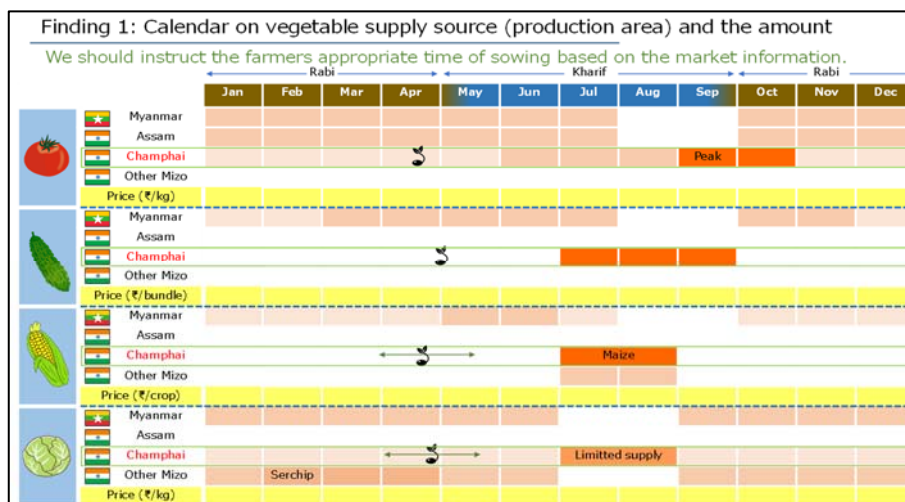
Agenda	Activity	Results
Selection of appropriate varieties of vegetables	Confirmation of market needs and procurement methods of seeds by farmers, etc.	By implementation of the market survey at the Champhai central market, a seed procurement by farmers was confirmed. But it became clear that procurement of F1 seeds by farmers was difficult.
	Selection of appropriate crops and varieties, and cultivation trial: Cultivation tests by changing seeding periods at the demonstration fields	Rainy season; Cabbage, Chinese cabbage, Sweet Corn, Cucumber, Haricot, and Dry season; Cabbage, Broccoli, Kohlrabi, Pigeon Pea. Further conducting a lecture and implementation of training in the fields for monitoring and recording of cultivations.
Upgrading of farmers' technical level	Practical trainings at the fields of the pilot farmers	Implementation by BAIDC members to visit each farmers' field.
	Market survey and confirmation of appropriate cultivation period	BAIDC and farmers conducted the survey under the JPT guidance.
	Yield and marketing surveys	Poor yield in the dry season due to the eruption of disease and pest, good growth of corn, cucumber, and haricot in the rainy season, the necessity of further technical training to farmers
Vegetable cultivation by improving irrigation facilities	Construction of terraces at sloping fields of beneficiaries by irrigation and for cultivation of vegetables	Field training on the construction of terraces to improve fields for vegetable cultivation on the sloping lands utilized by beneficiaries of Dilhnuai MIP
	Practices of vegetable cultivation	Chili cultivations by nine pilot farmers, and the six farmers produced chilli and marketed it. The total sales value of the three (3) farmers was INR 27,040 and other products were all for self-consumption.
		17 irrigation beneficiaries implemented cultivations of tomato, cabbage, broccoli, and pea in the dry season.

Source: JPT

(c) Future Agenda and Countermeasures

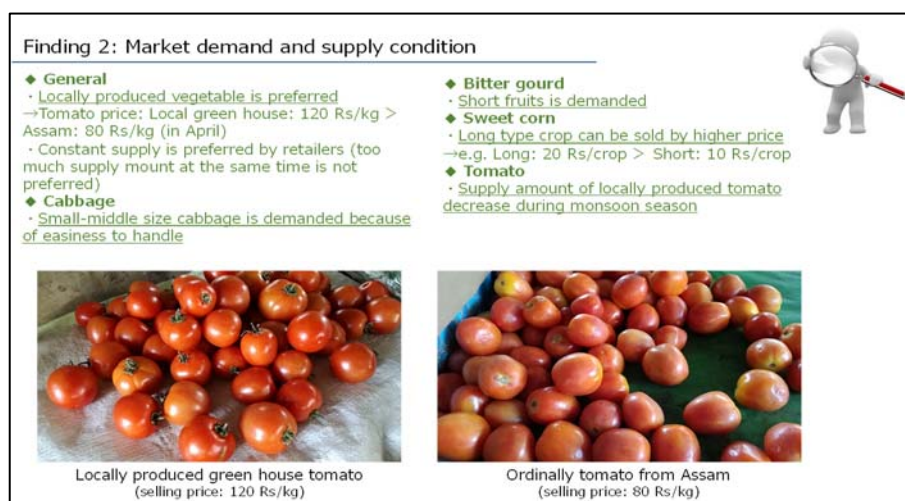
Grape production is a special agricultural form in the Mizoram state where abstinence from alcohol is generally prevailing, therefore, farmers might lose the earning basis due to sudden policy changes like the ban on wine production. Further, although the wine produced in Mizoram was not at the level of quality to sell to markets in other states, the policy change of the Government became a factor for affecting deeply the wine business in Mizoram. In the future, by getting a grasp of the needs and extent of the market and the quality of wine, improvement of production methods of wine, and development of products other than wine is desired. And the Departments should take adequate countermeasures against farmers affected adversely by the policy and check that farmers earning activities shall not be turned back.

The findings from the market survey are depicted in the following figures. For example, in August and September, tomato does not come from Myanmar and Assam. Also, in general, a locally-produced vegetable is preferred and the price of domestic product is higher than that of imported from other locations. It means farmers could easily find a market with a higher price if they could harvest tomatoes in August and September. Through the market survey, pilot farmers understood well the position and marketing approach of vegetables they need to select.



Source: JJPT

Figure 2.7.3 Vegetable Supply Source (production area) & Supply Calendar



Source: JPT

Figure 2.7.4 Major Findings from Market Survey for HN-02

The construction works of Dhillnuai MIP were carried out with JICA funding and divided into two groups; one was sublet to local contractors of Mizoram and the other to WUAs.

Based on the list of contractors in the state prepared by the Financial Commission, the questionnaire survey was conducted and eleven companies were shortlisted for the tender. The designated competitive bidding was conducted and select MizoTECH Pvt. Ltd. as a contractor. On the other hand, regarding the work to be outsourced to WUA, PMT and JPT decided on the construction details and the scale of the contract and signed a contract agreement with WUA for starting the work.

WUA participated in the construction work with very high motivation, and they tried to obtain high-quality construction materials (sand and aggregate) at low prices. As a result, the construction was completed about a year earlier than the construction by the contractor. Prior to the construction, JPT and PMT provided training on construction management and accounting management and instructed them to update their accounting books regularly during the construction period.

Before the completion of the construction of the irrigation facilities, training on the cultivation of new vegetables such as sweet corn and broccoli was started under the guidance of the DOH. After completion of the construction works, cultivation started in earnest. Although irrigation was limited to about 7 ha during the dry season in 2020 (February to May), about 20 ha was irrigated during the dry season in 2021. The WUA held discussions under the guidance of IWRD for fair water distribution in the water

storage system. The WUA was divided into two groups according to the water source, and the leader of each group was selected. Dhilnuai MIP are expected to be utilized sustainably in Mizoram as a model of irrigation facilities on sloping land, including operation and maintenance.

On the other hand, in 2022, due to the road construction in the village, the completed and transferred irrigation facilities was damaged, and irrigation is stopped. The discussion on rehabilitation of the facilities including compensation among the Mizoram Public Works Department, IWRD, and WUA are ongoing.

(3) HN-04 Improvement of WRC Area Productivity

In the 1st year of pilot activities in 2018, the demand for training in seed paddy production was high, and the activities commenced in the area where the VC and the representatives of farmers were selected. However, during the rainy season, a road to paddy fields was submerged and after the rainy season due to a lack of irrigation water, the yield was negligible. Further, a large number of participants are the 2nd generation of farmers who had shifted from grape cultivation to paddy, and their basic skills and experience of paddy cultivation were low and their attitude toward activities was not positive. Although assisting farmers who were involved in grape cultivation before was very important, as a necessity to attend measures for the system formulation on extension activities was also high, at the progress review meeting the discussions with the VC members and the pilot farmers were conducted. As a results the new selection of the pilot farmers was conducted taking the following two points into consideration; i) paddy fields that BAIDC members could access even in the rainy season, ii) farmers who have experience in paddy cultivation. In the 2nd year, the 2nd crop (Ravi/ winter) cultivation in the paddy fields commenced. In the Hnahlan village as same in other villages, the 2nd crop cultivation (winter) was the 1st time.

(a) Outline of Crop Cultivation and Technical Agenda, and Formulation of Plan

The Champhai state has an international border with Myanmar and farmers who have leeway, employ Mizo people as agriculture labors, but there are no tenants like in Buhchangphai.

The planned activities of the agenda during the pilot period and the follow-up period were summarized in Table 2.7.30.

Table 2.7.30 Action Plan against Issues

Agenda	Action
Upgrading of Productivity	Trainings on seed paddy productions
	Introduction of appropriate varieties of paddy and seeds and implementation of cultivation management in accordance with the cultivation calendar
	Change from the Jhum type nursery to the wet-bed nursery
	Improvement of paddy field; levelling, strengthening of bund, strengthening of water side of levee by vetiver grass, etc.
	Improvement of water management method
	Weed prevention test with use of the rice bran and demonstration of a hand-made weeding tool
	Cash income by the fish culture in paddy fields
	Starting the 2 nd crop cultivation in paddy fields in dry and winter season

Source : JPT

(b) Implementation of Activities and Result

Table 2.7.31 shows the activities of the pilot project and results.

Table 2.7.31 Results of Action Plan against Issues

Agenda	Action	Results
Upgrading of Productivity	Trainings on seed paddy productions	The trainings were conducted to the pilot farmers, but it was not reached to the actual production, and the activity stopped in 2018.
	Introduction of appropriate varieties of paddy and seeds and implementation of cultivation management in accordance with the cultivation calendar	Introduced the CAU R-1 variety produced by the seed paddy cultivation farmer in the same district and RCM-13 variety selected by a farmer in Sailam village and cultivated them. As the circulation of the seeds was not easy due to the corona pandemic, farmers purchased seeds of a Myanmar variety (name of the variety was not known) and cultivated it.

Change from the Jhum type nursery to the wet-bed nursery and modified mat nursery	Out of two farmers, one applied the wet-bed nursery changed from the Jhum type nursery which is a direct seeding on the ground near the wet paddy field, and the other nursery applied the modified mat nursery as one of the dry-bed type developed by IRR1.
Improvement of paddy field; levelling, strengthening of bund, strengthening of water side of levee by vetiver grass, etc.	Aiming yield improvement, leveling, strengthening of the bund, and strengthening of the water side slope of the levee by planting vetiver grass was conducted. The follow-up activities like strengthening the waterside slope of the levee were interrupted due to the corona pandemic.
Improvement of water management method	Improvement of the irrigation management by flooding the fields just after the transplanting for not using chemicals, the water management in farmers' fields introducing cold water for the irrigation was changed to raise the water temperature of the water.
Weed prevention test with use of the rice bran and demonstration of a hand-made weeding tool	Implementation of trial for preventing weeds without the use of chemicals and introduction of a hand-made weeding tool of which production cost is Rs.50 – 300, and demonstration of it.
Cash income by the fish culture in paddy fields	One farmer out of the two had been practicing fish culture in the paddy fields during the cultivation period between transplanting and harvesting. As he provided grooves in the paddy fields he was able to increase the fish catch. Other farmers also started the fish culture for increasing cash income.
Starting the 2 nd crop cultivation in paddy fields in dry and winter season	Introduced rapeseed and peas, and started cultivation of peas, which could be sold in the village, but procurement of seeds became difficult due to the corona pandemic.

Source: JPT

The three-year yield records of paddy for both farmers are as follows. Mr. Zuiliana Sailo releases fry after rice planting in paddy fields and also harvests and sells the fish in the village. Both farmers use no pesticides or chemical fertilizers, as the other farmer raises fish in a reservoir beside his paddy field. When the high-yielding variety CAU R-1 was grown, both had yields of around 5,000 kg per hectare, but they switched to the Myanmar variety because of its poor taste.

Table 2.7.32 Results of Paddy Yield in 2019 (Variety: CAU R-1)

Farmer	No. of Sample Plot	No. of Paddy Stubble (/4m ²)	Yield (g/4m ²)	Productivity (kg/ha)
Vanlaltura	5	31	2,002	5,005
Lalzuliana Sialo	7	51	2,028	5,071

Source: JPT

Table 2.7.33 Results of Paddy Yield in 2020

No.	Famer	Variety	Sowing Date	Harvested area (m ²)	Yield (kg)	Productivity (kg/ha)
1	Vanlaltura	Burma Buh	'20 May 28	251	105.6	4,206
2	Zuiliana Sailo	Burma Buh	'20 May 29	82.5	30.7	3,721
Average				166.8	68.2	3,964
3	Control	CAU R-1	'20 May 28, 29	8	3.91	4,888

Source: JPT

Table 2.7.34 Results of Paddy Yield in 2021

No.	Famer	Variety	Sowing Date	Harvested area (m ²)	Yield (kg)	Productivity (kg/ha)
1	Vanlaltura	Burma Buh	'21 May 24	678.4	280.8	4,139
2	Zuiliana Sailo	Burma Buh	'21 May 20	640.1	238.05	3,719
Average				166.8	68.2	3,929
3	Control	Burma Buh	'21 May 20, 24	580.9	230.5	3,960

Source: JPT

(c) Future Agenda and Countermeasure

The state government was aiming to increase paddy production for self-sufficiency in the state. However, it was understood that technical levels of paddy cultivation differ much depending on area and even in

villages. It was also understood in the villages that paddy cultivation was not necessarily prioritized in a household economy because of the following reasons; i) the purpose of paddy cultivation was only for self-consumption of rice, ii) most of the farmers who own paddy fields are not in the poverty group, and iii) there is ration rice supplied by the government. It was considered that due to such circumstances, skills to upgrade the productivity of paddies might not be established, not like other areas where farmers depended their livelihood much upon paddy cultivation.

In the village, a farmer selected for the second time for the pilot farmer had been cultivating self-consumed paddies, and if there was an excess production, he sold the rice for supplementing the household income. Therefore, he showed a high interest in such activities as fish culture in paddy fields which provided a cash income, and the activity was sustained.

The purpose of paddy cultivation by farmers in the area was mainly the production of self-consuming rice. But it would be possible that the present low productive paddy cultivations could be shifted to utilization of the fields as profit-oriented activities, such as a marketing system of the japonica type rice, fish culture in the fields while cultivating a paddy, introduction of the 2nd crops in the paddy fields in the dry and winter season, and so on. For materializing the above it would be essential to provide necessary training to BAIDC members and it would be also important to start activities for getting a grasp of characteristics of the agriculture practices including social background in the area.

2.8 Conduct Feedback Meeting and Evaluation Seminar

STEP 12 of the Implementation Guidelines state that a feedback meeting for the BAIDC Annual Activity Plan will be held each year to assess the evaluation for one year and reflect the opinions of the BAIDC and farmers in the next year. Feedback meetings were held in February 2019 and February 2020 in accordance with the implementation guidelines. In addition, the Project planned to hold an evaluation seminar as a summary of the first pilot activities, but since a large-scale meeting cannot be held due to the limitations in meetings by COVID-19, the PMT, and JPT shared the information on a paper basis to the people concerned.

The lessons learned from the first pilot activities for agricultural departments to carry out irrigation and agricultural development projects are summarized below.

Table 2.8.1 Major Lessons Learned for Sustainable Agriculture and Irrigation Development Collected from Feedback Meeting

Pilot Village	Name of Activities	Major Lessons Learned Collected from BAIDC and Farmers
Buhchangphai	Improvement of Areca Nuts Productivity	[Effectiveness of bottom-up approach]: Although areca nut is the most important crop for farmers' cash income, it was not supported by the government since it is not included in the strategic crops of the state government. By adopting the bottom-up approach for planning, it can be focused on the real needs of farming resulting in high participation of the farmers in the activities and high appreciation of the farmers. [Improvement of extension system]: Areca nuts have a period of two years until the seedlings grow. Therefore, it was necessary to provide support and monitoring over multiple years. Through these lessons, it was learned that extension activities require medium-term goals.
	Improvement of Broom Grass Productivity	[Improvement of extension system]: The extension activities should be comprehensive, including not only improvement of productivity and production volume but also improvement of added value. In addition, it was possible to identify issues by having multiple opportunities to discuss them with farmers. [Importance of dissemination among farmers]: At the same time as promoting awareness of farmers themselves through interaction with advanced farmer groups, it has become possible to create a system that allows farmers to share price information, etc., in the future. [Effectiveness of organization]: By establishing the Broom Grass Growers' Association and conducting direct transactions with middlemen in Assam, it became possible to eliminate intermediaries and the farm gate price increased. The lesson was that it is important to include the organization of farmers as part of the dissemination activities.

Pilot Village	Name of Activities	Major Lessons Learned Collected from BAIDC and Farmers
	Improvement of WRC Productivity	<p>[Improvement of extension system]: It was possible to provide necessary materials to farmers at the right time by carrying out extension activities in a planned manner. This improved rice yields above the average in India. It is most important to understand the farmer's cropping calendar and to provide planned techniques and materials.</p> <p>[Convergence planning]: By jointly formulating a plan with IWRD and DOA, it was possible to formulate and implement activities that can be expected to have synergistic effects in the same area. Since the renovation of irrigation facilities requires a lot of funds, the lesson learned was that it is necessary to implement an effective manifestation plan in collaboration with related departments. In addition, in the training on water management, it was necessary to convey the merits of proper water management to the farmers along with the cultivation techniques.</p>
Sailam	Support for Transition from Jhum to Settled Farming	<p>[Effectiveness of bottom-up approach]: Although many farmers are relying on Jhum, government support is limited. By including support for Jhum to farmers, it became an activity with a lot of interest and participation of farmers. It is very significant that the staff of the four departments did not visit the village at the same time and had the opportunity to discuss at the same time.</p> <p>[Convergence planning]: It was not easy to lead slash-and-burn farmers to slash-and-burn agriculture in a feasible manner because of the work of DOA for shifting cultivation and DOH for settlement agriculture on slopes. By collaborating and exhibiting the cultivation technology after establishment to shifting cultivation farmers, the number of farmers who want to promote established agriculture has increased, and it has become easier to realize the policy of the state.</p> <p>[Effectiveness of project cycle management]: After looking back on the annual activities at the feedback meeting and the results of the exhibition technology in the exhibition field in the village were shared. By knowing these activities, it was possible to plan a new program that meets the needs of farmers for established agriculture.</p>
	Improvement of Orange Productivity	[Convergence planning] By jointly formulating a plan by LRSWCD and DOH, it was possible to transfer cultivation technology and soil conservation technology to farmers in a timely manner.
	Improvement of WRC Productivity	<p>[Convergence planning] Target areas and farmer groups are identified before the start of activities, and cultivation training is conducted from two cropping seasons before the completion of irrigation rehabilitation. Along with the supply of irrigation water, a cultivation plan was formulated to start cultivation with the correct technology. The horticultural bureau in charge of winter cropping and the agricultural bureau in charge of the rainy season jointly formulated a year-round planting plan, and both bureaus carried out activities to increase the productivity of paddy fields and achieved results.</p> <p>[Effectiveness of project cycle management]: In the first year, the activities of the Kharif and Rabi cultivation support were carried out separately by the two departments of DOA and DOH, but it was found that the cause of the failure of the Rabi cultivation was the delay in harvesting the Kharif crop. By improving the Kharif cultivation, efforts were made to secure the production volume of the Rabi crops. These are lessons learned from the feedback meeting.</p>
Hnalhan	Improvement of Jhum Cultivation	<p>[Effectiveness of bottom-up approach]: Although many food crops relied on Jhum, government support was limited. By including support for Jhum to farmers, it became an activity with a lot of interest and participation of farmers.</p> <p>[Convergence planning]: The DOA and LRSWCD cooperate to provide support for cultivation and soil conservation work for the same target farmers and area in a timely manner. It was highly evaluated by farmers.</p>
	Promotion of Vegetable Cultivation in Grape Field	<p>[Convergence planning]: It was good that the four departments jointly discussed with the villagers and decided on the activity before starting it. It was a good opportunity for villagers to discuss various needs with many experts at one time. By jointly formulating a plan by IWRD and DOH, cultivation training was carried out in three crop seasons before the completion of the irrigation facility, and cultivation was possible at the same time as the supply of irrigation water.</p> <p>[Improvement of extension system]: Through frequent monitoring by DOH staff, farmers were able to receive timely advice on pest control and cultivation techniques. In addition, the DOH side was able to obtain information on the desired crops and varieties of the farmers, and the next year's plan became better.</p>

Pilot Village	Name of Activities	Major Lessons Learned Collected from BAIDC and Farmers
	Improvement of WRC Productivity	[Effectiveness of project cycle management]: In consideration of the results of the first year, the pilot farmers were flexibly changed in the second year. As a result, the expected yield of the project could be achieved, and the technology exhibition to neighboring farmers could be carried out reliably.

Source: JPT

It was possible to conduct feedback meetings in each pilot village, since the COVID-19 infection status improved around February 2021 and public gatherings and long-distance movement were relaxed by the government. A summary of the feedback meetings for the first and second pilot activities in 2020/ 2021 is mentioned below. The activity plan for 2020/ 2021 year was implemented reflecting the ‘Major Lessons Learned for Sustainable Agriculture and Irrigation Development collected from the feedback meetings’ learned by the previous year. In the process of this implementation, the JPT and experts planned to facilitate the coordination of activities and capacity strengthening of BAIDC through technical guidance and training. However, it could not be implemented because of the COVID-19 pandemic.

2.8.1 Feedback Meeting for the Activities in 2020/21

Feedback meetings in respective pilot villages were held in February 2021 following feedback meeting in 2019 and 2020. The feedback meetings with pilot farmers in each village was held following the implementation of the BAIDC feedback meeting until last year. However, this year, the feedback meeting was started in the village can be implemented because it needs permission to hold a meeting in each village from a village-level task force on COVID-19.

In the meeting of BAIDC members, the Core Training Officer (CTO) attended and confirmed the implementation guideline and manuals with the members. Further, after the reporting process of the new approach including institutionalization, the feedback meeting was held. In each village, the BAIDC leader managed the proceedings of the meeting assisted by the CTO. As all meetings had been continuing for more than three hours, it is understood that the interest of members in farmers’ activities was high.

Major contents summed up in the vicinity of the feedback meetings were wrapped up in the following table. Common issues were mainly two points as follows:

- Planned activities were not implemented due to the restriction of gathering and transport during the COVID-19 pandemic, and
- Some implementations were not possible due to a lack of allocation of budget because of the pandemic.

Table 2.8.2 Major Contents Summed Up in the BAIDC Feedback Meeting 2020/2021

RD Block	Contents Summed up by BAIDC Members
Bikhawthlir	<ul style="list-style-type: none"> • Several plans have not been implemented by restriction of gathering and traveling due to COVID-19 pandemic. • Projects, for which the budget was not allocated due to Covid-19, should be implemented in the following year. • It was confirmed by the attendants that farmers’ motivation is indispensable and without the motivation the project could not come into force and be successful.
Aibawk	<ul style="list-style-type: none"> • Due to the effect of COVID-19, some activities on orange cultivation have not worked out. However, the Project added a large impetus to DOH activities, and in the next year, a plan for a rejuvenation scheme of orange farmers in Sailam Village under CSS is scheduled to be implemented and a plan for a drip irrigation scheme for chow-chow in Lamchhip Village is moving through under DOH. • Since the growth of oranges was bad this year and the purchase of traders was also small as areas operated by traders were limited, orange farmers are suffering a blow. • Half-moon terrace, which is a countermeasure for soil erosion of sloping farms for chow-chow cultivation in the second pilot village, provides a high extension effect since farmers other than pilot farmers also start constructing the terraces. • Since the yield of paddy cultivation was lower than anticipated, and the second crop of paddy fields did not also have a good outcome, it is necessary to provide an ingenious attempt in the next year. • Construction works for Laului MIP, both by a contractor and farmers were completed. • As for Jhum cultivation in sloping land, a talk, about which the activities are to be terminated this year, shall be communicated with farmers. • Because of the change of administrative boundary of DOA and DOH, many members of BAIDC are to be changed.
Champhai	<ul style="list-style-type: none"> • Projects, to which no budget was allocated in the year due to COVID-19, shall be given priority for budget allocation to be implemented this year.

	<ul style="list-style-type: none"> • It was noted that a part of irrigation construction works was carried out under the budget of the DOA. • Distribution of seeds and fertilizer was undertaken at the appropriate time, although monitoring was not at conducted in the proper time. • Since there are many cases of shortage of seeds, fertilizers, and other materials within the area due to COVID-19, problems were solved to import such goods from outside.
--	---

Source: JPT

2.8.2 Feedback Meetings by Farmers in Year 2021/22

The format for the feedback meeting was prepared in consultation among BAIDC, CTO, and JPT. In each village, the feedback meeting was held by gathering BAIDC members, CTO, and the JPT local staff. In the meeting, pilot farmers and BAIDC members evaluated the activities in a degree of attainment to each detailed plan in five levels. Generally, farmers' evaluation value is lower than BAIDC's for the same evaluation item, and BAIDC's evaluation value is relatively higher since BAIDC might put high value unconsciously as activities were mostly their own. However, the ratio of farmers and BAIDC evaluation became at a similar level in Sailam and the second pilot villages this year as shown in the following table.

In Buhchangphai Village, as there are many tenants from other states and landowners depend much on the outside, BAIDC said that it is not easy to carry out extension activities in the village. In Hnahlan Village, although farmers requested to provide technical guidance in each farm plot, it did not materialize since the village is located in a remote area, access conditions to farm field from the village are also not convenient, and implementation of activities are difficult due to COVID-19 pandemic. However, because the self-motivation of farmers in other villages is higher, even though there is a plan which could not materialize, the reason is shared correctly by BAIDC and farmers. So, the evaluation value of farmers and BAIDC was similar. And it is also one of the important reasons that for the second pilot villages, the selection was conducted by BAIDC itself.

Table 2.8.3 Difference of the Evaluation Between Farmers and BAIDC

Name of Pilot Village		Items for Evaluation (No.)	No. of High Evaluations than BAIDC (No.)	No. of High Evaluations than Farmer (No.)	No. of Same Evaluations with Farmers & BAIDC (No.)	Ratio of Same Evaluation with Farmers & BAIDC (%)
First Pilot Village						
1	Buhchamphai	10	0	4	6	60%
2	Sailam	4	0	1	3	80%
3	Hnahlan	5	0	2	3	60%
	Total/ Average	19	0	7	12	67%
Second Pilot Village						
1	Bikhawthlir North	8	0	1	7	90%
2	Lamchhip	8	0	1	7	90%
3	Tlangsam	17	1	2	15	90%
	Total/ Average	33	1	4	29	90%

Source: JPT

It might be better to provide an opportunity for BAIDC members to improve the extension system by themselves. However, it will take time to be able to accommodate BAIDC members' ideas to develop the system because the ideas should be supported by practical experience through some years of extension work. In addition, at present, the capacity of BAIDC is not enough to fully utilize the 'Officers' Manual for Improving Agriculture Extension' which was prepared in the Project because knowledge and practical techniques on the bottom-up approach or participatory development approach are the foundation of the manual. Therefore, the Project has to provide enough learning opportunities to BAIDC about the theory and practical techniques on the bottom-up/ participatory development approach. Further, for the period nurturing BAIDC's capability, it is necessary to consider narrowing down villages and extension activity items, which are easily expected to obtain positive and clear results by BAIDC and the farmers. Based on the feedback meeting with farmers, the features of each village and measures hereafter are wrapped up as shown below.

**Table 2.8.4 Features and Issues of Each Village and Measures/ Recommendation
Based on the Farmers Feedback Meeting Results 2021/22**

Village	Village and Farmers Feature and Issues	Measures/ Recommendation
First Pilot Village		
Buhcham phai	<ul style="list-style-type: none"> • Development potential is high as there are much flat paddy areas with irrigation facilities. • Many landowners settled down in this area from elsewhere and their paddy cultivation is almost dependent on tenant farmers. • Unity among farmers is very weak, and the degree of dependence on the outside is high. • Although rehabilitation work for irrigation facilities was done by the landowners, it is unclear who usually does maintenance and operation. The WUA has been organized by landowners. The activation of the WUA is important for sustainable agriculture. • Yield of paddy increased by involving landowners in the paddy cultivation, and landowners are getting interested in improving relationships (institutionalization) with tenant farmers. • Although training in soil conservation measures was conducted, only two farmers out of ten pilot farmers carried it out. Most farmers said that it was difficult without enough funds. There is a kind of intentional gap between BAIDC and farmers. 	<ul style="list-style-type: none"> • It is necessary to think of a specific extension method especially for this type of region by specifying the high development potential area of agriculture from a viewpoint of improving agricultural productivity of the state. • It is desirable to ensure the method to carry out an appropriate extension activity consistently for the region by reviewing the 'Officers' Manual for Improving Agriculture Extension'. And it is also necessary to contact an interest group in agriculture development in the region with the aim of sharing objectives and activity framework about the BAIDC's agricultural extension activity. • The activity that establishes the tenancy system as a state and which makes a good agricultural production environment to improve agriculture productivity is important. And issues-related operation and maintenance on the irrigation system and WUA etc. are also expected to improve in a practical manner. • It is necessary to make the cultivator's responsibility and role who are farming in slope land related soil erosion. In addition, it might be efficient to institutionalize skills training for slope agriculture and provide training before the agricultural extension activities. • Since a qualified experienced extension worker and institutional improvement are necessary to develop this type of village, PMT had better take the lead to develop an integrated agricultural development approach to expand agricultural output.
Sailam	<ul style="list-style-type: none"> • Sailam is a traditional village with much slope farmland including Jhum land, and the unity of the farmers is far better than in Buhchangphai. Many farmers depend on the subsistence farming of Jhum. • The first development of the paddy field had begun with the farmers themselves, and spontaneous action among farmers is high. Farmers' degree of satisfaction in the community contract construction of irrigation facilities was high. • Most of the farmers' agricultural knowledge and technology are based on Jhum cultivation, therefore, basic agricultural knowledge and skill level are low. • However, BAIDC is apt to explain to farmers without thinking about the farmers' level of capacity. • There are many farmers who do not want to use chemical fertilizers and plant protection chemicals: organic fertilizers and organic agricultural chemicals are used by farmers. 	<ul style="list-style-type: none"> • It might be possible to establish a Model Farmer's Organization (FO) in the area by strengthening FO's funds and capacity based on the strong unity of the village. • DOH plans to implement further extension activity for the oranges cultivation farmers but it is necessary to share an improved extension method based on ideas generated by farmers through a full conversation with farmers. • The BAIDC side needs to implement its extension activity by understanding the farmer's knowledge and level of skill properly. It is also one of the important extension skills for the BAIDC.
Hnahlan	<ul style="list-style-type: none"> • The number of households is about 550 large-scale villages. The main industry was viticulture and wine production but the demand for wine declined, and alternative agriculture was demanded by farmers. • Since the Jhum cultivation area is much bigger compared with the other districts, it was difficult to develop farmers' motivation at once for improving the Jhum cultivation method. 	<ul style="list-style-type: none"> • In the case of a large-scale village, a development project should proceed step-by-step with a long-term perspective because there are many problems not only agriculture concerns but also social concerns. • For the substitution of crop cultivation for viticulture, it needed a step-by-step plan by doing market analysis and checking farmers' capacity for agricultural technology. • In the case of a village in a distant place, it is important to select an active farmer leader and the location of the

	<ul style="list-style-type: none"> Although all vegetable cultivation farmers expected BAIDC to visit each farmer's vegetable plot and hoped to receive technical guidance, BAIDC did not have enough time because the village is very far from the office, moreover, access from the village to the vegetable fields is also not easy. 	<p>demonstration farm plot. Also, it is necessary to do the steady implementation of 'Farmer Field School' according to the 'Officers' Manual for Improving Agriculture Extension'. Therefore, periodical training for BAIDC members and the build-up of monitoring systems are important to strengthen BAIDC's implementation ability.</p> <ul style="list-style-type: none"> Farmers understand the effectiveness of chemical fertilizer and agrochemicals but it is difficult for farmers to buy such inputs timely because they are in a remote area. Therefore, it needs to introduce a cooperative-purchasing system in advance and a production method of organic fertilizers for farmers. In paddy cultivation, a manual with a detailed FSS approach is prepared in CSS and that is a good reference document for BAIDC activities.
--	--	--

Source: JPT

2.9 Preparation of the Second Draft of Method

2.9.1 Implementation Guideline

Before starting the first pilot activity, the first draft of the implementation guideline was prepared, and PMT and BAIDC training was conducted. Then, these were used in the first pilot project. After conducting pilot activities for two years in three to four villages, the contents were refined and summarized as the second draft. The main improvements from the first draft are as follows. The second draft of the implementation guidelines is shown in the Attachment.

- A process for selecting priority villages was added as preliminary work to make the procedure more effective.
- It takes time for farmers to formulate the land use and resource use plans, and at the same time, the expected results cannot be obtained due to the lack of capacity of both farmers and BAIDC. On the other hand, soil conservation efforts should always be made in agricultural development in Mizoram on slopes, and it is necessary to be aware of this. Therefore, instead of taking the process of formulating a land use/resource use plan, the Project has simplified the steps to list the measures that farmers should take after showing good examples of soil conservation.
- At the meeting of the development vision discussion with the farmers, the direction of development for each zone shown in the "Study on Land and Water Resources Utilization for Sustainable Agriculture in Mizoram, India" was shown and matched with the opinions of the farmers.
- In addition to formulating the BAIDC Annual Activity Plan, the procedure was to create a monitoring sheet created by BAIDC.
- Changed the content of the feedback meeting to be more realistic and effective.
- Overall, a lot of photographs taken by pilot activities were used to make it easier to understand.

2.9.2 Officers' Manual for Improving Agricultural Extension

Based on the recommendation by JICA, the manual (the first draft) was required to be improved for more practical use in the following manner; i) reflecting the results of BAIDC and pilot activities in order to have more application on the ground, ii) considering the acceptability of the farmers in terms of the technical and economic aspect, and iii) developing the manual using more concrete cases so that government officers could apply these easily to agriculture and irrigation development. Then, the manual has been revised by the JPT together with core trainers nominated from line departments. The points for revision are as follows: i) more pictures and illustrations should be added, ii) the results of pilot activities should be added, iii) contents should be reduced considering acceptability, iv) the title of the manual should be changed from "farm management manual for suitable agriculture" to "manual for improving agricultural extension", v) the manual for strengthening of farmers' organization should be incorporated into this manual, and vi) the contents should be listed in the order of a PDCA cycle. The following table shows the contents of the revised manual.

Table 2.9.1 Contents of the Officers' Manual for Improving Agricultural Extension

Chapter	Title	Component	Stage of PDCA Cycle
Chapter 1	Planning for market-oriented production	1. Making of cropping calendar 2. Market survey for cash crop 3. Analyzing the survey results	PLAN
Chapter 2	Improving of farmers' skills	1. Conduct of training 2. Preparation of extension material 3. Establishment of trial/demonstration plot 4. Field visit (on-site training/guidance) 5. Monitoring and recording	DO and CHECK
Chapter 3	Strengthening of farmer's organizations	1. The role of extension in farmer's organization 2. Revitalization of farmer's organization 3. Review of performance	DO and CHECK
Chapter 4	Evaluation	1. Evaluation of trial/demonstration plot 2. Planning the next season	CHECK, ACTION, and PLAN

Source: JPT

2.9.3 Officers' Manual for Construction Management

(1) Contents of the Manual

In order to improve the quality of the construction works on the irrigation and drainage facilities, the manual and guidelines for government officers especially in IWRD were prepared for the selection of good and capable contractors and proper management of construction works. The first draft manual prepared in the first phase was improved and updated by JPT together with the core trainer based on the comments by IWRD to make it the second draft. The contents and summary of each chapter of the manual are shown in Table 2.9.2.

Table 2.9.2 Contents of Officers' Manual for Construction Management

Chapter	Title	Outline
	Introduction	This chapter describes the background, objective, scope, and user of the manual
Step-1	Procurement of contractors	This chapter describes the proposed way for procurement <ul style="list-style-type: none"> ➤ List of capable contractors ➤ Procurement of contractor ➤ Community-managed construction work
Step-2	Pre-construction stage	This chapter describes the necessary action before starting the construction works <ul style="list-style-type: none"> ➤ Construction management plan ➤ Awareness meeting
Step-3	Construction management	This chapter describes the method, procedure, and important points for construction management <ol style="list-style-type: none"> 1. Organization, role, and responsibility for construction management 2. Quality control of the work <ul style="list-style-type: none"> ➤ Field inspection by IWRD and stakeholders ➤ Key points for quality control ➤ Check survey and quality test at the site and in laboratory 3. Progress control and monitoring <ul style="list-style-type: none"> ➤ Periodical monitoring and progress meeting ➤ Progress control with bar-chart and monitoring sheet ➤ Progress control with S-curve ➤ Warning system and measures in case of delay 4. Contractual matters <ul style="list-style-type: none"> ➤ Payment to the contractor ➤ Variation of the contract works ➤ Time extension and contract amendment
Step-4	Handing-over to the community	This chapter describes the way of handing-over to the community <ul style="list-style-type: none"> ➤ Conduct final inspection by stakeholders ➤ Issue the completion certification ➤ Defects liability period

Step-5	Follow up activities	This chapter describes follow up activities after completion of the works for feedback and data accumulation <ul style="list-style-type: none"> ➤ Evaluation of contractors' performance ➤ Preparation of completion report ➤ Recording and data keeping
Attachment	BAIDC training materials	(1) Training materials for community-managed construction (2) Training materials for quality control

Source: JPT

(2) Efforts for Awareness of Manual

The second draft was submitted in July 2020. From the 10th through the 31st of July 2020, an online web test was conducted to know how the staff understand the manual. As a result, twelve BAIDC members out of 13 (92%) obtained 90% or above of the total score, and it was judged that they understood the manual sufficiently.

2.9.4 Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

(1) Contents of the Manual

To establish firmly the Water Users' Association for the proper O&M of the irrigation and drainage facilities, the "Officers' Manual and Training Materials for Strengthening of WUA for O&M of Minor Irrigation Project" was prepared. The first draft manual was improved and updated by JPT together with the core trainer based on the comments by IWRD to make it the second draft. The contents and summary of each chapter of the manual are shown in Table 2.9.3.

Table 2.9.3 Contents of Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

Chapter	Title	Outline
	Introduction	This chapter describes the background, objective, scope and expected user of this manual.
Step-1	Establishment of WUA	This chapter describes awareness of role of WUA, establishment and registration, and main training to WUA <ul style="list-style-type: none"> ➤ Awareness and discussion on role of WUA ➤ Establishment and registration of WUA ➤ Organizational capacity development training ➤ Financial management training ➤ Technical training
Step-2	Operation of irrigation facilities	This chapter describes the method, procedure, and main points to note for water management <ul style="list-style-type: none"> ➤ Water distribution plan and nomination of controller ➤ Normal operation and emergency measures ➤ On-farm water management ➤ Measurement and recording
Step-3	Maintenance for irrigation system	This chapter describes the method, procedure, and main points to note for maintenance. <ul style="list-style-type: none"> ➤ Preparation of maintenance plan ➤ Role and responsibilities ➤ Maintenance activities ➤ Budget allocation and financial management
Step-4	Follow up activities	This chapter describes the follow up activities for WUA. <ul style="list-style-type: none"> ➤ Regular meeting with WUA and maintenance record ➤ Update WUA information
Attachment	BAIDC training materials	(1) Water users' association (WUA) for minor irrigation project (2) Water management for WRC in a minor irrigation project (3) Water management for upland crops in a tanky system in a minor irrigation project (4) Maintenance of irrigation facilities in a minor irrigation project

Source: JPT

2.10 Selection of 2nd Pilot Villages

One village each from the following three RD blocks, namely; Bikhawthlir RD block in Kolasib District, Aibawk RD block in Aizawl District, and Champhai RD block in Champhai District, was selected for the second pilot village. Before the selection, a PMT conference attended by BAIDC was held on the 28th of May in 2019 and the following points were confirmed and agreed upon by the participants:

- The selection of the second pilot village shall be conducted in accordance with the implementation guideline by an initiative of BAIDC for stimulating to upgrade capability of the BAIDC. Core training officers and JPT provide indirect support and training before the actual operation to BAIDC in the field when needed.
- Results of the pre-baseline survey, which were used for the selection of the first pilot village, shall also be utilized for the selection of the second pilot village.
- Selection criteria shall be reviewed by emphasizing on BAIDC's experience and knowledge obtained through the first pilot activities.
- BAIDC members in each block talk among themselves and shortlist two villages first. Then members shall visit the shortlisted villages and after explaining the JICA project and the pilot project to the farmers, assessing farmers' reactions, and discussing in BAIDC, one village shall be finally selected for the second pilot project.
- BAIDC shall carry on activities of the second pilot project independently and positively. PMT and core officers also provide support on BAIDC activities.

2.10.1 Selection Criteria and Points to Keep in Mind for Selection

Although the selection criteria of the pilot village in the first phase were set up as indicated in the following table, BAIDC proposed, in addition, concrete points to keep in mind for selection. Further, in the first pilot project, the pilot village far from the district office had not been a on frequent basis due to a shortage of transportation. Therefore, it was also considered a possibility that the pilot village would be selected in the area being easily accessible distance from the district office.

Table 2.10.1 Proposal of Selection Criteria by BAIDC

Points to be Considered for Selection (Selection Criteria)	Proposal by BAIDC
Development potential of land and water resources is high.	Activities and locations are appropriate for conducting in cooperation by every department.
Area where demonstration effect is high (Area where demonstration effect and sustainability are high).	Activities are easily understandable and outcome of the activities during the project period is visual.
Farmers' motivation is high.	Farmlands where landowners and not tenants assume farming or farming should not depend much on outside (BPL ration should not be so high.)
Area where active leaders are present.	BAIDC members and officers in district offices could make comprehensive judgement based on experience of daily activities.
Area where group activities are existent.	-ditto-
Land acquisition is not necessary.	VC shall finally confirm.
BAIDC could visit often. (A new selection criterion)	As some of the first pilot villages were not able to be visited due to shortage of vehicles, the second pilot villages should be selected close to the district offices for easy access during the project period for acceleration of project activities.

Source: JPT

2.10.2 Points in Mind for Selection

The selection procedure agreed upon in the PMT meeting is as follows:

- Selection meeting of BAIDC shall be held in each district and select two candidate villages.
- Before narrowing down from two villages, BAIDC visits villages and holds a meeting with VCP and farmers leaders to explain the pilot activities of the project and confirm necessary information and data.

- Discussing in BAIDC and narrowing down to one village; the name of the village selected shall be reported to PMT.
- PMT has a discussion and approves the village selected by BAIDC.

The six villages shortlisted by BAIDC and the basic data of the villages are shown in the following table. The BAIDC in Kolasib and Champhai districts selected two villages each relatively close to the district offices and dedicated to agriculture since the first pilot villages were far away from the district offices. In Aizawl district, a traditional village where less CSS schemes have been implemented and a village located in an urban area along a trunk road and close to the district office were selected.

Table 2.10.2 Village Names Shortlisted by BAIDC and Basic Data of the Villages

Village/ RD Block/ District	No. of Household (HH)	No. of BPL HH	No. of Family without Land	Land Owned by Non-residents	Source of Income		Occupation		
					Agri-culture	Other Income	Jhum	Agri-culture	Other Job
					(%)	(%)	(%)	(%)	(%)
Bikhawthlir RD Block, Kolasib District									
Bilkhawthlir North	511	15	7	6	24	76	1	84	15
Meidum	223	8	27	22	84	16	10	51	39
Aibawk RD Block, Aizawl District									
Lamchhip	186	52	7	1	98	2	67	25	8
Muallungthu	324	50	-	4	90	10	58	22	20
Champhai RD Block, Champhai District									
Tlamsam	520	5	-	48	75	25	6	72	22
Ruantlang	450	11	17	7	65	35	22	44	33

Source: JPT

Each BAIDC member had discussions with VCP in advance and they visited villages to explain the project activities to leaders and representatives of the village and to exchange opinions. Based on the information and knowledge obtained through the activities, BAIDC held a selection meeting and narrowed it down to one pilot village in each district. Before conducting such activities, JPT had carried out brainstorming with BAIDC by setting out the following agenda:

- Whether BAIDC can clearly explain to farmers the differences in activities between the JICA pilot project and the CSS schemes, having been implemented so far in Mizoram or not.
- How BAIDC can explain various questions raised with excessive expectation by the participants in the explanatory meeting for the second pilot activities.
- Whether BAIDC could gain an understanding of present conditions on agriculture and irrigation in villages only through visiting villages and having dialogues with farmers or not.
- Based on the look of villagers and the atmosphere of the village, whether BAIDC can have an image of what kind of agricultural development could be implemented in the village? If any image does not come upon, what are the necessary events further ?

In addition, the following points were confirmed with BAIDC since the second pilot project shall be conducted under the budgets of either the central government or the state government.

- Villagers/farmers maintain a willing attitude to pilot activities by understanding the project framework, which includes participatory development activities and not only providing resources with a top-down approach.
- Villagers/farmers possess high motivation for development, which prioritizes likely skills rather than goods.
- The activities and the area are to be highly workable for BAIDC members. The activities should be within the capability of BAIDC and farmers.
- Extent of the activities should be within CSS funding and the State Government budget.
- The activities shall be compatible with the direction of the master plan for zoning and improvement of productivities.

After the preparation was made as discussed above, visiting villages and meetings with villagers/farmers to explain the project and activities were conducted, and the target villages were selected.

After BAIDC in each district carried out visits to villages and held an explanatory meeting in July 2019, members of BAIDC conducted a selection meeting of pilot villages and selected the villages shown in the following table. The selected villages for the pilot activities are approved in the PMT meeting in August 2019.

Table 2.10.3 Results of Selection of the Second Pilot Villages

No.	RD Block	Village Selected	Points Considered for Selection
1	Bikhawthlir	Bikhawthlir North	The number of owner farmers is relatively large in the area and the development potential of the paddy field area is high. Development subject by farmers is clear: paddy land improvement, improvement of paddy cultivation and, Rabi cultivation techniques. The Chemphai area is a suitable location to work in cooperation with four departments. The target area is not far from the district office.
2	Aibawk RD	Lamchhip	A lot of schemes were conducted in Muallunththu Village and the dependence on the outside is high, but in the case of Lamchhip Village, very few schemes were implemented. The village representatives expected technology transfer than materials supply. Development of this village is an adequate scale in the area for BAIDC with their capacity. Lamchhip Village is located on the way to the first pilot village, Sailam.
3	Champhai	Tlangsam	The area of the paddy field is small in Ruantlang Village to implement collaboration work by four departments. On the other hand, in Tlangsam Village, both paddy fields and upland agriculture in slope land are available. Villagers' opinion of the agricultural development is clear, and they are also expecting technical transfer for paddy cultivation, Rabi cultivation, and slope agriculture. The target area is close to the district office.

Source: JPT

In the explanatory meeting in every shortlisted village, BAIDC accurately explained points of difference between the implementation method of the JICA project and CSS schemes ever conducted, and the objectives of the pilot activities. It was also understood that a lot of CSS schemes have ever conducted in Muallunththu Village of Aibawk Block. On the other hand, in Lamchhip Village, the CSS scheme implemented is almost nil. BAIDC made the same explanations to both Muallunththu Village and Lamchhip Village. In Muallunththu Village, there were many participants, nearly 70 farmers attended the meeting and they raised various requests as they inquired about what they could receive from the project and requested support marketing the products cultivated in the previous scheme. On the other hand, in Lamchhip Village they inquired whether their capacity for farming was adequate to implement the project and they want to be provided with technical assistance as the goods to be supplied would vanish. The BAIDC members were very much impressed by the difference in farmers' views in the two villages.

In the JCC conference, the chief secretary of Mizoram expressed that CSS might not be utilized well to accommodate the needs of farmers when compared with other states. Taking into consideration the difference in farmers' opinions in the two villages as stated in the preceding section, BAIDC members gained consciousness of careful extension activities utilizing the participatory development technique. As for Bikhawthlir and Champhai RD Blocks, it had been discussed whether farmers' consciousness to play an active role on their own initiative in the project activities is higher or not, and the final selections of pilot villages were made taking sustainability after initial activities of the project into consideration.

2.11 Needs Assessment and Preparation of Overall Agriculture Development Plan

2.11.1 Mutual Consultation with Village Community

Mutual consultation with the village community had been conducted through the PRA workshop with farmers in accordance with steps 2 and 3 of the Implementation Guidelines. Core training officers conducted technical guidance on proceedings and a general outline of the workshop to BAIDC in each district before commencing the workshop. Also, JPT provided technical advice to core training officers, as needed, and they prepared basic data and maps including useful resources and land use details of each

village. The workshop schedule and subjects to be discussed in the workshop are shown in the following table.

Table 2.11.1 Major Subjects of Farmers in the Workshop

Second Pilot Village	Date of Workshop	Major Subjects
Bikhawthlir North	2019/10/15	Irrigation and land improvement in WRC area, improvement of flood and river-linked issues, and increase in production of rice and vegetable
Lamchhip	2019/10/17	Increase in production of vegetable and rice, and development of Rabi cultivation in paddy field
Tlangsam	2019/19/22	Increase in production of rice, provision of technical guidance for Rabi cultivation in paddy field and slope agricultural land, and improvement of irrigation facilities

Source: JPT

In the workshop, information on useful resources, crop production, land use, consumption, and marketing of agriculture products were collected at the beginning, and tangible discussions focusing on major agriculture activities and land use patterns have been conducted. Further, detailed agricultural activities, problems, and countermeasures were compiled through the group discussions depending on the type of agriculture. The progress of the workshop and general outline of activities are shown in the following table.

Table 2.11.2 Procedure of the Workshop and General Outline of Activities

Procedure	General Outline	Remark
Awareness Session	Asking a picture (vision, objective) of the future of the village and agriculture to the participants. Participants can think about the vision freely.	Utilize visual aid such as power point, video, photos, etc.
	Introduction of domestic and foreign Jhum, sloping agriculture, advanced agriculture and so on to participants by using visual aid. Then, discussion about sustainable land use, resources management, and sustainable agriculture development in the village. Finally, understand the importance of vision and goal-setting and so on for the development.	
	Creating the awareness of participants about the direction of village/ agriculture development and development purpose by using a 3D map and useful data and information about the village.	
Presentation by Participants (Understanding village and agriculture in general)	Obtain necessary information regarding agricultural activities from the participants through discussion with them.	Use prepared format
	Discuss and compile necessary information in a format, and a representative of participants makes a presentation according to the format. Discuss insufficient information among participants and add necessary information in the format. BAIDC observed a conflict of opinions and behavior through the activities of participants.	Make a presentation by using the format
Group Activities (Understanding village and agriculture in detail)	Forming groups depending on agricultural form or cultivation area in accordance with results of discussion (format) and BAIDC's capacity. Conducting group discussions and each group provides detailed information on agricultural activities, issues, and countermeasures. Through this group discussion, BAIDC understands the agricultural, market, and other conditions in the village. If needed, each group could visit the field site and check the necessary information.	Use prepared format and formulate an opinion
Presentation by Group	During the group presentation, participants and BAIDC ask various questions and make clear ambiguous issues through dialogue. Make clear and share overall issues and development direction.	Use format
Closing Awareness Session	Review the vision and objective that were presented by the participants in the morning at the awareness session. After the workshop, asking the same question of a picture of the future of the village and agriculture to the participants. Then, narrow down the vision and objective with participants and show an example of a short- and long-term activity plan and a method to achieve the objective, etc.	Facilitator assists participants properly

Source: JPT

Many village people, men and women, and village representatives attended the workshop. This time, as BAIDC took initiative for conducting the workshop from the preparation stage of selecting the second pilot villages as a result of various discussions and studies, sharing of useful information among concerned members was conducted. As a result, when the workshop started, certain information on agriculture in villages and the characteristics of farmers were shared by BAIDC members. Further, it was understood by officers that the fund for the project activities were depending on the budget of the central and state governments, not on JICA budget. Thus, BAIDC could make a clear-cut response to the questions of farmers. The development items compiled by the workshop are listed in the following table.

Table 2.11.3 Major Development Items Indicated in the Workshop

No.	RD Block/ Village	Target Area	Indicated in the Workshop
1	Bikhawthlir RD Bikhawthlir North	WRC	Techniques to increase rice production, Techniques to cultivate second (Rabi) crops after paddy, Improvement of land in paddy field, Vegetable cultivation
		WRC/ River	Measures against erosion of riverbank
		WRC	Rehabilitation of irrigation facilities
2	Aibawk RD Lamchhip	Slope land	Sustainable vegetable cultivation methods in slope agricultural land, Installation of irrigation facilities
		WRC	Stabilization of paddy cultivation and production, Rehabilitation of irrigation facilities
3	Champhai RD Tlamsam	Slope land	Strengthening vegetable cultivation in summer and winter season, Construction of terrace field and poly house for vegetable cultivation
		WRC	Strengthening rice cultivation, Construction of irrigation tank and irrigation facilities, Promotion of winter (Rabi) crop cultivation

Source: JPT

2.11.2 Formulation of Annual Plan by BAIDC

Compiling the information and farmers' intentions confirmed in the workshop in the second pilot villages and conducting field reconnaissance in accordance with Step 4 of the implementation guideline, necessary information, and data had been collected. Then, BAIDC members discussed the priority of problems and the possibility of implementation. The following 11 projects were banded as the annual activity plan.

Table 2.11.4 General Outline of BAIDC Annual Plan

Village	Target Area	ID. No.	Name of Project	Department In charge
Bikhawthlir North (Chemphai)	WRC	BN-01	Increase production of paddy and productivity of WRC area	DOA
		BN-02	Improvement of vegetables productivity	DOH
		BN-03	To control and reduce stream bank erosion and protect the cropland from huge loss of fertile soil	LRSWCD
		BN-04	Rehabilitation and Extension of Lungzawn M.I Project	IWRD
Lamchhip	Slope land	LC-01	Achieve sustainable vegetable cultivation	LRSWCD/ IWRD/ DOH
	WRC	LC-02	Enhance paddy production	DOA/ ATMA
		LC-03	Promote Rabi crops	DOA/ ATMA
Tlamsam	Slope land	TL-01	Increase vegetable production in Kharif	LRSWCD/ IWRD/ DOH/ ATMA
		TL-02	Promotion of vegetables cultivation in Rabi	DOH/ DOA
	WRC	TL-03	Improvement of WRC area productivity	IWRD/ DOA/ ATMA
		TL-04	Introduction of Rabi crops	DOA/ ATMA

Source: JPT

Formulation of the annual activity plan of BAIDC and final approval were made in accordance with a procedure shown in the table below after an awareness meeting and workshop were completed. The activities commenced in February 2020. However, the preparation of some activities was started in January 2020 in relation to the planting period of crops.

Since a budget of the central and state governments, not the JICA fund, would be used for the second pilot activities, a flexible and vigilant procedure for formulation of the annual activity plan was taken, and the plan was talked at PMT and JCC. Especially although relating to field activities as major activities of BAIDC, the number of vehicles of departments, method of vehicle utilization, regulations of payment of fuel cost, and field allowance, are different per department. Such matters were settled in discussion in the PMT and talks of BAIDC members in each department after discussion in JCC. However, since such issues relate to an administrative boundary of each department, then it should be improved institutionally taking budget preparation and efficiency of extension activities into account.

The annual activity plan prepared by BAIDC confirmed by PMT should be discussed in JCC, and BAIDC should conduct to refine and modify the plan. Further after obtaining the final approval of PMT, a monitoring sheet indicating the budget amount was prepared. Based on the monitoring sheet, every department made a study on budget contribution with a person in charge and accountant, and finally approved it and ordered to implement activities in writing.

2.12 Implementation and Monitoring of the Second Pilot Activities

The BAIDC annual activity plan (BAAP) had been formulated in 2019 before the COVID-19 pandemic. The actual commencement of the activities was in March 2020 after the JPT (Japanese) evacuated. Further, although the budget disbursement was delayed and a part of it was cut down due to the corona pandemic, the BAIDC members had carried out the remote activities, and the BAIDC had carried out approximately 85% of the planned¹¹.

2.12.1 Activities of Bikhawthlir North (Bikhawthlir N) Village

The following Table 2.12.1 shows the ratio of the total population and the population engaged in agriculture excluding livestock farming and so on in the 1st pilot and the 2nd pilot villages. Although in the Buhchangphai village, the 1st pilot activities for WRC which is the major cultivation in the village and the plantation of areca nut and broom grass were carried out, the 2nd pilot activities were concentrated in the WRC areas.

Table 2.12.1 Comparison of Agricultural Workers in 1st and 2nd Pilot Villages

Pilot	Village	Household (No.)	Shifting Cultivation (%)	WRC (%)	Plantation (%)	Horticulture		
						Fruit Tree (%)	Vegetable (%)	Condiments (%)
1st	Buhchangphai	213	5.6	13.1	16.9	0.9	1.4	0.0
2nd	Bikhawthlir N	511	0.9	5.5	34.1	0.0	0.0	0.0
Average of 34 RDBs		410	7.8	3.7	18.9	1.1	2.0	0.8

Source: JPT

The BAIDC explained the reasons for the activities as follows and they were accepted by the PMT:

- The Bikhawthlir North village is closer to the office of each department than the Buhchangphai village, it is easier to go by motorcycle if necessary (although the motorcycles are privately owned by individuals)
- In the Bikhawthlir North, the ratio of the owner cultivator is higher than that of the other villages.
- In Buhchangphai village, as the activity locations were away from each other, opportunities to have the activities together were few. On the other hand, in the Bikhawthlir village, the development potential for wet paddy cultivation is high and it could be achieved by concentrating the budget and activities of the four departments to increase productivity of the area.
- The major activities of the pilot project are the improvement of irrigation facilities by the IWRD, soil conservation on farmlands by the construction of a check-dam, etc. by the LRSWCD, the land

¹¹ Endline Survey Report 2022, JICA Technical Cooperation Project, Mizoram

improvement for paddy areas by the DOA and the upgrading of agriculture productivities by the DOH.

(1) BN-01 Increase of Production of Paddy and Productivity of WRC Area

The BAIDC members and farmers selected the Chempai areas in the Bikhawthril North village as the pilot area, and the pilot activities had been conducted as agreed by the VC for the two years from 2020/21 to 2021/2022.

(a) General Outline of Crop Cultivation and Technical Agenda, and Formulation of Plan

The paddy varieties being cultivated in the area were 10 varieties, which is more than the other villages, and other varieties than the two varieties (Gomati and Ranjith) were introduced by nearby acquaintances. The characteristics of the varieties were confirmed by interviews, but it was difficult to prepare the cultivation calendar and manuals for preventing disease and insect damage. For this reason, the Japonica type of the paddy variety, RCM-13, which was selected by the farmers of the Sailam area in the 1st Pilot project, was introduced. It was taken into consideration that the BAIDC members could consolidate circumstances easily by conducting extension activities and putting an environment in place for agriculture development by stimulating the cultivation of the paddy variety of which characteristics were well understood. Hereinafter, by selecting paddy varieties registered by the central and state governments, the utilization of the cultivation manuals prepared on each variety could be made easily, and the coalition with ICAR and KVK could also be worked out on a plate. Farmers in the villages used to prioritize the production of paddy for self-consumption, and the excess production was to sell to traders and in markets. Although farmers in the Sailam village did not divert their Jhum farming skills to wet paddy cultivation, as the improvement of the Assam method permeated by tenants and agriculture labors was necessary and the mechanization to overcome a lack of labors for transplanting as same as in other villages was desired, the plan was formulated on the basis of introducing the ‘Modified Mat Nursery’ of the IRRI.

For the 2nd crop (Rabi, winter crop) in the paddy fields, cultivations of maize and rajma (red kidney beans) were put into practice instead of the seven (7) months variety of paddy harvested in December to January. The major activities planned in the Pilot project are shown in the following Table 2.12.2.

Table 2.12.2 Action Plan against Issues (BN-01)

Issues	Action Plan
Upgrading of Productivity of Paddy	• Selection of paddy varieties of which characteristics are defined (registered variety), preparation of the cultivation calendar and conducting of cultivation trainings, and monitoring
	• Introduction of ‘Modified Mat Nursery’ of the IRRI and the practical trainings for it
	• Implementation of field improvement by 4-wheel tractor; the levelling of fields and strengthening the dikes, deep tillage of upland crop fields and soil improvement by inputting hydrated lime
Upgrading of cropping intensity	• Commencement of winter cropping in paddy fields: trainings for cultivation of maize and red kidney beans, and monitoring

Source: JPT

(b) Implementation of Activities and Results

At the beginning, for arranging the circumstances of extension activities, i) the preparation of the cultivation calendar and the guidance of the cultivation method along with the calendar, ii) the introduction and experimental cultivations of a notified rice variety which farmers preferred, had been conducted. In Sailam village as the 1st pilot village, the RCM-13 paddy variety which was selected by farmers in the village as the taste was good, was selected, and the farmers conducted the cultivation of it in addition to the other four paddy varieties appreciated as the good taste. The results of the paddy cultivations in 2020/21 are indicated in the following Table BN0101. In the 1st pilot village, the 1st yields differed much depending on each farmer, but the difference in the yields had decreased in steps and the average yield had been increasing. It was confirmed that the causes for the differences were (i) the scarcity of water just after transplanting, an overgrowth of weeds due to insufficient water depth in the fields, and (ii) the lack of cultivation management for a longer period. Accordingly, it was confirmed to improve the yields in a shorter period that the farming activities should follow the cultivation calendar in an authentic way.

The RCM-13 paddy variety having a taste preferred by the farmers was recommended by the ICAR Research Centre in Manipur. And as the cultivation period of it was shorter than the traditional varieties, farmers could have leeway for the commencement of the 2nd crop cultivation in the paddy fields (Rabi, winter crops). In the cultivations in 2020/21, ten (10) pilot farmers had cultivated the RCM-13 and other four varieties of paddy and the average yield was 3,566 kg/ha, and TOPOSI got a very high yield of 5,480 kg/ha. The yield of the RCM-13 variety varied from 1,360 kg/ha in the lowest to 4,480 kg/ha in the highest showing a big difference. As this big difference in the yields were observed in the 1st year for the 1st pilot village, the courses of the low yields were that the farmer did not carry out the farming management in accordance with the cropping calendar or the farmer did not inspect the growing conditions of the paddies for a longer period. The reason for the courses is that as the most of farmers cultivated the paddy for self-consumption, the priority of paddy cultivation was lower than the other cash-earning activities. And in many villages, as residential areas and paddy cultivation areas were away from each other, they would not go to paddy fields even if any affairs took place, which was a typical attitude of the people in Mizoram. Further, it is one of the reasons that as there was the rationing system of the PDS rice, the farmers did not necessarily receive the big damages to their household economy even if the paddy for self-consumption was not harvested.

Table 2.12.3 Comparison of Yield by Variety

No.	Farmers' Name	Variety	Date of Sowing	Area harvested (m ²)	Production (Kg)	Productivity (Kg/ha)
1	LALPIANDANGA	RCM - 13	17-07-2020	675.52	263.25	3,900
2	B. MALSAWMTLUANGA	RCM - 13	05-07-2020	648.83	196	3,020
3	RINDIKA	RCM - 13	17-07-2020	378.29	160	4,230
4	LALAWMPUIA	RCM - 13	27-06-2020	442.5	ES	1,360
5	LALSIPAH	RCM - 13	27-06-2020	757.13	339.5	4,480
6	LALFAKA	RCM - 13	16-05-2020	1796.03	400	2,230
Average Yield of RCM – 13 variety						3,203
7	LALRINPUA	TOPOSI	09-07-2020	270.1	148.12	5,480
8	LALVUANA	GOMATI	07-07-2020	468	233.2	4,980
9	LUNGTIAWIA	ARI	04-06-2020	515.72	156	3,020
10	H.MALSAWMA	NK5251	15-05-2020	1266.44	375	2,960
Average Yield of Varieties other than RCM - 13						4,110
Average Yield of all the varieties						3,566
-	Control	RCM - 13	16-05-2020	1005.93	234	2,330

Source: JPT

After 2020, due to the COVID-19 pandemic, the traveling in the state and district, the visit to other villages, and the meetings with the plural members were all reined in. Accordingly, in 2020, the seed paddy of RCM-13 produced by the 1st year pilot farmers were distributed for the pilot project activities, but it was not possible in 2021. Although the pilot activity for paddy cultivation was continuously conducted in 2021, a variety, Toposi, which was available in the Chemphai area was used. As four pilot farmers carried out the paddy cultivation, the difference of the yields was small and the average yield was 5,822 kg/ha, which was more than 2.5 times higher than the average yield, 2,200 kg/ha, in the Kolasib District. On the other hand, the DOA started introducing transplant machines and a demonstration of the operation of the machine utilizing the nursery plants prepared by the farmers in the village was conducted. The following Table 2.12.4 shows the results of the pilot activities of paddy cultivation in 2021/22.

Table 2.12.4 Yield Results of Selected Paddy Varieties (BN-01)

No	Variety	Method of Transplanting	Fertilizer (kg/ha)		No. of Manual Weeding	Productivity (kg/ha)
			Basal	Topdressing		
1	Toposi	line planting: 25 x 25cm 1 seedling/ hill	Urea:30kg, MOP:15kg	Urea: 30 kg	1	6,736
2	Toposi	line planting: 25 x 25cm 2 to 3 seedling/ hill	Urea:30kg, MOP:15kg	Urea: 30 kg	1	5,154
3	Toposi	line planting: 25 x 25cm 2 to 3 seedling/ hill	Urea:30kg, MOP:15kg	Urea: 30 kg	1	5,467
4	Toposi	line planting: 25 x 25cm 2 to 3 seedling/ hill	Urea:30kg, MOP:15kg	Urea: 30 kg	1	5,929

				Average	5,822
Contorol: Toposi	Random transplanting 3-5 seedling/hill	Nil	Nil	Nil	4,821

Source: JPT

(c) Future Agenda and Countermeasure

The BAIDC selected the Chemphai area as the paddy production area in the village for the 2nd pilot activities based on the experience of the 1st Pilot activities. And in the area, the improvement of the irrigation facilities, the consolidation of farmlands, the countermeasures to the abrasive action by river water on the river bank, etc. were to be effectively conducted by the concentrated powers of the four departments as the pilot activities. The method was a result of discussions with the BAIDC members and it was a new evolution in the extension activities. If the farmers in the area were strongly united and highly ambitious and independent characters, there would be no problems with the extension activities. However, in the areas where the degree of external dependencies was high and the unity of farmers was weak, many activities of the farmers were not so active despite of the various official supporting activities for agriculture development. In order to carry out the upgrading of agriculture productivity with the improvement of awareness on agriculture in such inactive areas it was understood that there would be the limitation of the activities only by the BAIDC members. Therefore, in the future, the following countermeasures should be taken by the state government, the four departments, and the relevant organizations.

- i) To study adjusting the environment for the BAIDC members to carry out easily the extension activities and to implement them as follows;
 - Introduction of paddy varieties officially registered and preferred by the farmers and fostering farmers to produce the seed paddies
 - Preparation of POPs¹² (Package of Practices) by the KVK and uploading them to the portal site of the KVK
 - Explanations and publicity of the agriculture policy of the state and the targets to achieve, etc. to the farmers and other people in the state
- ii) Formulation of the marketing system for farmers involved in paddy production and the 2nd crops to upgrade their income by selling the rice and the 2nd crops by considering the following points;
 - Support to introduce rice mill machines in which the quality of the milled rice could be produced for selling in the markets in other states;
 - Procurement of PDS¹³ (The Public Distribution System) rice from excess production in the state to increase farmers' willingness to produce the rice in the use of DPS¹⁴ (Decentralized Procurement System)
 - Production of the 2nd crops (Rabi/ winter crops) in the paddy fields and the dry-field crops which have a bigger marketable size: Focus on the oilseed crops (rapeseed, sesame, perilla, etc.), on which many traders have an interest.
- iii) As the BAIDC selected improvement of irrigation facilities in wet paddy areas, upgrading of cultivation fields, countermeasures on the abrasive action of levees by a river flow, and improvement of the cultivation of paddy and upland crops as the activities of the four departments, the state government should strengthen its support for them by providing adequate budget.

¹² The Krishi Vigyan Kendra Knowledge Network Portal (https://kvk.icar.gov.in/p_prac.aspx) provides downloadable PDF documents on cultivation methods and pest & disease control methods (commonly referred to as POP: Package of Practices) prepared by KVKs in different regions. And since most of them are prepared in the Mizoram language, BAIDC can use them effectively in their extension activities. In addition, POPs should be produced immediately, with strong linkages to KVK, because farmers can also download these POPs. Currently, POPs for rice (CAU R-1), soya, orange, tomato, chayote and papaya are available for download in Mizoram language.

¹³ Public Distribution System (PDS) https://nfsa.gov.in/portal/PDS_page

¹⁴ Decentralized Procurement System (DSP) : The scheme of Decentralized Procurement of foodgrains was introduced by the Government in 1997-98 with a view to enhancing the efficiency of procurement and PDS and encouraging local procurement to the maximum extent thereby extending the benefits of MSP to local farmers as well as to save on transit costs. This also enables procurement of foodgrains more suited to the local taste. <https://dfpd.gov.in/Procurement-Policy.htm>

(2) BN-02 Improvement of Vegetables Productivity

In the Bikhawthlir North village, as same as the Buhchangphai village of the 1st pilot village, vegetable productions were carried out by the tenants and labors from Assam. However, the ratio of the land owners who conducted actual farming is higher than that of Buhchangphai village, and that is one of the reasons that the BAIDC members selected the Chemphai area of the village for the 2nd pilot activities. The BAIDC members considered that it is necessary to attract the interest of the landowners and local farmers on vegetable production for upgrading the productivity of the area. Further, there is an educated farmer who was assisting young farmers in Mizoram and from Assam, and that was also one of the reasons why the BAIDC members selected the village for the pilot activities. Such farmer is a precious human resource for the BAIDC members to consider as an extension method from farmer to farmer and the FFS (Farmer Field School).

(a) General Outline of Crop Cultivation, and Technical Agenda and Formulation of

The BAIDC members were aiming to upgrade the productivities of vegetables in the area by strengthening the willingness to produce vegetables by attracting farmers' interest in vegetable cultivation. Although paddy production was dominant in the Chemphai area, the ingenious attempt to expand land leveling of the fields, where water was not properly provided, by a tractor available around had been implemented. In the 1st year of the pilot activities, strengthening of farmers' knowledge and cultivation skills and introduction of sprinklers was conducted, and the 2nd year activities are aimed at income generation for farmers, and focusing on the guidance of cultivation skills such as the introduction of high-quality seeds, the management of fertilizer applications, the prevention of the pest and disease, and the improvement of irrigation methods, etc., and the plan was targeting the ten farmers. The plan is shown in Table 2.12.5.

Table 2.12.5 Action Plan Against Issues (BN-02)

Issues	Action Plan
Improvement of Productivity	Practical training for levelling cultivation fields
	Guidance and technical trainings for the crop cultivation in Kharif (rainy season): pumpkin and sweetcorn in the 1 st year and pumpkin and okra in the 2 nd year
	Guidance and technical trainings for the crop cultivation in Rabi (dry season, winter): watermelon and carrot in the 1 st year and watermelon and carrot also in the 2 nd year
	Trainings of operation methods on irrigation facilities such as sprinkler and irrigation pump

Source: JPT

(b) Implementation of the Activities and Results

Outlines of the activities and the results were shown in the following.

Table 2.12.6 Results of Action Plan against Issues (BN-02)

Issues	Plan	Implementation and Results
Improvement of Productivity	Practical trainings of levelling of the upland crop fields	Implementing the practical trainings to make a level of the field by using a tractor and a large rake. Areas where crop cultivations became possible were increased.
	Guidance and trainings for crop cultivation in the Kharif (rainy season): pumpkin and sweetcorn in the 1 st year and watermelon, pumpkin and okra in the 2 nd year	In the 1 st year farmers selected sweetcorn and pumpkin but in the 2 nd year they selected watermelon in addition to pumpkin and okra. The yield of the watermelon was drastically decreased due to the eruption of a disease in the rainy season.
	Guidance and technical trainings for the crop cultivation in Rabi (dry season, winter): watermelon and carrot in the 1 st year and watermelon and carrot in the 2 nd year	The 1 st year, 2020/21, cultivation of the watermelon was successful, but in the 2 nd year, yields were low due to the eruption of a disease caused by exceptional rains. In the 2 nd year, 2021/2022, in addition to watermelon, carrot, tomato, chili, and cabbage were cultivated with the nursery plant production on a conjoint basis. And the production of balsam apple was made, further, the test production of watermelon was conducted.
	Trainings for operation methods of irrigation facilities (sprinkler and irrigation pump)	The pump and sprinklers were installed at the upland crop fields where the irrigation was not possible before; the trainings for these were conducted.

Source: JPT

The earnings of the pilot farmers on the watermelon cultivation for the dry season in 2020/2021 are shown in the following Table 2.12.7. The watermelon cultivation in 2021/2022 failed due to the eruption of a disease.

Table 2.12.7 Sales Income from Watermelon Cultivation by a Pilot Farmer

Date of Harvesting	Area of Harvesting	Farm Gate Price	Total Harvest	Total Sales
2021 April - May	6,520 m ²	Rs. 60/ kg	2,417 Kg	Rs. 145,020

Source: JPT

(c) Future Agenda and Countermeasure

Since the watermelon and other vegetables were not coming much from Myanmar and adjoining states due to the COVID-19 pandemic, the pilot farmers were able to sell the products in the neighboring markets and earn. In the 2nd year, the trial cultivation had been implemented, but it needed again to confirm the impact to the market conditions after COVID-19. Since the pilot farmers in the Chemphai village cultivated the watermelon and earned profit, farmers in the neighboring villages had an interest in watermelon cultivation, and requested the DOH to provide trainings for watermelon cultivation. Accordingly, the DOH conducted training for 14 farmers, selecting only two farmers each from a village taking the market size into account. In addition, the farmlands were effectively utilized by upgrading the cultivation fields in the pilot activities, and as the cultivation activities with use of the tractor became easier, the farmers awareness on vegetable cultivations were positively encouraged. Accordingly, it became possible to increase the production quantities of vegetables for marketing. Through the pilot activities, the following countermeasures and future activities were desired. It should be considered for conducting vegetable productions in Mizoram that the marketing conditions had changed drastically due to the COVID-19 pandemic.

- Due to the repercussions of COVID-19, the yield surveys by the BAIDC members were not conducted properly, and the cultivation records of the farmers were also defective. And as the yield survey method on the sweetcorn was not precise and so on, the improvement to grasp the correct yields was required to conduct the various surveys.
- This time, watermelon cultivation, which got money in farmers' pockets, drew the farmers' interest in the neighboring villages, and there were requests by the farmers for the trainings to the DOH. It would be the most important to put a profitable agriculture into effect for the extension by BAIDC to move forward effectively considering nearby market conditions.
- During the training on the cultivation of watermelon, talks of the farmers' experiences and cultivation skills, and inspection tours to the cultivation fields were conducted. In the future, the strategy for how to extend the cultivation skills and to conduct the effective and efficient extension to the circumjacent areas, and a concrete activity plan are required.

(3) BN-03 To Control and Reduce Stream Bank Erosion and Protect the Cropland from Huge Loss of Fertile Soil

The farming lands along with the river in the Chemphai areas were affected by the erosion caused by the floods. The construction of check dams and the countermeasures to prevent the erosion by planting vetiver grasses were a major purpose of the activities.

(a) Implementation of Activities and Results

The construction of the three check dams was directly implemented by the LRSWCD. Although soon after the plan of the BAIDC was approved by the state government, the construction commenced in March 2020 and was completed at the end of May of the same year, a part of the check dam was damaged by the heavy rains. Accordingly, although the remediation and reinforcement of the check dam and reviewing the construction of the drainage channel were scheduled in 2021, the necessary budget was not disbursed due to expenses incurred for countermeasures to the corona pandemic.

Further, the planting of vetiver grasses was introduced for reducing losses of the fertile soils of the farmlands. On the 1st of October 2020, 2000 nurseries of vetiver grasses were planted under the guidance of the LRSWCD.

(b) Future Agenda and Countermeasure

The construction of the check dam was carried out by the LRSWCD, there was no vigorous involvement of farmers. Therefore, during the flood caused by the very heavy rains, the farmers did not go to the site for taking any actions to grasp the flood conditions. As it was not possible to have a public gatherings and meetings due to the effect of COVID-19, priority was given to completing the construction of the check dam by the LRSWCD. However, as the renovation work of the irrigation facilities was implemented by the community contract of farmers, the method of construction should be implemented by adopting the participatory development technique. It is considered necessary to prepare time and effort to realize the feeling of the farmers that the O&M of the facilities should be carried out by the farmers' organization.

(4) BN-04 Rehabilitation and Upgrading of Lungzawn Minor Irrigation Project

The detailed project report (DPR) of Lungzawn Minor Irrigation Project (MIP) had been prepared by IWRD as a candidate project for BAIDC Annual Activity Plan 2020, which were reviewed by JPT. The Lungzawn WRC area is located in Chemphai Bilkhawthlir North Village in Kolasib district and belongs to Zone 1 (Agricultural advance region with high productivity and marketability where industrialization of agriculture is progressed) defined in the JICA Master Plan Study, where WRC development is proposed through development and effective management of better water resources. This project was completed in the year 2008, however, due to uncertain weather conditions including heavy rainfall and non-maintenance of the project regularly, the irrigation structures needed to be repaired. Therefore, the area was surveyed, and the cost was estimated by the IWRD. As per the department norms, since it is simple maintenance work with a financial source from the IWRD maintenance fund, the DPR was not prepared as per the guideline, hence, a simple DPR was prepared consisting of only design and cost estimate.

The water source of the Lungzawn minor irrigation project is the Lungzawn River, the irrigable area (CCA) is 75 ha, and the beneficiary farmers are 20 households. The total construction cost estimated was Rs.500,000.

Although this construction project was planned to commence in September 2020 by utilizing a part of the annual budget of the department, the securement of the planned budget was difficult because of the infection spread of COVID-19. Accordingly, the department continued to carry out the construction little by little utilizing the budget of the state government for the O&M, and completed in 2021.

2.12.2 Activities in the Lamchhip Village

The Lamchhip is a traditional village near the Sailam village, and the agricultural conditions and living situations are similar to each other. The dependency ratio on the Jhum cultivation is high, and the farming is basically for the production of self-consuming crops, and cultivations of orange, chayote, passion fruits (harvested and sold as leafy vegetables), etc. in the sloping fields (a vegetable) are being conducted. The Jhum area of the village is about 100 ha which is double that of the Sailam village. Many farmers are conducting the cultivation of the Jhum paddy, because the WRC areas are not much in the village. Since the dependence of the village households on agriculture is higher than that in Sailam village, the development of cash crop cultivation such as chayote, etc. as discussed above is desired. The implementation ratio of the CSS and other similar schemes is very few compared to the neighboring villages. The following table shows the current status of agriculture in the Lamchhip and Sailam villages.

Table 2.12.8 Comparison of Agricultural Workers in 1st and 2nd Pilot Villages

Pilot	Village	Hhouse- hold (No.)	Shifting Cultivatio n (%)	WRC (%)	Plantation (%)	Horticulture		
						Fruit tree (%)	Vegetable (%)	Condiments (%)
1st	Lamchhip	186	67.4	2.6	0.0	13.3	0.0	0.0
2nd	Sailam	153	67.5	8.1	0.0	11.8	0.0	0.0
Average for 20 RDBs		218	49.3	3.3	2.0	18.6	0.0	0.0

Source: JPT

(1) LC-01 Achieve Sustainable Vegetable Cultivation

For utilizing the fields on the sloping land converted from Jhum fields in the village, chayote and passion fruit are cultivated and the products are sold to the main market in Aizawl.

(a) General Outline of Crop Cultivation and Technical Agenda, and Formulation of Plan

Considering the effective utilization of the sloping lands, the plan of upgrading the productivities of chayote which is being cultivated at present, and concurrently introducing intercropping, and increasing farmers' income by producing other vegetables after harvesting chayote was prepared. At the same time, a stable supply of irrigation water for paddy cultivation was also planned. The following table shows the plans for the sloping fields.

Table 2.12.9 Action Plan against Issues (LC-01)

Agenda	Action
Increasing profit by upgrading of productivity of cash crops in the sloping fields	Formulation of the renovation plan for the Lamchhip MIP and implementation
	Mixed cropping of chayote and passion fruit and enlargement of the production for markets
	Implementation of irrigated cultivation on the sloping fields: for crop production after the harvest of chayote

Source: JPT

(b) Implementation of Activities and Results

Although the activities shown in the following table were conducted, an inspection trip for production areas and markets and securing the budget for the renovation of the irrigation facilities did not materialize due to the effect of COVID-19 in the planned period, and the measures for upgrading farming incomes have not moved through the planned period.

The functions of the half-moon terraces constructed on the sloping lands were appreciated highly by the farmers who were cultivating chayote, other than the pilot farmers, and they constructed the terraces using their own finances.

Table 2.12.10 Results of Action Plan Against Issues (LC-01)

Issues	Plan	Implementation and Results
Upgrading income by the production increase of cash crops in the sloping lands	Formulation of renovation works of the Lamchhip MIP and the implementation of the construction works	The IWRD prepared the DPR of the Lamchhip MIP: the CCA is 50.50 ha (paddy fields: 27.5 ha and the sloping fields: 25 ha) Affected by the COVID-19 pandemic, the renovation works were suspended because the enforcement of the budget was stopped. In November, 2021, as the fund of the NABARD RIDF was ensured, the works was to be recommenced in the dry season, 2022.
	The expansion of the mixed cultivation of chayote and passion fruit, the increase of their marketing volume and sales destinations	<ul style="list-style-type: none"> Since prices of passion fruit hovered at low level due to the effect of the COVID-19, farmers decided to narrow down cultivation activities to chayote. The visit to a production area of chayote, Siphir and the markets was not conducted and the expansion of the markets became difficult..
	Implementation of irrigated agriculture in the sloping lands: improvement of chayote production, other crop cultivation after the harvest of chayote and so on	<ul style="list-style-type: none"> Although the irrigation facilities in the sloping lands were to be constructed from October 2020 under the budget, it was not commenced since the RIDF budget was diverted to the emergency budget to prevent the infection spread of COVID-19. Implementing trainings of construction of 'half-moon terrace'¹⁵ considering soil runoff in a rainy season and soil water retention in a dry season in the sloping lands Implementing trainings for improvement of chayote cultivation: using methods of fertilizers and agrichemicals, INP, IPM, etc.

Source: JPT

(c) Future Agenda and Countermeasure

The following lessons were obtained from the past activities:

¹⁵ Half-moon terraces are used for planting of fruit and fodder trees in horticulture and agroforestry systems and made by cutting in half moon shape to create circular and levelled bed having 1-1.5 m diameter. Also provides facilities for retaining moisture and easy application of fertilizers and manures for healthy growth of plants.

- Although as for conducting monitoring of the ‘half-moon terraces’, the feedback from the Pilot farmers that the erosion of the surface soil had decreased, was obtained, the validation methodology for effective handling of the soil erosion in the future should be consolidated as the method of an appropriate data collection and analysis had not been established at present.
- For the plan of the countermeasure to increase earnings for aiming the high-degree utilization of lands, the collection and analysis of the market information is essential. However, proper activities had not been implemented due to the effect of the COVID-19. Therefore, it would be furthermore necessary to master a market-oriented type extension approach
- Especially in a village like Lamchhap, the livelihood of many people depends on agriculture at the Jhum fields in sloping lands, and it was observed that it is not easy to shift farming from the Jhum cultivation to settled cultivation. Accordingly, considering the household economy, a development package aiming for a high income with extension activities including the above-mentioned market survey and the countermeasures for soil erosion, etc. should be implemented in cooperation with KVK.
- The IWRD was able to secure the expenses for the renovation works of the irrigation facilities from RIDF of NABARD in November 2022 and planned to start the construction works in 2023.

(2) LC-02 Enhance Paddy Production

The improvement of the technology of wet paddy cultivation aiming to increase yields, and irrigation facilities were planned. The village is in a similar environment to the Sailam village as the land owners are producing paddy for self-consumption without using chemical fertilizers. The remark of farmers, ‘technical support than a physical support’ was more necessary, was distinguishing in the PRA workshop.

(a) General Outline of Crop Cultivation and Technical Agenda and Formulation of Plan

The purpose is strengthening paddy production aiming 15% of improvement of the production. The plan is shown in the following table.

Table 2.12.11 Action Plan against Issues (LC-02)

Agenda	Action Plan
Improvement of Productivity	Formulation of plan for renovation of the Lamchhip MIP and implementation of the construction works
	Introduction of a paddy variety of RCM-13 and the modified mat nursery, and trainings of basic paddy cultivation skills

Source: JPT

(b) Implementation of Activities and Result

The paddy cultivation was carried out without using chemical fertilizer like Sailam village. In 2020, the RCM-13 variety was introduced as same as the Sailam village, and the farmers appreciated the RCM-13 since the cultivation management was easier as the stem was thick. According to farmers who decided to use the variety continuously.

The results of the yield survey in 2020/21 and 2021/22 are shown in the following Tables LC02-1 and LC02-2. The average yields were increased to 4,652 kg/ha and 5,440 kg/ha respectively. Although the farmers in the Lamshhap village as well as in the Sailam village had been continuing the cultivation without using the chemical fertilizer, the average yields were higher than those of the Bikhawthlir North and the Champhai where the chemical fertilizer was used.

In 2020/21, yields were not expected to increase due to an outbreak of a virus disease suspected to be ‘Rice Tungro Disease’ in some paddy fields, but yields exceeded the last year's average yield of 2,400 kg/ha in Aizawl district. As a similar disease arose in the Sailam village, the BADIC asked a PCR examination to the Pachhung University College (PUC) after consulting the Director of the DOA. In 2021/2022, the countermeasures to the disease were taken at the nursery stage. As a result, the gap in the yields among farmers became small and the average yield increased from 4,652 kg/ha to 5,440 kg/ha.

Table 2.12.12 Result of Paddy Yield Survey for 2020/21

No.	Name	Variety	Date of Sowing	Area harvested (m ²)	Production in Demonstration plot (Kg)	Productivity (Kg/ha)
1	Lalthansanga	RCM 13	'20 Jun 01	387.0	192.0	4,961
2	Zirsangliana	RCM 13	'20 May 25	664.0	209.0	3,148
3	Thuamluaia	RCM 13	'20 Jun 29	374.7	195.0	5,204
4	Lalhundika	RCM 13	'20 Jun 26	321.0	170.0	5,296
Average				436.7	191.5	4,652
5	Control	Local	'20 May 25	693.0	274.0	3,954
6	Control	Local	'20 Jun 01	288.8	140.0	4,848
Average				490.9	207.0	4,401

Source: JPT

Table 2.12.13 Result of Paddy Yield Survey for 2021/22

No.	Name	Variety	Date of Sowing	Area harvested (m ²)	Production in Demonstration plot (Kg)	Productivity (Kg/ha)
1	Lalthansanga	RCM 13	'21 Jun 21	12.0	6.42	5,350
2	Zirsangliana	RCM 13	'21 Jun 19	20.0	11.90	5,950
3	Thuamluaia	RCM 13	'21 Jun 26	12.0	6.85	5,708
4	Lalhundika	RCM 13	'21 Jun 29	20.0	9.50	4,750
Average				16.0	8.70	5,440
5	Control	Local	'21 Jun 21	4.0	2.10	5,250
6	Control	Gomati	'21 Jun 24	4.0	0.92	2,300
Average				4.0	1.50	3,775

Source: JPT

Affected by COVID-19 the enforcement of the budget for the renovation works on the Lungzawn MIP was interrupted, and the works were rescheduled to resume from the dry season in 2021/2022 by receiving the fund from NABARD RIDF.

(c) Future Agenda and Countermeasure

Although the JPT was not able to attend the activities in the field due to the COVID-19 pandemic, they had been providing various suggestions for considering future extension works in the Lamchhip village based on the information of the regular meetings and the BAIDC activities, and the reports from the national staff of the project. They are summarized as follows:

- The seed paddy production of the RCM-13 variety was conducted without chemical fertilizer, and the yield was 4,839 kg/ha. The variety, considering the average yield in Lamchhip was 4,652 kg/ha, and the farmers' evaluation of the taste was high, is assumed to be suited to the area. Since in the traditional villages in Mizoram, there are many farmers cultivating without chemical fertilizer, the further test cultivations of the notable varieties during the pilot activities should be conducted by KVK, and it should be necessary to formulate a Mizoram type extension model.
- It was reported that one of the BAIDC members who attended the study tour in Japan, talked about the knowledge and information obtained in the study tour to the farmers after returning from Japan at every opportunity. It would be considered useful to share the knowledge and information obtained in the study tour in Japan among the BAIDC members and study in detail further for upgrading the extension impact.
- Until now, the data in the yield surveys were not interpreted effectively because the farming and cultivation records and yield records, etc. have not been ever stocked. Accordingly, it is very much important for farmers and BADIC members to continue keeping the activity records, and that would make the target value clear and to formulate the plan to be achieved.

(3) LC-03 Promote Rabi Crops

For realizing effective use of paddy fields (WRC), in addition to the strengthening of paddy cultivation (ref. LC-02) during the rainy season (Kalif), the 2nd crop cultivation for vegetables in the paddy fields

in the dry season (Rabi), which could make an agriculture production throughout a year possible, and which would provide upgrading farmers income, should be practiced.

(a) General Outline of Crop Cultivation and Technical Agenda, and Formulation of Plan

Legume crops such as peas and cowpeas, which are easy to sell to the neighboring small-scale markets, and oilseeds such as rapeseed, which is transportable and easy to handle and can also be used for cooking oil, were selected as the crops to be grown.

Table 2.12.14 Action Plan against Issues (LC-03)

Agenda	Action
Effective use of paddy fields: increasing revenues	Field research on cultivation and practical training on IPM* and INM*.
	Training on rapeseed, cowpea and field pea cultivation
	Preparation of DPRs and construction of irrigation facilities (same as LC-02)
	Training in mulching and other methods of retaining soil moisture

*Note: IPM – Integrated Pest Management, INM – Integrated Nutrient Management

Source: JPT

(b) Implementation of Activities and Result

Since the irrigation facilities planned at the beginning were not constructed because securing the budget was not possible, the lack of irrigation water in the dry season was a concern. Accordingly, it was decided that the cultivation was limited in the fields that would be available after discussing with the concerned farmers. Further, the water retaining capacity of the fields would be increased by providing mulching.

Rapeseed cultivation failed in the first year in Sailam village, and similarly in Lamchhip. The village did not cultivate rapeseed in the second year and continued Rabi/ winter cropping, focusing on field pea and cowpea cultivation, which are easier to sell to neighbors.

(c) Future Agenda and Countermeasure

In Sailam village, the cultivation of rapeseed for oilseed continued for three years, despite the failures of the first year’s cultivation. In Sailam, the COVID-19 pandemic led to the production of rapeseed oil for private use. However, this Lamchhip village gave up rapeseed cultivation as early as the first year and opted to grow peas and cowpeas.

In the case of Sailam, the farmers visited rapeseed growers and oil extraction facilities supported by the Serchhip DOA, where they were given tips on cultivation methods by the farmers before starting rapeseed cultivation. In the case of this village, the introduction part was skipped because of the COVID-19 pandemic in 2020, and it was understood that the presence of motivation in this introduction part was important. As the market size for fresh vegetables, edible pulses, etc. is small and it would be difficult to increase the earnings of the village farmers as a whole, Sailam envisaged producing oilseeds and selling seeds and oil via traders. In addition, many Jhum farmers have experience growing sesame and perilla, therefore their crops are easy to grow on sloping land and in paddy fields.

In order for many farmers in the village areas to broadly expand their income, it is necessary to sell a significant amount of their produce outside the state, and it will be more realistic to sell through major traders. And the produce needs to be transportable and easy to handle. It is understood that each farmer was highly motivated to cultivate rapeseed in Sailam because of the discussions on the above issues with BAIDC.

Although BAIDC/ JPT were unable to go on inspection visits this time because of the ban on travel and meetings due to COVID-19, it was necessary to carefully explain to farmers the purpose of oilseed crop cultivation and specific proposals for increasing profits.

2.12.3 Activities of Tlangsam Village

Since the Hnahlan village is one of the 1st pilot villages located at the place of three hours’ drive from the district office of each department, and the visit to the village could not be made so frequently, the BAIDC members selected the Tlangsam village for a 2nd pilot village which is close to the district capital, Champhai, located 8 km away from the town. And the pilot farmers were selected from the paddy production area and the neighboring vegetable cultivation area in sloping lands. Farmers in the village were selling paddy straws as feeds to cows and litter trays, and many farmers were raising cows and

selling milk. Additionally, some farmers were utilizing the litter trays as barnyard manures. Accordingly, in the village, it would be possible to adopt an extension approach that differed from the traditional villages. Further, as the village is close to the Champhai town market, many farmers were selling milk and vegetables directly by themselves. The characteristics of the agriculture in the village are shown in the following table. More than half of the farmers in the village were involved in WRC, and the ratio of farmers cultivating vegetables was very high.

Table 2.12.15 Comparison of Ratio of Farmers in Total Households of the 1st Pilot Village and the 2nd Pilot village.

Pilot	Village	Hhouse- hold (No.)	Shifting Cultivation (%)	WRC (%)	Plantation (%)	Horticulture		
						Fruit tree (%)	Vegetable (%)	Condiments (%)
1st	Hnahlan	730	9.6	20.5	0.0	34.3	0.0	0.0
2nd	Tlamsam	520	6.3	58.8	0.0	1.0	5.9	0.0
Average for 28 RDBs		383	19.9	11.8	1.4	2.6	0.6	0.3

Source: JPT

(1) TL-01 Increase Vegetable Production in Kharif

(a) General Outline and Technical Agenda, Formulation of Plan

Since the village is located with good access to a market, it was advantageous to cultivate vegetables in the rainy season, however rice which is a staple food, had been mainly cultivated. Taking the advantage of the close market into account, a plan to increase farmers' income by cultivating vegetables in a sloping field even in the rainy season was formulated. And so, as a countermeasure to prevent soil erosion in sloping fields during the rainy season, planting works of vetiver grasses were proposed in addition to earth retaining works by bricks which had been carried out by each department.

Further, the construction of a poli-tunnel house and irrigation facilities and procurement of the relevant equipment and materials shown in the following Table 2.12.16 are common activities in the following section TL-02.

Table 2.12.16 Action Plan against Issues (TL-01)

Issues	Action Plan
Increasing income by vegetable cultivations in a rainy season (Kharif)	Procurement of materials for the construction of a poli-tunnel house
	Training of a construction of terraces and countermeasures for soil erosions by rains and an actual construction
	Preparation of DPR for construction of irrigation facilities and an actual construction
	Procurement of equipment and materials for installation of a micro sprinkler and a trainings.
	Supply of basic materials for cultivation and a training of Pilot farmers in the fields
	Monitoring of yields and sales

Source: JPT

(b) Activities and Results

The activities of the BAIDC are shown in the following table.

Table 2.12.17 Results of Action Plan against Issues (TL-02)

Issues	Plan	Implementation and Results
Increasing income by vegetable cultivations in a rainy season (Kharif)	Procurement of materials for a poli-tunnel house	<ul style="list-style-type: none"> The materials were not procured due to shortage of budget of the DOH
	Training on construction of terraces and countermeasures for soil erosion by rains, and actual construction	<ul style="list-style-type: none"> Reinforcement of the existing terraces was carried out, and Rs.43,200 was used. And all labor works were conducted by farmers Countermeasures of soil erosions were carried out by planting of Vetiver grasses and the earth retaining works by bricks.
	Preparation of DPR for construction of irrigation facilities and an actual construction of a minor storage facility	<ul style="list-style-type: none"> The IWRD prepared the DPR of the Thliarpui MIP and it was reviewed by the JPT. The estimated cost was Rs.16,499,700 and the tender was scheduled in the dry season of 2022 The construction of a minor storage facility and installation of the water supply pipes were completed through the fund of the PMKSY (DOA).

Procurement of equipment and materials of micro sprinklers and training of their installation.	<ul style="list-style-type: none"> ▪ Each one rain-gun was provided to the five pilot farmers and the training was conducted. The price of a rain-gun was Rs. 59,683.
Procurement of equipment and materials for installation of a micro sprinkler and training on its operation.	<ul style="list-style-type: none"> ▪ Supply of kidney beans, cabbage, okra, cowpeas, supply of fertilizer and agriculture chemicals, and implementation of technical trainings
Monitoring of yields and sales	<ul style="list-style-type: none"> ▪ Implementation of research on yields and sales of products by 5% of the pilot farmers

Source: JPT

Although the construction of the Thliarpui MIP had not been implemented yet, the service area of the MIP is 55 ha and it has high potential to supply and sell vegetables and cash crops produced in the area to the Champhai market. Until now, farmers have been conducting irrigation for paddy fields in a rainy season through an earthen canal from small streams nearby, but the irrigation water had been often short. Accordingly, the Thliarpui MIP had been planned as the irrigation water was essential for the cultivation of crops in the dry season. In the project, the facilities consisted of three nos. of storage reservoirs of which the dam heights are approximately 5 m, seven places of the new canals, two of the new storage tanks, and other relevant structures are to be constructed, and the tender for the construction was scheduled to be in the dry season of 2022.

(c) Future Agenda and Countermeasure

As the project had been affected heavily by the COVID-19 and enforcement of the budgets of the MIP, the construction of the poli-tunnel house, etc. were delayed and suspended, the following agendas and countermeasures were understood.

- For the terrace construction on sloping fields, earth retaining works with the use of bricks and Vetiver grass planting works had been made as the countermeasures of preventing soil erosion so that the Pilot farmers could conduct the operation and maintenance of them after the construction. Especially, the Vetiver grass planting was adopted for a vacant field of Jhum cultivation in Sailam village by the DOA in the 1st Pilot activities. In the Tlangsam village, the same sort of method was conducted by the four department in playing a central role. It was very much appreciated that the BAIDC activities did not depend upon outside resources and were worked out by the four departments together. In the future, it is considered that based on this kind of case example as a model, the direction and significance of the BAIDC activities would become much clear. Hence, the detention and study of similar cases in the Pilot activities in different villages should be also explored. In fact, it is indicated that if there are farmers' skills such as making farmers' organizations and small groups, powers such as funds, skills, leadership, and bank loans, etc., and norms and rules such as objectives and the mutual trust of an organization, the extension activities not depending on outside resources could be implemented.
- The construction works of irrigation with water storage facilities were to be carried out by the IWRD, but the budget was not obtained. Through the consultation in the BAIDC it was approved to utilize the budget provided under the PMKSI, CSS of the DOA. As the construction of the water storage tank was to be conducted by the Pilot farmers, the technical guidance of the construction to the farmers was carried out by the IWRD. Such resource exchange among the departments is considered the result of the BAIDC who formulated the plan in an integrated fashion. Accordingly, it is important to conduct a regular training for the BAIDC to act with awareness of coordination with other organizations and personnel.
- Since both BAIDC and farmers had not had the knowledge and experience of rain-gun irrigation, there were a few fields where efficient watering was not possible as the spreading distance by the rain gun and width of a chine in the fields were not matched. It could be considered as a method that the BAIDC should inform of this kind of issue to the IDC, and the IDC should talk with KVK and conduct a trial operation to wrap it up as the POP.

(2) TL-02 Promotion of Vegetables Cultivation in Rabi

(a) General Outline of Crop Cultivation and Technical Agenda and Formulation of Plan

As same as the TL-01 discussed above, taking advantage of the convenience of the marketability of the village, vegetable cultivation utilizing the irrigation water leads to farmers' earnings. The activity plan was formulated in this point of view. Further, the implementation field of the TL-01 was as same as the TL-02, and TL-02 was the plan and activities specifically during the dry season (Rabi).

By selecting the appropriate crops out of the crops that farmers preferred to cultivate, cultivation and marketing were conducted. And the BAIDC guided farmers to keep the marketing records, and checked them. Further, in Mizoram, since vines and leaves of pumpkins are handled as vegetables, the marketing unit is made as a bundle.

(b) Implementation and Results of Activities

As the BAIDC provided Rs.2,000 equally to every farmer as support for procuring crop seeds that they preferred to cultivate, the farmers procured seeds of vegetables such as kidney beans, pumpkin, peas, mustard, cabbage, carrot, etc. as listed in the table below, and cultivated them. Kidney beans, cabbage, and peas were F1 varieties and others were indigenous varieties. Pumpkin and mustard were mainly sold as a bundle to consumers, and as middlemen used to decide the prices without measuring precisely, farmers had no way to record the exact marketing quantity. Accordingly, no marketing quantity of them was recorded. It is common for the farmers in Mizoram not to record their agricultural activities. It is necessary for the BAIDC to make the farmers recognize this habitual behavior without thought.

Table 2.12.18 Sales Record of Vegetable in Rabi 2020/21

No.	Name of Crop & Variety	Sowing	Selling Price (Rs/kg)	Total Q'ty (kg)	Total (Rs.)	Mode of Market	Place of selling
1	Bean (K.K-25)	2020 Sep.	Rs.80 - 100/kg	20	4,600	Door-To-Door & Middleman	Champhai & village
	Pumpkin (Local)	2020 Sep.	Bundle	-	9,620		
Total					14,220		
2	Mustard (Local)	2020 Sep.	Bundle	-	14,300	Door-To-Door & Middleman	Champhai & village
	Bean (K.K-25)	2020 Sep.	Rs.100/kg	50	5,000		
	Field Pea (?)	2020 Sep.	Rs.80/kg	30	2,400		
Total					21,700		
3	Bean (K.K-25)	2020 Sep.	Rs.80/kg	3	240	Door-To-Door & Middleman	Champhai & village
	Mustard (Local)	2020 Sep.	Bundle	-	12,950		
Total					13,190		
4	Mustard (Local)	2020 Sep.	Bundle	-	66,430	Middle Man	Champhai
	Cabbage (Ryozeki)	2020 Sep.	Rs.50 - 60/kg	201	10,360		
Total					76,790		
5	Mustard (Local)	2020 Sep.	Bundle	-	25,180	Door-To-Door & Middleman	Champhai
	Carrot (Local)	2020 Sep.	-	-	800		
Total					25,980		
5 Farmers' Sales Total (Rs.)					151,880		

Source: JPT

Although verifications of the marketing records by the BAIDC were conducted three times from December 2020 to the end of February 2021, the BAIDC was not able to visit villages for some periods due to the corona pandemic. While the total sales amount in the three months became INR 151,880, the highest sales of mustard and cabbage among the five farmers was INR 76,790. As farmers had not confirmed the record of their sales until this occasion, the improving point was brought into focus, and it became essential to explain the necessity for the farmers to keep the records of the sales as a habit. But, the recording of yields and sales was not continued in 2021/22, as three (3) farmers out of five (5) suspended the cultivation due to family problems.

(c) Future Agenda and Countermeasures

During the COVID-19 pandemic, the BAIDC arranged for farmers to keep a record of their sales, and obtained the results as shown in the above table. As the BAIDC members could not go to the cultivation

fields in other villages, the members requested the farmers to keep records of cultivation and growing conditions, and the data recorded by farmers were accurate much more than expected. When the BAIDCs' extension activities are to be expanding in the Manipur State, it is difficult to carry them out very often at the village in distant places. However, it could be assumed to be possible to entrench the FSS (Farmer Field School) method by customizing for farmers to keep various records on their agriculture activities as the common objective of the 1st stage of the extension activities and to achieve it. Also, an improvement of the format for the records is necessary so that the farmers could understand how much of the quantity was sold out.

Tlamsam village is near a market, thus the result of the vegetable cultivation for upgrading the farmers' earnings were higher compared to that of the Hnahlan village of the 1st pilot area. Generally, fresh leaves of mustard of which daily consumption is high, and a pumpkin are almost nil in Rabi (winter) due to low temperatures and very small rains. However, in Tlamsam village, because of watering by the installation of the storage tank and a sloping and low elevation with mild temperature lands near the paddy lands, the cultivation of mustard and pumpkin became possible. This type of cultivation method and the results could be applied in other parts of the areas as a model, therefore, a system to share the POP among the BAIDC members should be created.

(3) TL-03 Improvement of WRC Area Productivity

They say that the yield of paddy in the Champhai district is higher as the advanced area of paddy cultivation. As the result of the pre-baseline survey, the average paddy yield in the village was 1,750 kg/ha which is lower than the average of 25 villages in the Champhai district, 2,077kg/ha¹⁶. The nursery plant production method was the same as the Jhum cultivation method in other villages.

(a) General Outline of Crop Cultivation and Technical Agenda and Formulation of Plan

In general, as the knowledge and techniques on paddy cultivation were low, levelling up of the basic knowledge and skills on paddy cultivation was aimed. Sitting with farmers, it was decided that the production of the paddy nursery should be made in the water nursery as a basic method collectively. While in the 1st year the seeds of the RCM-13 which were produced by the farmers in the Sailam village were used, in the 2nd year, the DOA recommended and distributed the high-yielding variety, Gamati (Indica type).

(b) Implementation Activities and Results

Although the construction of irrigation facilities was planned and the DPR was prepared in 2020, budget was not allocated due to the effect of COVID-19. Accordingly, an application was made and the budget was approved by the RIDF-27 in the following year.

The yield results of the paddy cultivation are summarized in the following Table X1. In the 1st year (2020/21) a Japonica type RCM-13 variety was cultivated and the average yield was 4,329 kg/ha which was 2.5 times higher than the average results, 1,750 kg/ha, of the pre-baseline survey. In the 2nd year the DOA recommended the Indica type high-yielding variety, Gomati, however, the motivation for the cultivation in the Champhai village was lowered as the taste of the rice was not accepted.

Table 2.12.19 Yield Survey Results of Paddy - 2020/21

No.	Name	Variety	Date of Sowing	Area harvested (m ²)	Production in Demonstration Plot (kg)	Productivity (kg/ha)
1	K. Sangpuia	RCM-30	'20 May 16	8	3.8	4,750
2	K. Lalengliana	RCM-30	'20 May 19	232	104.2	4,491
3	K. Biakzauva	RCM-30	'20 May 19	241	101.4	4,207
4	R. Vanladika	RCM-30	'20 May 25	352	138.0	3,920
5	K.Lalzika	RCM-30	'20 Jun 01	138	59.0	4,278
Average				194	81.3	4,329
6	Control	Burma Buh	'20 May 19, 25, 31	12	5.0	4,167

Source: JPT

¹⁶ Mizoram Statistical Abstract 2021 also shows that the average yield of paddy in Champhai District is 2,070 kg/ha.

Table 2.12.20 Yield Survey Results of Paddy – 2021/22

No.	Name	Variety	Date of Sowing	Area harvested (m ²)	Production in Demonstration Plot (kg)	Productivity (kg/ha)
1	K. Sangpuia	Gomati	'21 Jun 14	89.45	42	4,695
2	K. Lalengliana	Gomati	'21 Jun 14	160.07	67	4,186
3	K. Biakzauva	Gomati	'21 Jun 14	188.60	55	2,916
4	R. Vanladika	Gomati	'21 Jun 14	178.00	70	3,933
Average				154.03	58.5	3,932
6	Control	Gomati	'21 Jun 14	150.00	57	3,800

Source: JPT

(c) Future Agenda and Countermeasures

Because of the effect of the corona pandemic, the activities for the 2nd year of various methods were taken, such as a part of the yield survey, online guidance on the method of the past and disease protection, the confirmation of paddy growing conditions in the fields by the WhatsApp application, and so on. At the beginning, although it was one of the reasons for the selection of the village that the BAIDC members could visit the sites frequently as the Tlangsam village is close to the district offices, the visits were not conducted due to COVID-19. Despite such a situation, the pilot farmers in Tlangsam village continued the cultivation management by utilizing the cultivation calendar much more than other pilot villages and obtained a high yield.

It is observed that the BAIDC explained the paddy productivity and the cultivation level at the Tlangsam village to farmers in Champhai, and was able to promote the high motivation of the farmers with a central focus on the group leader as there were effects of COVID-19. However, in the 2nd year, although the Gamini variety was recommended in preference of interest of the DOA, no farmer had been interested to continue the cultivation of the Indica type paddy. It was well understood that the significance of extending a paddy variety which is preferred by farmers and has a clear varietal characteristic, is to arrange the extension environment of the BAIDC and the extension impact would be upgraded by rising the motivation of the farmers. In fact, the extension method which grasps farmers' disposition would improve the environment of the BAIDC activities.

(4) TL-04 Introduction of Rabi Crops

Although the ratio of farmers who carried out vegetable cultivations was high in the village, vegetable cultivations in paddy fields during the dry season (Rabi) were almost nil. Therefore, achieving agricultural production throughout a year with the cultivation of vegetables in the dry season for increasing the utilization ratio of paddy fields and upgrading the farmers' income was aimed at by the pilot activities.

(a) General Outline of Crop Cultivation and Technical Agenda and Formulation of Plan

The pilot farmers selected peas as the crop in Rabi (dry and winter season) which was easily sold in nearby markets and did not require much water. Since the farmers could cultivate with an easy mind as the peas have been recently procured by the DOA in every year, peas were cultivated continuously in the last two years.

(b) Implementation Activities and Results

In the 1st year the production of the peas was summarized in the following Table TL 04-1. The difference in the yields among the farmers was big, the highest was 4,240 kg/ha, the lowest was 1,370 kg/ha, and the average yield was 2,510 kg/ha, which was reached only just to the average in the whole of India. As for the cultivation method, the method which was recommended by the 1st Pilot farmers in the Sailam village was introduced by the BAIDC and the farmers followed it. In the 2nd year, as there was heavy rain exceeding 100 mm, seeding was not possible at the appropriate time, and in case the seeding was somehow implemented, harvesting was not possible due to the inundation of the fields and the staleness of the plants. In the paddy fields, drainage ditches were provided, but the rainfall was much more than the capacities of the ditches. In usual years, there should not have any rain in the period. It was broadly understood to consider countermeasures for drainage issues and actions to be taken by farmers during

heavy rainfalls including dealing with the risks of winter crop cultivation in the paddy fields, for future improvement.

Table 2.12.21 Results of Field-Pea Yield Survey for 2020/21

No.	Date of Sowing	Date of Harvest	Yield (Kg)	Cultivation area (m ²)	Productivity (Kg/ha)
1	14.1.2021	16.4.2021	120	283	4,240
2	12.1.2021	14.4.2021	240	1,368	1,754
3	26.2.2021	16.4.2021	50	365	1,370
4	06.1.2021	6.4.2021	220	822	2,676
Average			158	710	2,510
Average Yield - All India (for early crop)					2,500 - 4,000

Source: JPT

(c) Future Agenda and Countermeasure

Since the village is located near the center of the district and close to the market, farmers are sensitive to profitable agriculture activities. In the 2nd pilot activity, as affected by the COVID-19 pandemic, preparatory activities to conduct the procurement of seeds for winter crops other than the peas were not made. Therefore, it is recommended that the BAIDC with the farmers should conduct in the future a selection of crops which could be cultivated continuously taking the marketability, profitability, and cultivation management into account.

2.13 Conduct Feedback Meeting and Evaluation Seminar

The feedback meeting was held for 2nd pilot villages. The summary of the discussion is shown below.

Table 2.13.1 Summary of Discussion in the Feedback Meeting

Second Pilot Village	
Bikhawthlir North	<ul style="list-style-type: none"> Bikhawthlir North is a big village with about 500 households that is similar in scale with Hnahlan Village. However, the BAIDC decided to choose the Chemphai area where four departments can work jointly with a focus on paddy field. Many tenant farmers are working in the paddy field and the same problems are existing like in Buhchangphai. However, BAIDC had chosen an area where farmers are highly motivated, and the same problems with Buhchangphai is avoided to some degree.
Lamchhip	<ul style="list-style-type: none"> In case of Hnahlan Village, a planned activity was targeted for the entire village without effective selection, and there was no tangible achievement in the first phase. Meanwhile, the selection procedures in Bikhawthlir 'N' Village that was implemented by the BAIDC can be utilized as a model in the future. It needs further improvement on how to select. An opinion was shared by BAIDC members that the implementation and success of an extension activity are impossible without the farmer's motivation, but further capacity development of the BAIDC is necessary to be able to implement the guideline and manual that were prepared in the Project. A way of utilizing local available resources and not only depending on government funds is required when implementing an effective and efficient extension activity.
	<ul style="list-style-type: none"> To develop farmers' capacity is important because farmers can take action by themselves to resolve their farming issues with obtained basic agricultural knowledge and technology through training. The method for soil conservation in the chayote cultivation fields is now spreading among chayote farmers in the village, that was given by the BAIDC to the pilot farmers. Furthermore, the BAIDC is now interested in this village's action and this village will be a good model to consider the proper selection method against effective extension service. The villagers did not have any idea of the project at the beginning but farmers came to know it while the BAIDC continued their activities in the village, and finally farmers could take several actions to the BAIDC in a positive manner. BAIDC has to have the participatory development technique to change the farmers' attitude through the extension activities step by step.
	<ul style="list-style-type: none"> Lamchhip Village is a traditional village and size and other features of the village is similar to Sailam Village Implementation of CSS has been quite few in this village, and dependency on outside resources is low. Farmers themselves put cultivation of the chow-chow on track and sale to the Aizawl Market is the prime agricultural activity in the village. Part of the rehabilitation works of the irrigation facilities could not be implemented due to budget shortfall. At the beginning, farmers said to the BAIDC that they do not have enough ability to make a project succeed. But after the project started, the farmer's attitude has been changed and they are very active sending several photographs to obtain BAIDC's guidance regarding crop disease by using a smart phone.

Tlangsam	<ul style="list-style-type: none"> As the village is adjacent to the state capital of Champhai, the sale of the farm products is in a comparatively easy place. The number of households in the village was large scale at about 500 but because the development subject by farmers is very clear, thus, the problem similar to Hnahlan's was not observed. However, the number of activity items is too much. Regarding construction of irrigation facilities, the budget for the IWRD was not allocated. But finally, it was possible to implement part of the activities by utilizing DOA budget allocation. 	<ul style="list-style-type: none"> The DOH assisted the construction of terraces for vegetable cultivation using bricks but vetiver grass is also one of the useful materials. BAIDC had better set up a demonstration plot for terrace construction using locally available and inexpensive materials. It will also be an important learning opportunity for both BAIDC and the farmers. As BAIDC members themselves fully depend on the CSS budget, BAIDC needs to change its mindset first, otherwise it is difficult to change the farmers' mindsets.
----------	--	--

Source: JPT

2.14 Finalization of the Method

The Methods was finalized by the PMT. For finalization, the approval and a description in the opening comments were obtained from the directors of each department and bound in January 2023. The bound methodology was distributed at the seminar held on 31st January 2023, and the required number of copies was distributed to each department.

The main revisions between the second draft and the final version are as follows.



Source: JPT

Figure 2.14.1 List of Methods

Table 2.14.1 Revisions between the Second Draft and Final Version

Title of Method	Main Revisions
Operational Guideline for JICA Sustainable Farming System (JIFAS)	<ul style="list-style-type: none"> SLCC (State Level Coordination Committee) The Committee is chaired by the State Minister of Irrigation and Water Resources The ten steps of the JIFAS implementation procedure by BAIDC have been reduced to nine steps to simplify the activities that currently burden both farmers and BAIDC. In addition, the feedback meetings, which were active and meaningful, were enriched, and even at the current BAIDC capacity level, the issues and points of reflection reached through discussions between the farmers and BAIDC were changed to a format that makes it easier to reflect them in the next plan. (Capacity building by following the PDCA cycle) Revised from "Step 5 Ratify the BAAP with farmers and be aware of sustainable utilization of land & water" to the "Consensus Meeting on BAAP with Farmers and Awareness on Sustainable Utilization of Land and Water Resources" Revised from Step 7 to the "Upload BAIDC Annual Activity Plan (BAAP) on MIS-JIFAS (Management Information System-JICA Sustainable Farming System) and the activities in Step 7 are moved additionally in Step 8. MIS-JIFA Operators will be selected from each RD block, and MIS-JIFAS operators will also be assigned to the IDC. In preparation for the utilization of MIS-JIFAS, BAIDC annual plans and formats for monitoring are revised. The basic data of each village in the province in Step 1 was compiled in 2022 using the Village Profile of the Directorate of Economics and Statistics to improve the efficiency of BAIDC activities. BAIDC will upload annual activity plans and progress to MIS-JIFAS, and IDC will regularly monitor the BAIDC activities in the MIS.
DPR Preparation Guideline for Irrigation Project	<ul style="list-style-type: none"> Addition of discharge measurement method due to the introduction of new models Addition of surveying methods due to the introduction of new models

	<ul style="list-style-type: none"> • Change of implementing body consistent with the "Operational Guideline for JIFAS"
Officers' Manual for Improving Agriculture Extension	<ul style="list-style-type: none"> • Insert site photos and change format • Summary of major technical guidelines in the past (attached materials) <ul style="list-style-type: none"> - Sorting of seed rice - Seed soaking and constant temperature measures for rice seeds - Improved mat type nursery - Technical guide on how to create and use a crop calendar for farmers - Handmade weeder - Basic information of broom cultivation in Mizoram - Intercropping/mixed cropping system for areca nuts - About vetiver grass
Officers' Manual for Construction Management	<ul style="list-style-type: none"> • Change of format/unification of terminology • Attachment of updated training materials for BAIDC
Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme	<ul style="list-style-type: none"> • Change format • Changes to terminology updated in IWRD • Updated training materials for WUAs

Source: JPT

2.15 Assessment of the Technical Level of the Counterpart Personnel and Setting Goals of Capacity Development

2.15.1 General

As shown in Table 2.15.1, the overall strategy for the capacity development of counterparts started with setting their own capacity development goals and targets. The counterparts were trained through field visits to the advanced area, basic training provided by JPT, PMT, or other resources person and on-the-job training (OJT) in the pilot activities. It is expected for the counterparts to participate and receive any training activities to achieve the target set by themselves. The achievement was monitored and evaluated by the counterparts every year and goals were adjusted from time to time.

Table 2.15.1 Training Implementation Process

Goal Setting	Training	Evaluation of Achievement
<pre> graph LR A[Assessment of technical level and setting goal of capacity development] --> B[Field visit to advanced area] A --> C[Basic training] A --> D[OJT] A --> E[Training in Japan] B --> F[Achievement evaluation through feedback workshops] C --> F D --> F E --> F F --> A </pre>		
Participants will set their own goals for capacity development in the participatory workshop using curriculum development method based on ability structure (CUDBAS) method at the beginning of the project.	Officers will voluntarily participate in the training of 1) visit to the advanced domestic area, 2) technical training on the critical subject, 3) OJT in the pilot villages, 4) training in Japan, according to their set objectives.	The beneficiaries shall annually review the appropriateness of their goal to make necessary adjustment, and goals shall be revised through evaluation of the achievement as well.

Source: JPT

2.15.2 Setting the Goals of Capacity Development of Counterparts

Workshops to identify items and goals for technology transfer to the counterparts were organized in Phase-1 using the idea of curriculum development method based on ability structure (CUDBAS). The workshops were conducted twice on 8 August 2017 in Aizawl and 28 October 2017 in Champhai during Phase-1. The participants identified the necessary skills needed in their tasks, evaluated the current technical level, and set the targets and milestones during the implementation of the project. Technical elements allowed free responses and multiple answers. The final outputs of the workshop are as follows:

- Biodata for Counterpart Personnel (Output 1)
- Worksheet for Present Mandates and Tasks/Worksheet for Essential Skills and Milestones (Output 2)
- Work Plan for Mastering Essential Skills (Output 3)

About 41 persons as shown in Table 2.15.2 participated in the workshop and submitted their worksheets.

Table 2.15.2 Number of Participants in the Workshops

	Bilkhawthir	Aibawk	Serchhip	Champhai	Total
IWRD	3(3)	4(4)	1(3)	2(3)	10(13)
DOA(CH)	3(3)	2(5)	1(3)	3(3)	9(14)
DOA(RE)	1(1)	1(1)	1(1)	1(1)	4(4)
DOH	3(4)	3(3)	0(3)	2(4)	8(14)
LRSWCD	2(3)	4(4)	1(3)	3(3)	10(13)
Total	12(14)	14(17)	4(13)	11(14)	41(58)

Source: JPT

Note) A(B): A is participant of workshop, B is all BAIDC by block and department.

Regarding the essential skills required by the counterparts, the most common answer was remote sensing and geographic information system (GIS) for survey work in the IWRD and LRSWCD. Furthermore, IWRD often answered that they want to learn hydraulic and structural calculations for design work. In the DOA, technical elements were numerous such as cultivation skills of rice and oil palm, quality seed production, and post-harvest management. In the DOA, the technical elements were new technology in agriculture through Krishi Vigyan Kendra(s) (KVK) and Integrated Pest Management (IPM). In the DOH, there were many technical elements about cultivation. In particular, many answered on the cultivation of fruit (orange, pineapple, and dragon fruit).

2.16 Overseas Training in Japan

2.16.1 First Overseas Training

(1) Outline of the First Overseas Training

The first overseas training in Japan (Name: Capacity Enhancement Training on Agriculture Extension and Irrigation Development and Management in the Hilly Area) was carried out under “The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram in the Republic of India” for a 12-day period from the 24th of September to the 5th of October 2018. Eight participants were selected from PMT or BAIDC members belonging to DOA, IWRD, DOH, and LRSWCD of the State Government of Mizoram. The participants are shown in Table 2.16.1.

Table 2.16.1 Participants in the First Overseas Training in Japan

No.	Name	Agency/Position
1	Dr. Saipari Elizabeth	Director, DOH, State Government of Mizoram
2	Mr. Azyu Beizawzi Tohei	Superintending Engineer (Works & Design), IWRD, State Government of Mizoram
3	Mr. Chhakchhuak Hualthanga	Joint Director, LRSWCD, State Government of Mizoram
4	Mr. Lalthanzuala	Deputy Director of Agriculture (Agronomy), DOA, State Government of Mizoram
5	Mr. Hranglungchhung Piangthanga	Sr. Executive Engineer, Aizawl Division, IWRD, State Government of Mizoram
6	Mr. Lalnuzira Renthle	District Agriculture Officer, DAO office, Aizawl, Agriculture Department, State Government of Mizoram
7	Mr. Laltluangkima Fanai	Agriculture Extension Officer, DAO office, Aizawl, Agriculture Department, State Government of Mizoram
8	Ms. Zaithangpuii Lucy	Assistant Divisional Horticulture Officer, DHO office, Serchhip, DOH, State Government of Mizoram

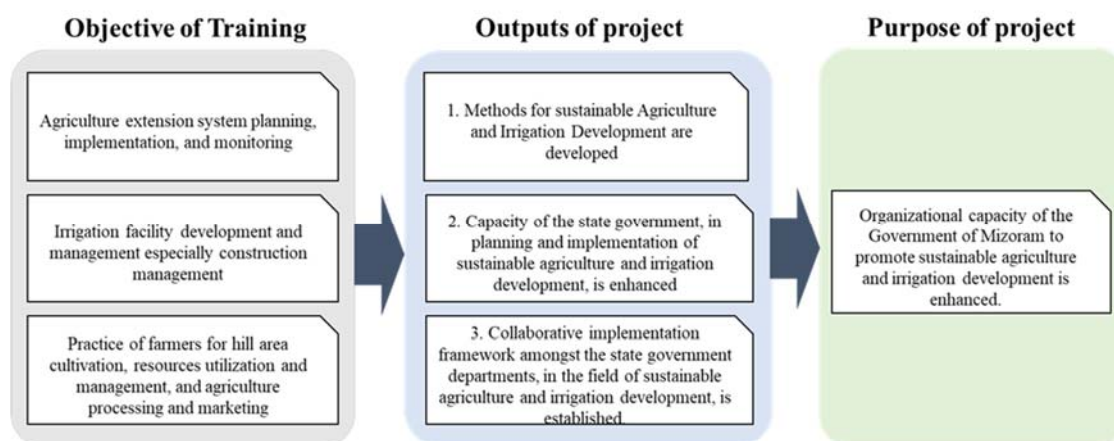
Source : JPT

(2) Objectives of the First Overseas Training

The objectives of overseas training were that trainees acquire the following knowledge through practical lecture, site tours, and practical training in advanced areas of slope agriculture in Japan.

- 1) Agriculture extension system planning, implementation, and monitoring.
- 2) Irrigation facility development and management, especially construction management.
- 3) Practice of farmers for hill area cultivation, resources utilization and management, and agriculture processing and marketing.

The relationship between the project and planned training is shown as below.



Source: JPT

Figure 2.16.1 Concept of Overseas Training in Japan

(3) Contents and Schedule of Overseas Training

According to the above concepts of the training, training contents and schedule were arranged as shown in the following table.

Table 2.16.2 Training Contents and Schedule of the First Overseas Training in Japan

Date	Training contents	Visit
24th Sep.	Arrive in Japan from India	
25th Sep.	Briefing and Orientation	JICA Shikoku
	Planning and implementation method of prefectural agriculture, forestry and fisheries basic plan	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
26th Sep.	•Irrigation facility development in Tokushima prefecture •Land improvement district	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
	•Agriculture extension system •Transition of budget and agricultural and rural support projects •Role of Agricultural Support Center	Agriculture, Forestry and Fisheries Technical Support Center
	•Agriculture extension plan, monitoring and evaluation •Association with research institutes	Mima Agricultural Support Center
27th Sep.	Cultivation techniques of Shine Muscat	Farmers
	Agricultural management of new farmers	Farmers
	•Activities of JA Mima •Cooperation between JA and Mima agricultural support center	JA Mima
	Status and management system of irrigation facilities in Miyoshi 1. Maintenance by land improvement district 2. Story of Mimura irrigation	Western Branch Office in Tokushima Prefecture
28th Sep.	3. Irrigation facility in Hirumaashio Land Improvement district	Western Branch Office in Tokushima Prefecture
	Irrigation facility in Hirumaashio Land Improvement district (Main canal, terminal equipment and beneficiary area)	Hirumaashio Land Improvement district office
	Irrigation facility in Minura (intake and irrigation tunnel)	Kawachidani Land Improvement district office
	Visit to Orange farmers	
	Japanese culture program Experience of Japanese tea and Awa Odori. Visit to Mt. Bizan	
30th Sep.	Holiday (Tokushima Marche)	
1st Oct.	Characteristics of slope agriculture around Mt. Tsurugi	Tsurugi town office
	Visit to Yu yu kan.	Yu yu kan.
	Lunch in Farmer Restaurant "Fuwari"	Farmer Restaurant "Fuwari"
	Site visit at Anabuki huchiwa village	Anabuki huchiwa village
	Site visit at Sennu village	Sennu village
2nd Oct.	Site visit at Sarukai village	Sarukai village
	Production of agricultural materials and equipment using local resources	Bamboo Chemical Research Institute Co., Ltd.
3rd Oct.	Agricultural processing and added value	Kitoumura Co., Ltd.
	Basics of organic farming and actual situation of farm support	Tokushima Organic Agriculture Support Center
4th Oct.	Marketing of Organic farming	Awa Nousan Co., Ltd.
	•Summary of training •Closing ceremony	JICA Shikoku
	Move (from Tokushima to Tokyo)	
5th Oct.	Meeting with the members of the survey team	
	Leave Japan for India	

Source: JPT

(4) Outcome of the First Overseas Training

Tokushima Prefecture, which is the same size as Mizoram, was selected as the training site, and the trainees acquired knowledge about agricultural policy, agricultural extension systems, and irrigation facility development and management in local governments. The trainees visited Western Tokushima Prefectural Office, which is the same size as the BAIDC office to learn about agriculture extension system planning, implementation, and monitoring. In addition, the trainees visited the slope agriculture in Nishi Awa, which was registered in FAO's GIAHS in April 2018 to inspect the site of established agriculture in a hilly area. The trainees also received lecture on the possibility of agricultural use of

bamboo powder that grows naturally in Mizoram, and a lecture on agricultural processing and organic farming. The outcomes of each training theme are summarized as shown in Table 2.16.3.

Table 2.16.3 Outcomes of the First Overseas Training

Theme	Major Outcomes
Agriculture extension system planning, implementation, and monitoring on the hilly area.	<ul style="list-style-type: none"> • Importance of common master plan and policy between the DOA that supervise operation related to agriculture, forestry and fisheries and related departments in the local government. • Importance of data collection management in master planning and policy making. • Importance of providing one-stop extension service represented by Mima Agricultural Support Centre. Necessity of establishing the center. • Importance of collecting and aggregating information related to agriculture at the center and using such information for planning. • Formulation of modulated policies such as support measures for commercial farmers and successor. • Importance of in-service training to enhance the two functions of extension officers (specialist and coordinator) and coordinator function. • Importance of an annual extension activity plan at the BAIDC office level. • Consistency between extension plans and policies. Setting numerical goals. • Building the internal/external evaluation monitoring system. Operation of improvement cycle of plan as system. • Importance of extension officers working earnestly, making for smooth communication and sharing information with farmers. • Utilization of Social Networking Service (SNS). • Marketing strategy for safe vegetables in small-lot and multi-item production areas like branding “Kaachan Yasai”.
Irrigation facility development and management especially construction management.	<ul style="list-style-type: none"> • Construction of canal tunnel by the efforts of farmers. • Irrigation facilities development by farmers. Sharing of expenses by beneficiaries for implementation of construction. • Operation and maintenance system for irrigation facilities prescribed by law such as the Land Improvement Law. • Intake of irrigation water using intake structure of mountain torrent. • Construction of field irrigation system that effectively utilizes the regulating pond. Operation and maintenance of irrigation facilities by land improvement district (collection of dues and compulsory participation system). • Quality assurance of construction work. • Utilization of sprinkler irrigation.
Practice of farmers for hilly area cultivation, resources utilization and management, and agriculture processing and marketing.	<ul style="list-style-type: none"> • Efforts for making fertile soil. Utilization of Japanese torreya on the hilly area. Measures against soil erosion by practicing soil lifting. • Securing new profits by promoting ecotourism and agrotourism. • Utilization of bamboo powder for soil improvement and cattle feed. Low-cost manufacturing of bamboo powder. • Commercialization of bamboo powder manufacturing. • Clarification of standards for organic crops. • Promotion of agricultural processing using local human resources. • Quality evaluation focused on nutritional value. • Establishment and operation of satellite shops in big cities. • Effective marketing using influencers. • Direct sales store where farmers can easily sell surplus products. • Establishment of agricultural cooperative and farmer interest group.

Source: JPT

2.16.2 Second Overseas Training in Japan

(1) Outline of the Second Overseas Training

The second overseas training in Japan (Name: Capacity Enhancement Training on Agriculture Extension, Irrigation Development and Management and Food Crop Cultivation in Hilly Area) was carried out under “The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram in the Republic of India” for a 15-day period from the 1st to the 15th of September 2019. Ten

participants were selected from PMT members or BAIDC members belonging to DOA, IWRD, and DOH of the State Government of Mizoram. The participants are shown in Table 2.16.4.

Table 2.16.4 Participants in the Second Overseas Training in Japan

No.	Name	Agency/Position
1	Mr. Dr. H. Saithantluanga	Director, DOA (R&E), State Government of Mizoram
2	Mr. Rohmingthanga Colney	Director, DOA (CH), State Government of Mizoram
3	Mr. C. Larlremsiama	District Horticulture Officer, DHO office, State Government of Mizoram
4	Mr. Laldingliana Hrahse	Executive Engineer, Chanphai Division, IWRD, Government of Mizoram
5	Ms. Lalnunpui Parle	Subject Matter Specialist (PP), Aizawl Division, DOA(CH), Government of Mizoram
6	Ms. Ruatkimi Varte	Assistant Engineer, IWRD, Government of Mizoram
7	Mr. Lalzuitluanga	Sub-divisional Officer, Serchhip Sub-division, IWRD, Government of Mizoram
8	Mr. B. Lalzarzova	Horticulture Development Officer, DHO, State Government of Mizoram
9	Ms. Lalrindiki	Agriculture Extension Officer, DAO, Chanphai District, State Government of Mizoram
10	Ms. H. Lalmachhuani	Senior Horticulture Demonstrator, Chanphai Sub-Division, DHO, State Government of Mizoram

Source: JPT

(2) Objectives of the Second Overseas Training

The objectives of the overseas training were that trainees acquire the following knowledge through practical lecture, site tours, and practical training in advanced areas of slope agriculture in Japan.

- 1) Agriculture extension system planning, implementation, and monitoring.
- 2) Irrigation facility development and management, especially construction management.
- 3) Practice of farmers for hilly area cultivation, resources utilization and management, and agriculture processing and marketing.

(3) Contents and Schedule of the Second Overseas Training

According to the above concepts of the training, training contents and schedule were arranged as shown in table below.

Table 2.16.5 Training Contents and Schedule of the Second Overseas Training in Japan

Date	Training contents	Visit
24th Sep.	Arrive in Japan from India	
25th Sep.	Briefing and Orientation	JICA Shikoku
	Planning and implementation method of prefectural agriculture, forestry and fisheries basic plan	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
26th Sep.	•Irrigation facility development in Tokushima prefecture •Land improvement district	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
	•Agriculture extension system •Transition of budget and agricultural and rural support projects •Role of Agricultural Support Center	Agriculture, Forestry and Fisheries Technical Support Center
	•Agriculture extension plan, monitoring and evaluation •Association with research institutes	Mima Agricultural Support Center
27th Sep.	Cultivation techniques of Shine Muscat	Farmers
	Agricultural management of new farmers	Farmers
	•Activities of JA Mima •Cooperation between JA and Mima agricultural support center	JA Mima
	Status and management system of irrigation facilities in Miyoshi 1. Maintenance by land improvement district 2. Story of Minura irrigation	Western Branch Office in Tokushima Prefecture
28th Sep.	3. Irrigation facility in Hirumaashio Land Improvement district	Western Branch Office in Tokushima Prefecture
	Irrigation facility in Hirumaashio Land Improvement district (Main canal, terminal equipment and beneficiary area)	Hirumaashio Land Improvement district office
	Irrigation facility in Minura (intake and irrigation tunnel)	Kawachidani Land Improvement district office
	Visit to Orange farmers	
	Japanese culture program Experience of Japanese tea and Awa Odori. Visit to Mt. Bizan	
30th Sep.	Holiday (Tokushima Marche)	
1st Oct.	Characteristics of slope agriculture around Mt. Tsurugi	Tsurugi town office
	Visit to Yu yu kan.	Yu yu kan.
	Lunch in Farmer Restaurant "Fuwari"	Farmer Restaurant "Fuwari"
	Site visit at Anabuki huchiwa village	Anabuki huchiwa village
	Site visit at Sennu village	Sennu village
2nd Oct.	Site visit at Sarukai village	Sarukai village
	Production of agricultural materials and equipment using local resources	Bamboo Chemical Research Institute Co., Ltd.
3rd Oct.	Agricultural processing and added value	Kitoumura Co., Ltd.
	Basics of organic farming and actual situation of farm support	Tokushima Organic Agriculture Support Center
4th Oct.	Marketing of Organic farming	Awa Nousan Co., Ltd.
	•Summary of training •Closing ceremony	JICA Shikoku
	Move (from Tokushima to Tokyo)	
5th Oct.	Meeting with the members of the survey team	
	Leave Japan for India	

Source: JPT

(4) Outcome of the Second Overseas Training

The outcomes of each training theme are summarized as shown in Table 2.16.6

Table 2.16.6 Outcomes of the Second Overseas Training

Theme	Major Outcomes
Agriculture extension system planning, implementation, and monitoring on the hilly area.	<ul style="list-style-type: none"> • Importance of common master plan and policy between the DOA that supervise operation related to agriculture, forestry, and fisheries and related departments in the local government. Importance of promoting central government projects from the perspective of local governments. • Importance of data collection management in master planning and policy making.

Theme	Major Outcomes
	<ul style="list-style-type: none"> • Importance of policy making that integrates the intentions of farmers collected by extension officers, the issues, and the opinion of experts, including private companies and media. • Importance of regular evaluation of plans and policies and revision based on evaluation results. • Importance of providing a one-stop extension service represented by Mima Agricultural Support Centre, and the necessity of establishing the center. • Importance of collecting and aggregating information related to agriculture at the center and using such information for planning. • Importance of in-service training to enhance the two functions of extension officers (specialist and coordinator) and coordinator function. • Importance of an annual extension activity plan at the BAIDC office level. Consistency between extension plans and policies. Setting numerical goals. The necessity of refining activities using PDCA cycle. • Importance of regular visits to farmers to observe farmland and detect issues early. • Importance of extension officers working earnestly, making for smooth communication, and sharing of information with farmers. • Necessity of support in formulating market-based production plans such as SHEP.
Irrigation facility development and management especially construction management.	<ul style="list-style-type: none"> • Irrigation facilities development by farmers. Sharing of expense by beneficiaries for implementation of construction. • Operation and maintenance system for irrigation facilities prescribed by law such as the Land Improvement Law. • Operation and maintenance of irrigation facilities by land improvement district (collection of dues and compulsory participation system). • Quality assurance of construction work.
Practice of farmers for hilly area cultivation, resources utilization and management, and agriculture processing and marketing.	<ul style="list-style-type: none"> • Efforts for making fertile soil. Utilization of Japanese torreya on the hilly area. Measures against soil erosion by practicing soil lifting. • Securing new profits by promoting ecotourism and agrotourism. • Utilization of bamboo powder for soil improvement and cattle feed. Low-cost manufacturing of bamboo powder. Commercialization of bamboo powder manufacturing. • The practice of natural farming. • Processing of Hatokora, lemon, and orange. • Direct sales store where farmers can easily sell surplus products. • Establishment of an agricultural cooperative and farmer interest group.

Source: JPT

2.17 Training of Counterparts

2.17.1 Training to BAIDC Members

The training covered irrigation and agriculture specialties to participatory development and farmers' organizations that needed to support extension activities, and management and accounting of water users' associations. From August 2017 to January 2023, 146 items of training, seminar, and others were organized. In addition, online training and testing workshops were held from March 2020 onwards due to the COVID-19 pandemic.

The feedback meetings held in each village were also part of the OJT, and the implementation of these meetings was effective as a strengthening measure for BAIDC and capacity building for farmers. This on-the-job training style meeting was taken over from the Japanese to the JPT national staff and continued.

Table 2.17.1 List of Counterpart Trainings Conducted

No.	Training Activities	No. of times	No. of days
1	Training on the BAIDC	18	121
2	OJT-style training for BAIDC (supporting feedback meeting management)	18	45
3	CTO training	13	13
4	Training on rural development, facilitators, participatory approach	3	8
5	Training and workshop on JIFAS guidelines, MIS	7	8
	Subtotal	59	195
6	Agriculture, slope land and soil-related training	64	93

7	Irrigation and WUA-related training	14	17
	Subtotal	78	110
9	Training on CUDBAS, EIA and GIS	4	6
10	Out-of-state training and seminar attendance	5	6
	Subtotal	9	12
	Total	146	317

Source: JPT

(1) Training on BAIDC

The BAIDC-related training ranges from the introduction of activities in accordance with procedures such as JIFAS and implementation guidelines, to the technical training required to implement each procedure. In addition, there were lectures and practical training on how to run farmer meetings and workshops, how to formulate the BAIDC annual activity plan, and how to work with the PDCA. In the field, JPTs accompanied the BAIDC to conduct on-the-job-style training. This on-the-job training was important in observing the level of extension capacity of BAIDC members and how they interacted with farmers. It was also necessary to conduct regular monitoring and feedback meetings with farmers by extension workers, which had not been implemented before, and to provide guidance on how to prepare the necessary formats for these activities, as well as the management methods of each activity.

(2) Training on Rural Development, Facilitators, and Participatory Approach

Until core training officers (CTO) were assigned to the project, training for workshop management with farmers that was necessary for the BAIDC activities, was provided to two officials from the IWRD who had experience in conducting workshops in the Master Plan study and three officials observed to have facilitator capability from the three departments. Later, as CTOs were assigned, this type of training continued with CTOs.

(3) Training and Workshop on JIFAS Guidelines, MIS

Workshops for project stakeholders were held at the start of project activities and during the preparation and revision of the JIFAS guidelines and other methodologies concerned with project implementation, in order to collect a wide range of opinions and to discuss measures for improvement, etc. In addition, JIFAS sensitization programs and training for key personnel were conducted for headquarters and district office staff in the four departments. At the end of the Project, a seminar was organized with the participation of officials from the various departments, as well as from the districts and villages where the pilot activities were carried out.

(4) Agriculture, Slope Land, and Soil Related Training

In the agricultural sector, 62 training and lectures were conducted on specialized areas such as crop cultivation for 91 days, and rice cultivation training was the most extensive, accounting for 30% of the total. Training related to soil erosion control on sloping land accounted for 10%. Soil erosion control measures included technical training in terrace construction (including half-moon terrace), planting with vetiver grass, which is almost cost-effective and can be carried out by the farmers themselves, and the Mizoram traditional method of Changkham. During the 1st pilot activity, it was found that farmers were more interested in the second crop (winter crop) in paddy fields. Subsequently, additional training on rapeseed cultivation and oil extraction, a valuable cash crop, was added.

In addition to this, as far as possible, Japanese experts were sent to the field to provide practical guidance on vegetable cultivation, and at the same time, training was provided to the farmers. The training was also conducted on a district office basis to support activities in which the LRSWCD and the DOH work together, such as intercropping areca nuts with bananas, which take five to seven years to harvest areca nuts after seedlings are transplanted.

(5) Irrigation and WUA Related Training

In the irrigation sector, it was necessary to provide training and guidance to the IWRD on various subjects, from contractors' construction work management to community contract construction by farmers. In the early stages of the project, basic training was implemented for the IWRD in the basics of selection of construction materials, quality control, safety management and environmental management during construction by contractors, as well as practical training was implemented for WUA on community contract construction, accounting and organizational management of WUA. Training took time regarding the

community contract system as this type of activity was new for the IWRD. And in the middle to late part of the project, training on the operation and maintenance of irrigation facilities by WUA were conducted after the transfer of irrigation facilities to WUA.

2.17.2 Nurturing of Core Training Officer (CTO)

Nurturing of the CTO started with complementing information and knowledge to be required for revision of the methods through interviews and discussions. The nurturing activities for the CTOs listed in Table 2.17.2 below started in June 2019, and were implemented until 2022. Information materials for the nurturing training are listed in the following Table 2.17.3 and Table 2.17.4.

From June 2019 till August 2019, mainly activities relating to revision of the methods had been lectured, thereafter, subjects relevant to participatory development and that's institutionalization required technically in Mizoram had been trained as necessary as needed basis. From December 2019 to January 2020, to making plans for feedback meetings and annual activities of BADIC smoothly, guidance for preparing materials required for such activities had been conducted. Considering the transfer of officers during the COVID-19 pandemic and the time until the Project would be terminated, online trainings had been conducted from December 2021 to February 2021. Further, since the CTO is desired to conduct guidance and training to BADIC members in fields after completing the Project, practical training of the participatory development approach and PDCA cycle which are a basic discipline of development method, utilization of officers' manual, the preparation method of BAIDC annual activity plan, etc. had been implemented. In addition, study for the Report "The Study on Development and Management of Land and Water Resources for Sustainable Agriculture in Mizoram, India" which shows the direction of agriculture development and extension activities in Mizoram, the history of agriculture policy in Mizoram, the agriculture related activities of JICA such as SHEP were implemented. Especially materials available in YouTube, which are easily accessed and are possible for repeated study from home, before online study, were focused on. It was also considered that teaching materials of the YouTube is easily introduced even in the Corona pandemic. Although the YouTube teaching materials were selected mainly among JICA-Net library, MANAGE correspondence course in India, information materials of FAO, IRRI, and so on. Final selection of the materials was conducted after the JPT local staff discussed with relevant officers of the concerned department. The YouTube materials used for self-training before and after online training were collected as shown in the Table 2.17.5

On the other hand, as officers who were selected as CTOs were promoted to mid-level officers in the department at present and are busy with daily jobs, it is necessary to improve the selection method and appointment period of the CTO for the future.

Table 2.17.2 Tabulation of Core Officer Nurturing Activities

Year	Content of Nurturing Activities
Classroom type activity	
2019 June - August	<ul style="list-style-type: none"> - Self-introduction and awareness session for core training officers - Explained to core training officers about task and role to refine and revise the contents of 'Method'. - Discussed about basic concept how to develop Mizo's agriculture: advantage of Mizo and quantify probability, self-production, present CSS management etc.
2019	<ul style="list-style-type: none"> - Prepared tentative schedule to refine and revise the 'Method' - Hold meetings with 'External Experts Team' - Discuss on the reason why the revision of the Project Implementation 'Method' is required - Major problems and extension method - Present condition and problems of agriculture in Mizoram - Case example of participatory development and useful asset of Mizoram
2020	<ul style="list-style-type: none"> - Brainstorming for formulating action plan of each village - Golden rules of goal setting - Integrated plant nutrient management (IPNM) - How core officers shall implement the content of the Clause 4.1 - Participatory planning and management
2021	<ul style="list-style-type: none"> - Point of view on and suggestion to CTO for feedback meeting and planning workshop
2022 Online	<ul style="list-style-type: none"> - Importance of statistics and information related to agriculture, such as village based basic data, and use of existing data : Information needed to clarify how the priority village was selected - Sustainable Land Use and Resources Management: Land use methods and valuable resources on slopes

	<p>in neighboring states and Mizoram</p> <ul style="list-style-type: none"> - Village Agriculture Development Vision : How to facilitate and run a workshop with farmers/ farm community/how to implement a Field Survey in the Village - BAIDC Activity Plan: A case study of Mizoram will discuss how to prepare a BAIDC Activity Plan. Consider how to explain the BAIDC Activity Plan to farmers. - Regarding irrigation works : DPR preparation/establishment of the WUA and O&M activities etc. - Basic information and basic approach required to implement the manual for improving agricultural extension : FAO-FFS, Traders and Crops, Cooperative System, SHEP, etc. - Introduction of various CBO activities and agro-processing: examples of models that can be replicated in Mizoram - Basic information and basic approach required to implement the manual for improving agricultural extension (2nd session) - Outcomes of agricultural extension activities carried out through the JIFAS
Field Activity/ Study tour	
2019 Apr	- Market research survey at Aizawl central market

Source: JPT

Table 2.17.3 Tabulation of Materials for Nurturing CTO Prepared and Summarized by the JPT

No.	Name of the Document	Source/ Author
1	Revision of the 'Method' of the Project Implementation	JPT 2019 Jun
2	Present Condition and Problems of Agriculture in Mizoram	JPT 2019 Jun
3	Study on Narrowing Down of Major Problems and Extension Method on Agriculture in Mizoram	JPT 2019 Jun
4	INSTRUCTION ON MANUAL WEEDER	JPT 2019 Aug
5	Case Example of Participatory Development and Useful Asset of Mizoram	JPT 2019 Nov
6	Brainstorming for Formulating Action Plan of Each Village	JPT 2020 Jan
7	Integrated Plant Nutrient Management (IPNM)	FAO (revised 2020 Jan)
8	Golden Rules of Goal Setting <u>Golden Rules of Goal Setting - from MindTools.com</u>	Mind Tools Club (summarized 2020 Jan)
9	Point of View on and Suggestion to Core Training Officer for Feedback Meeting and Planning Workshop	JPT 2020 Jan
10	How core training officers shall implement the content of the close 4.1 below?	JPT 2020 Jul
11	Annex of no. 10: Activities in connection with Draft TOR to be conducted mainly by core officers and BAIDC members	JPT 2020 Jul
12	Training module on participatory planning and management	National Institute of Rural Development (NIRD), Hyderabad, India. (summarized 2020 Jul)
13	List of Scheme in Mizoram	Mizoram Economic Survey 2019 (summarized 2020 Jul)
14	Point of View on and Suggestion to Core Training Officer for Feedback Meeting and Planning Workshop	JPT 2020 Jul
15	Activity, output and objectives of each step of JIFAS	JICA Team 2021 Dec.
16	Learning from Saipum Village	JICA Team 2022 Jan.
17	Revised Manual for Improving Agricultural Extension	JICA Team 2021
18	Online Training materials for 1 st session	JICA Team 2021 Dec.
19	Online Training materials for 2, 3, 5, 6, 7 & 8 sessions	JICA Team 2022 Jan – Feb.

Source: JPT

Table 2.17.4 Materials Use for Nurturing Training

No.	Name of the Document	Source/ Author
1	The Study on Development and Management of Land and Water Resources for Sustainable Agriculture in Mizoram 2015 (Chapter 6 & 7, Project Sheets)	JICA
2	Introduction of Community Participatory Development Project: PEACE Project in Sri Lanka (Activity of Farmer's Organization)	JICA
3	Vision of Mizoram (checked relevant Departments on the net)	Gov. of Mizoram
4	Land rights under changing tenancy regulations	Gov. of ODISHA
5	The Assam (Land Acquisition, Rehabilitation and Resettlement) Bill 2016	Gov. of Assam
6	The Mizoram (Land Acquisition, Rehabilitation and Resettlement) Bill, 2016	Gov. of Mizoram
7	Agrarian Development Act, No. 46 of 2000	Sri Lanka
8	SOCIO-ECONOMIC DEVELOPMENT POLICY [SEDP]	Mizoram

9	NORTH EASTERN REGION VISION 2020	NEC
10	MISSION: ORGANIC VALUE CHAIN DEVELOPMENT FOR NORTH EASTERN REGION - A Sub-Mission under National Mission for Sustainable Agriculture (NMSA)	INM Division, Dept. of Agriculture, Coop. and Farmer's Welfare, India
11	Community Contracts	UN-HABITAT
12	HANDBOOK ON PLANNING, MONITORING AND EVALUATING FOR DEVELOPMENT RESULTS - United Nations Development Programme	UNDP
13	Introduction to the Psychology of International Cooperation - Seventeen motivation case studies collected from the field 12092193.pdf (jica.go.jp)	JICA
14	Smallholder farmers make changes for success at market SHEP japan_brand_08.pdf (jica.go.jp)	JICA:
15	Better Rural Access Roads, Better Farmers Life! "D-nou" Technology Do-nou technology bring out the community power (jica.go.jp)	JICA
16	Growing a Revolution' – Bringing Our Soil to Life	David R. Montgomery
17	The ABCs of PCM from Unit 0 to Unit 6 and PDF: PCM – Main Points and Tips for Facilitation	JICA-Net Library
18	Participatory Land Use Planning for Sustainable Development: https://www.youtube.com/watch?v=5383vadyjvA	Community Act Network, Chiang Mai, Thailand
19	Sustainable Land Management Techniques: https://www.youtube.com/watch?v=YN9clsGkBLE	GIZ
20	Budget Speech of Chief Minister for 2022-23	8th MIZORAM LEGISLATIVE ASSEMBLY
21	Reaching Farmers Beyond Project Beneficiaries: Improving farmer-to-farmer extension approaches	TWG working paper/ TMG Research gGmbH
22	Technical Guide: A farmer-led knowledge diffusion approach to promote sustainable agriculture in northern Benin	TMG Research gGmbH and LRIDA University
23	Chapter 4 Effective Approaches for Rural Development	JICA
24	Guidebook for online facilitators	FAO
25	Guidelines for Participatory Village Planning for the National Programme for Food Security and Poverty Reduction (Cambodia 2005)	FAO
26	A Handbook for Trainers on Participatory Locak Development - India	FAO
27	The power of Visioning: A handbook for Facilitating the Development of Community Action Plan	The International Centre for Tropical Agriculture
28	Community Participation, Dr. Joya Chakraborty (20 minutes) https://www.youtube.com/watch?v=0hTGRYDs8GA	Tezpur University
29	Facilitation of Participatory processes (20 minutes) https://www.youtube.com/watch?v=z6gAjOuADlg	JICA-Net Library
30	Regional Development through Community Initiatives	JICA-Net Library
31	Rice Knowledge Bank – IRRI: How to develop a crop calendar	IRRI
32	Monthly Crop Calendar for Rice Cultivation: Technology Bulletin 62	CRRI, India
33	Vegetable Farming Techniques Manual	JICA Nepal
34	List for Village-wise Census Data for Village-wise Basic Data https://des.mizoram.gov.in/page/bpl-list	Directorate Economic & Census, Mizoram
35	Economic Survey Mizoram 2008-09	P&RID, Mizoram
36	Performance of Public Distribution System in Mizoram	ISSN : 2454-9150Vol-05, Issue-01, April 2019
37	A consensus Handbook: Co-operative decision-making for activist, Co-ops and communities. No. 1 - 6	Seeds for change, UK
38	Running an effective participatory interactive workshop	TESS India/ UKaid

Source: JPT

Table 2.17.5 Tabulation of Self-Training Materials for CTO/BAIDC Members

Subject	No.	Information source/ URL	Source
Farmer Field School	1	Farmers taking the lead: 30 years of Farmer Field Schools https://www.youtube.com/watch?v=IzZ-1-uofyA	FAO
	2	Global Farmer Field School Platform: http://www.fao.org/farmer-field-schools/ffs-overview/en/	FAO
	3	Institutionalising Farmer Field Schools (FFS) in Uganda https://www.youtube.com/watch?v=WtJCx2RY3oc	FAO
	4	Empowering rural communities through FFS and agroecology https://www.youtube.com/watch?v=B-SPAcVJAPE	FAO
	5	Institutionalizing Farmer Field School methodologies in the Universities Curricula in Eastern Africa https://www.youtube.com/watch?v=u3Sw0TrNiww	FAO

Participatory Approach/ Extension	6	Participatory Extension, Ministry of Agriculture, India https://www.youtube.com/watch?v=14Fa6I0Q1TY	Ministry of Agriculture, India
	7	Rural Marketing Veerakumaran https://www.youtube.com/watch?v=cVCYSaP7h1A&list=RDCMUCQRI2N4yKL6K0LJoyGgk1ZA&index=5	MANAGE Hyderabad, India
	8	Human Resource Management in Extension https://www.youtube.com/watch?v=BJUGSjVOq9Q&list=RDCMUCQRI2N4yKL6K0LJoyGgk1ZA&index=9	MANAGE Hyderabad, India
	9	Training Need Assessment & Designing Training https://www.youtube.com/watch?v=k6W7C4jxqx8&list=RDCMUCQRI2N4yKL6K0LJoyGgk1ZA&index=12	MANAGE Hyderabad, India
	10	Technical Feasibility https://www.youtube.com/watch?v=6e5Tn8nOFuk&list=RDCMUCQRI2N4yKL6K0LJoyGgk1ZA&index=26	MANAGE Hyderabad, India
	11	6 Remote sensing applications in Agriculture https://www.youtube.com/watch?v=TeJ2L_YUtAY&list=RDCMUCQRI2N4yKL6K0LJoyGgk1ZA&index=31	MANAGE Hyderabad, India
	12	Farmers participatory action research programme-SBI https://www.youtube.com/watch?v=GL5kin1fZuI	ICAR, India
Paddy Cultivation	13	Establishing a modified mat nursery for rice https://www.youtube.com/watch?v=CLS2WvMoDLc	IRRI
	14	Yanmar rice planter https://www.youtube.com/watch?v=HiAV_KD8ISA	YANMAR Co. Ltd
	15	Important Nutrients: The ABCs of proper nutrition for rice plants https://www.youtube.com/watch?v=pf9KPNLNatE	IRRI
	16	Critical Growth Stages: The ABCs of proper nutrition for rice plants https://www.youtube.com/watch?v=oZuYW9qIAZk	IRRI
SHEP Approach	17	Smallholder Horticulture Empowerment & Promotion Approach https://www.youtube.com/watch?v=FMzfZJE8eEY	JICA
Compost & Bokashi	18	Takakura Composting Method https://www.youtube.com/watch?v=4pTmr9COPWk&t=226s	JICA-Net Library
	19	Composting Methods -Aerobic and Japanese https://www.youtube.com/watch?v=iRfhWVP859A	JICA-Net Library
	20	JICA Tsukuba Agri. Technology Package: Compost & BOKASHI https://www.youtube.com/watch?v=OvSsnt-JKMc	JICA-Net Library
	21	Bokashi: more than a fertiliser - Menno Village, Japan https://www.youtube.com/watch?v=6_uMufgbyzI	Les Agron'Hommes
	22	Composting Methods -Aerobic and Japanese – Farm TV https://www.youtube.com/watch?v=iRfhWVP859A	Shramajeevi TV, Karnataka, India

Source: JPT

2.18 Evaluation of Technical Level of Counterparts

In the project, counterparts were evaluated and workshops were held at the start of the project, and the fields in which each counterpart wanted to strengthen his/her capabilities through this project and the technical level were evaluated. The technical level is self-evaluated, and a score of 1 to 5 is given, and the field of capacity enhancement and the technical level is evaluated every year. Initially, monitoring of this technical level was started for 76 people, but due to frequent changes in the BAIDC members, only 22 staff members have been able to continue monitoring since 2017. The evaluation of the technical level as of February 2021 is as follows.

2.18.1 IWRD

(1) Field of Interest for Capacity Building

The IWRD has shown interest in a wide range of technical fields related to irrigation development. There is almost an average high level of interest in all phases (surveying and investigation, planning, design, bidding, construction supervision, and O&M). However, there was extremely little interest in PQ (Prequalification) in bidding, probably because the bidding for IWRD is now usually conducted by public bidding through newspaper advertisements. In fact, the potential bidders for this first pilot project were selected based on the list of contractors held by the Finance Bureau, and thus, PQ was not conducted. It is considered inevitable that the interest is low as it is unlikely that PQ will be conducted in IWRD's future bidding.

(a) Technology Level by Self-Evaluation

These were: (1) construction planning and progress monitoring, (2) construction quality control, (3) WUA activities, (4) water management, and (5) maintenance management. These are the fields that were emphasized in the first pilot project and for which various trainings and workshops were conducted, so it is likely that these results were reflected in the results. The fields that were rated low were 1) geological survey, 2) environmental and social considerations, and 3) PQ. These are areas that were not emphasized in the first pilot project. As for 2) environmental and social considerations, the level of technology has been improved through manual labor and training as described in 2) below.

(b) Technology Level Improvement from 2017 to 2021/22

The level of technology from 2017 to 2021 has improved in all fields. The fields that improved particularly significantly (by more than two percentage points) were (1) environmental management in construction, (2) construction contracts by water users' associations, (3) WUA activities, (4) O&M, and (5) maintenance. These fields seem to be the result of OJT, various workshops, training, and manual labor through actual activities in the first pilot project.

In the survey phase, (1) mapping and analysis and (2) soil survey also showed relatively large increases (up more than 1.8 points). This can be attributed to the manual created by this project.

2.18.2 DOA, DOH, and LRSWCD

The following six items were identified for capacity building, which was implemented from 2017 to 2021, and their analyses were conducted.

- Extension of farm management skills
- Extension of cultivation skills (15 subject-specific crops)
- Extension of soil management
- Irrigation
- Capacity development of farmers' organization
- Overall management

(1) Field of Interest for Capacity Building

Table below summarizes the top three fields of interest by each counterpart in the six elemental technologies for capacity building. DOA ranked first for extension of farm management skills, DOH ranked first for extension of cultivation skills, focused on cultivation techniques for each crop, and LRSWCD ranked first for extension of soil management, reflecting each counterpart's field of expertise and experience in extension activities.

In the future, if participatory development is to be utilized to increase the agricultural productivity of the state while enhancing the initiative of farmers, it is necessary to further examine the elemental technologies of development methods and skills that each bureau should have in common and to strongly recognize what technologies are common and essential to each bureau to achieve development goals, and to improve the level of these technologies. Among the six elemental technologies, the extension of farm management skills and capacity development of farmers' organizations are the elemental technologies that should be prioritized and common to each counterpart, and the addition of the expertise of each of them will accelerate the development.

Table 2.18.1 Number of Counterpart Whose Skills Leveled-up

DOA		DOH		LRSWCD	
Rank	Field of Interest	Rank	Field of Interest	Rank	Field of Interest
1	Extension of farm management skills	1	Extension of cultivation Skills	1	Extension of soil management
2	Extension of cultivation Skills	2	Extension of farm management skills	2	Overall management
		2	Capacity development of farmer's organization		
		2	Irrigation		
3	Extension of soil management	3	Overall management	3	Extension of cultivation Skills
3	Capacity development of farmer's organization			3	Capacity development of farmer's organization
4	Overall management	4	Extension of soil management	4	Extension of farm management skills
5	Irrigation			4	Irrigation

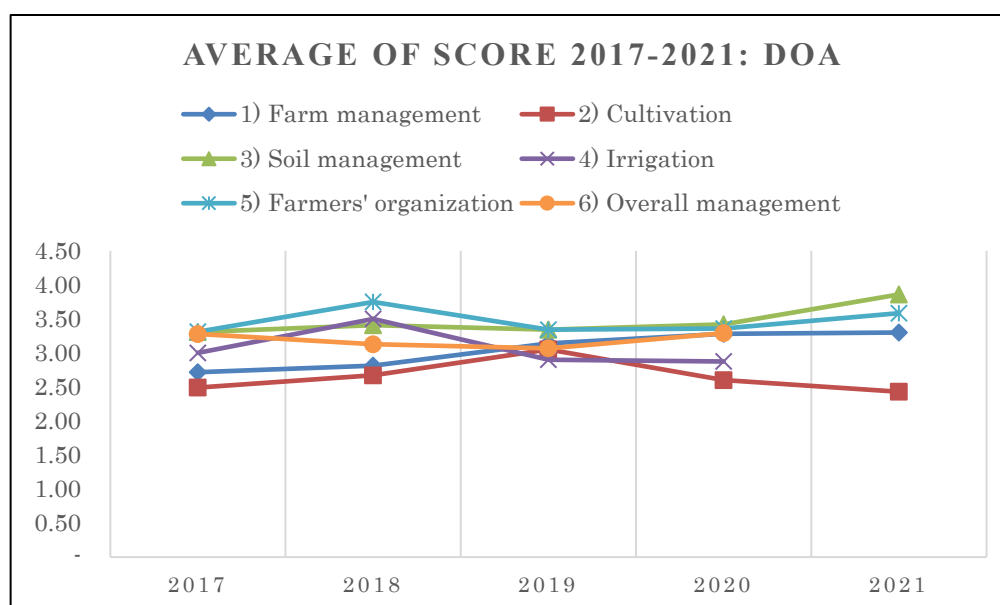
Source: JPT

(2) Technology Level by Self-evaluation

As mentioned above, since each counterpart has a different self-evaluation, a line graph was used to identify trends for each counterpart in order to show the degree of improvement in the technical level of each counterpart from 2017 to 2021. Each counterpart shows a trend that the improvement in technology level is higher than in 2014.

(a) DOA

The highest self-evaluation in 2021 was the extension of soil management with a rating score of 3.86, and the lowest was the extension of cultivation skills (average score of 15 subject-specific crops) with a score of 2.43. Irrigation (from 3.5 in 2018 to 2.88 in 2020) and Extension of cultivation skills (from 3.05 in 2019 to 2.43 in 2021) are the two skills whose self-evaluation is decreasing.



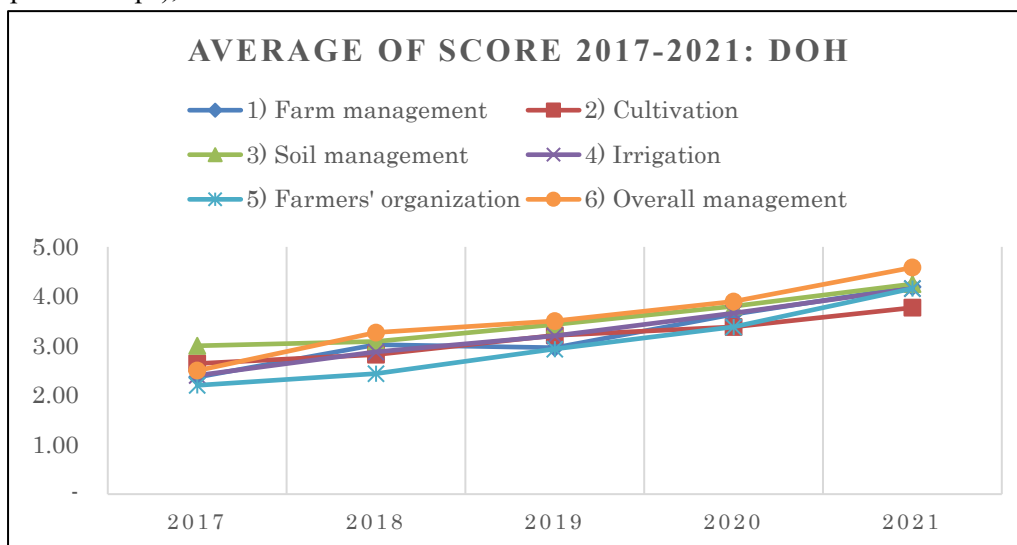
Source : JPT

Figure 2.18.1 Average of Score 2017-2021/22 :DOA

(b) DOH

DOH has shown steady growth on average in all six skills.

Overall management was the highest-rated skill in the 2021 self-evaluation, with a rating score of 4.58, close to the perfect score of 5. The lowest was the extension of cultivation skills (average score of 15 subject-specific crops), with a score of 3.77. No skill had a lower self-evaluation score than DOA.

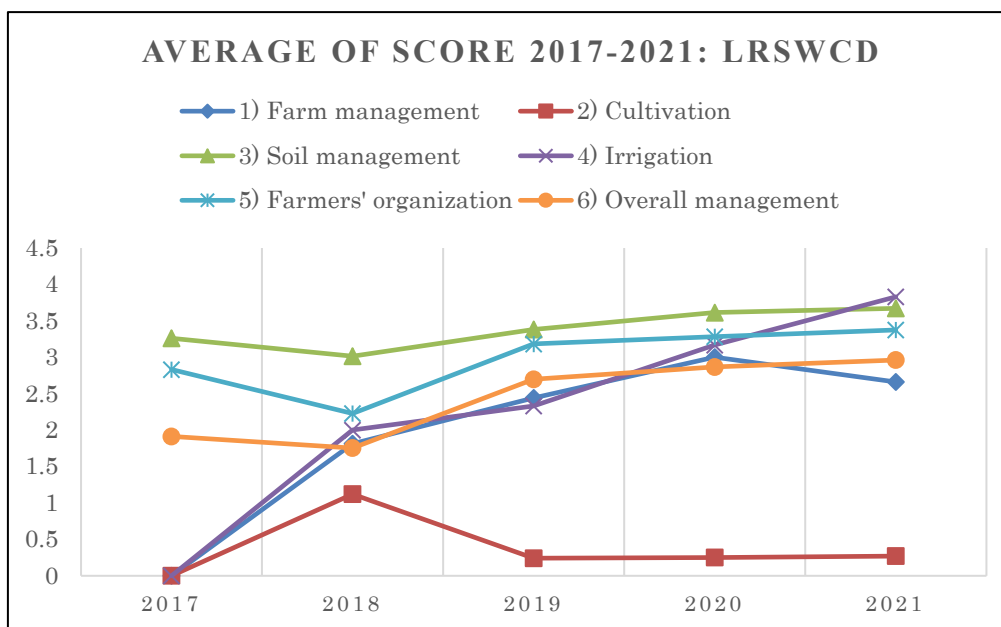


Source : JPT

Figure 2.18.2 Average of Score 2017-2021/22: DOH

(c) **LRSWCD**

The LRSWCD has a gap in the self-evaluation scores for each skill, influenced by the specialization of soil when comparing DOA and DOH. Therefore, it would be beneficial for highly specialized fields such as LRSWCD to strengthen the capacity building of its officers by carefully considering what the common basic activity skills such as agricultural extension technology and agricultural development.



Source : JPT

Figure 2.18.3 Average of Score 2017-2021/22 :LRSWCD

2.18.3 Confirmation of Understanding of Methods

(1) Implementation Guideline and Officers' Manual for Improving Agriculture Extension

To further test the acquisition of necessary skills by BAIDC and PMT members for implementation of sustainable agriculture and irrigation development, questions were prepared from implementation

guidelines and Officers' Manual for Improving Agriculture Extensions of the the Project. The questions were uploaded to Google Form and the link was sent to all PMT and BAIDC members. The respondents were informed that an online test would be conducted, and after getting their consent the test link was sent to their telephone or email. The respondents were given enough time and freedom to answer the questions. No time limit is set to any question, and the respondents can also correct the answer already submitted.

A summary structure of the online test and the number of questions prepared for each major head with mark weights are presented in Table 2.18.2. The two separate tests were conducted for implementation guidelines for sustainable agriculture and irrigation development and comprehension test of the Officers' Manual for Improving Agriculture Extension. The former contains 48 test questions with a total mark of 610, while there are 28 questions total of 100 marks for the comprehension test of the Officers' Manual for Improving Agriculture Extension.

Table 2.18.2 Contents and Mark Weight of the Online Test for Officers' Manual for Improving Agriculture Extension

Components / Unit	No. of Questions	Marks
A. Comprehension Test of Officers' Manual for Improving Agriculture Extension		
Chapter 1.101. Making of cropping calendar	9	100
Chapter 2. 201. Conduct of training	9	100
Chapter 2.202. Preparation of extension material	9	100
Chapter 2. 203. Establishment of trial/ demonstration plot.	8	100
Chapter 2. 204. Field visit	6	100
Chapter 2. 205. Monitoring and recording	7	100
TOTAL	48	610
B. Implementation Guideline for Sustainable Agriculture & Irrigation Development		
General Question	6	22
Compile Village Based Information	4	14
Conduct awareness Meeting on Sustainable Land Use and Resources Management	3	7
Discuss Village Agriculture Development Vision	3	16
Prepare BAIDC Annual Activity Plan	3	12
Approve BAIDC Annual Activity Plan by Higher Authority and Issue Official Order for Implementation	1	4
Meeting with Farmers' Group for Explanation of Approved BAIDC Annual Activity Plan (BAAP)	2	4
Implement BAIDC Annual Activity Plan with Officers' Manual	2	9
Monitoring and Evaluation	4	12
TOTAL	28	100

Source : Endline Survey Report 2022

All questions are multiple choices and the respondent will be given a full mark on the question if he/she selects the correct answer. Out of the total 31 selected counterparts who were sent the test questions, 18 (58%) could submit their responses. Though all the selected respondents could not submit their responses.

The online test results for the Comprehension Test of Officers' Manual for Improving Agriculture Extension is presented in Table 2.18.3. The marks obtained by the respondent in each major section are also presented, while the section is not presented if no respondent gets a mark from it. The average of the total marks (from all questions) is 358.72 which is 58.8% of the full mark (610). The lowest obtained among the respondents was 247 (40.5%) with the highest mark being 409 (67% of the total 610 marks). Of the different test sections, the respondents have the best performance in the establishment of the trial/demonstration plot scoring 90 (90% out of 100), while the score is lowest in the conduct of field visits (47.17 out of 100).

Table 2.18.3 Online Test Result on Comprehension Test of Officers' Manual for Improving Agriculture Extension

Test Parameters	N	Mean	Min	Max
Making Cropping Calendar	18	78.5	46	93
Conduct of Training	18	71.67	20	100
Preparation of Extension Materials	18	71.39	60	82
Establishment of Trial/Demonstration Plot	18	90	40	100
Field Visit	18	47.17	32	49
Total Score	18	358.72	247	409
Distribution of Marks Obtained (% of respondents)	Total	Mark Range (%)		
		<50%	50-75%	75%<
Overall Score	100	11.1	88.9	0.0

Source : Endline Survey Report 2022

Table 2.18.4 Online Test Result on Implementation Guidelines

Test Parameters	N	Mean	Min	Max
General Question	18	16.89	0	22
Compile Village Based Information	18	11.11	6	14
Conduct awareness meeting on sustainable land use and resource management	18	6.11	3	7
Discuss Village Agriculture Development Vision	18	14.11	2	16
Prepare BAIDC Annual Activity Plan	18	11	4	12
Approve BAIDC Annual Activity Plan by Higher Authority and Issue Official Order	18	3.56	2	4
Meeting with Farmers Group for Explanation of Approved BAIDC Annual Activity Plan	18	7.67	2	10
Monitoring and Evaluation	18	10.33	4	12
Total Score	18	82.33	29	97
Distribution of Total Scores	Mark (%)	<50%	50-75%	75%&<
	% of resp.	11.1	11.1	77.8

Source : Endline Survey Report 2022

In the lower panel of Table 2.18.3 are presented the detailed distribution of mark scores by the respondents in three mark ranges, viz. below 50%, 50-75%, and 75% and <. Overall, the significant success of the counterparts to achieve the target of acquiring the necessary skills could be seen from the mark distribution. Only 11.1% of the respondents score less than 50% of the total marks, while almost 90% of them scored between 50-75%.

Table 2.18.4 presents the online test result on the implementation guideline. While the full mark for this test is 100, the average marks obtained by the counterparts turn out to be 82.33 (i.e., 82.3%). This is justified by the distribution of counterparts over three mark range (<50%, 50-75%, and 75 and <), which shows that more than 77% of the respondents score more than 75% of the total marks, while only 11.1% score less than 50% of the total marks. The respondents are also showing uniform and good performances in the sub-section of the test questions.

The two online test results – on the comprehension test of the Officers' Manual for Improving Agriculture Extension and implementation guidelines, showed that around 90% (88.9%) of the sample BAIDC and PMT members get more than 50% of the total marks in the test. Moreover, more than 77% of the sample members score more than 75% of the total marks in the test of implementation guidelines. This clearly revealed gaining of necessary skills by the members after the implementation of the Project in Mizoram. It may, therefore, be concluded that more than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development.

(2) Online Test for Officers' Manual for Construction Management and Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

To further test the acquisition of necessary skills by BAIDC and PMT members for the minor irrigation project, questions were prepared from the Officers' Manual for Construction Management and Officers'

Manual for Strengthening of WUA for O&M of Irrigation Scheme of the Project. The questions were uploaded to Google Form and the link was sent to all PMT and BAIDC members. The respondents were informed that online test would be conducted, and after getting their consent the test link was sent to their telephone or email. The respondents were given enough time and freedom to answer the questions. The time limit was set to any question, but the respondents can correct the answer already submitted. A summary structure of the online test and the number of questions prepared for each major head with mark weights is presented in Table 2.18.5. The two separate tests were conducted for the Officers' Manual for Construction Management and the Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme. The comprehension test of the Officers' Manual for Construction Management contains 24 test questions with a total mark of 48, while there are 25 questions total 50 marks for the comprehension test of the Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme.

Table 2.18.5 Contents and Mark Weightage of Online Test for Minor Irrigation Project

Components / Unit	No. of Questions	Marks
Manual for Construction Management		
Before Construction	7	14
Construction Supervision	12	24
Handing over and follow up	5	10
TOTAL	24	48
Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme		
WUA	5	10
Operation of Irrigation Facilities	11	22
Maintenance of Irrigation Facilities	9	18
TOTAL	25	50

Source : Endline Survey Report 2022

All questions are multiple choices and the respondent would be given a full mark on the question if he/she selects the correct answer. Out of the total 15 selected counterparts who were sent the test questions, all (100%) could submit their responses.

The online test results for the comprehension test of the Officers' Manual for Construction Management are presented in Table 2.18.6. The marks obtained by the respondent in each major section are also presented. The average of the total marks (from all questions) is 45.59 which is 94% of the full mark (48).

Table 2.18.6 Online Test Result on Comprehension Test of Officers' Manual for Construction Management

Test Parameters	N	Mean	Min.	Max
Before Construction	15	13.46	8	14
Construction supervision	15	23.2	16	24
Handing over and follow up	15	8.93	4	10
Total Score	15	45.59	32	48
Distribution of Marks Obtained (% of respondents)	Total	Mark Range (%)		
		<50%	50-75%	75%<
Before Construction	48	0.0	6.6	93.3
Construction supervision	48	0.0	6.6	93.3
Handing over and follow up	48	6.6	0.0	93.3
Overall Score	48	0.0	7.1	93.3

Source : Endline Survey Report 2022

Table 2.18.7 Online Test Result on Comprehension Test of Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

Test Parameters	N	Mean	Min.	Max
Water Users' Association (WUA)	15	9.33	6	10
Operation of irrigation facilities	15	17.73	14	20
Maintenance of irrigation facilities	15	13.46	8	18
Total Score	15	40.52	28	48
Distribution of Marks Obtained (% of respondents)	Total	Mark Range (%)		
		<50%	50-75%	75%<
Water Users' Association (WUA)	48	0	3	12

Operation of irrigation facilities	48	0	0	15
Maintenance of irrigation facilities	48	2	0	13
Overall Score	48	0	13.3	86.6

Source : Endline Survey Report 2022

The lower panel of Table 2.18.6 presents the detailed distribution of mark scores by the respondents in three marks ranges, viz. below 50%, 50-75%, and 75% and <. Overall, significant success of the counterparts to achieve the target of acquiring necessary skills could be seen from the mark distribution. None of the respondents score less than 50% of the total marks, and more than 90% of them scored more than 75% of the total marks.

Table 2.18.7 presents the online test result on the Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme. While the full mark for this test is 100, the average marks obtained by the counterparts turn out to be 40.52 (i.e., 84%). This is justified by the distribution of counterparts over three-mark ranges (<50%, 50-75%, and 75 and<), which shows that about 90% of the respondents score more than 75% of the total marks. The respondents are also showing uniform and good performances in the sub-section of the test questions.

The two online test results showed that around 90% (88.9%) of the sample BAIDC and PMT members get more than 75% of the total marks on the test. This clearly revealed the gaining of necessary skills by the members after the implementation of the Project in Mizoram. It may, therefore, be concluded that more than 80% of BAIDC and PMT members acquired the necessary skills for the implementation of a minor irrigation project.

2.19 Conduct of Seminar

A JIFAS seminar was held on January 31 2023, at a hotel in Aizawl for the enlightenment and publicity of JIFAS. The seminar was attended by a total of 42 participants from the four relevant departments, Department of Livestock, Department of Fisheries, Department of Rural Development, DC Office, University of Mizoram, and pilot villages. The seminar program is as follows.

Table 2.19.1 Outline of JIFAS Seminar

Place: Regency Hotel in Aizawl City			
Registration : 9:30 am – 10:00 am			
Chairman:- Mr. Lalrotluanga (Director of IWRD)			
1.	10:00am-10:15am	Opening	Mr. J. Hmingthanmawia Secretary of IWRD
2.	10:15am-10:45am	Introduction to Mizoram Agricultural Development Vision 2035	JPT
3	10:45 am – 11:30 am	Outline and results of technical cooperation projects Contents, institutionalization and impact of JIFAS	Er. K. Hamlet Senior EE, IERD, IDC Member
Tea break 11:30am – 12:00am			
4.	12:00am - 13:45pm	Discussions and questions regarding the JIFAS system	Pro.Lalnilawma Professor, Department of Rural Development, Mizoram University Er. K. Hamlet Senior EE, IERD, IDC Member
5.	13:45pm-14:00pm	Closing	Mr. James Director of Agriculture
Lunch 14:00			

Source: JPT

The following comments were made by the participants in the discussions and questions regarding the JIFAS system in the second half of the conference.

Table 2.19.2 Major Discussion in JIFAS Seminar

Question/Agenda	Questioner	Answers from Panelists
Role of DCs' on JIFAS?	Aizawl DC representative	In this regard, as most of the development works are administered under the authority of the Districts' Deputy Commissioner, the JCC committee has recommended that the JIFAS should be implemented under the acknowledgement of the districts' district commissioners.
Role of veterinary department on JIFAS and how it is to be added to the system?	Veterinary and Animal Husbandry Department:	As the Veterinary and Animal Husbandry Department is also one of the major components of the Mizoram Agriculture practices, the JCC committee has decided to include the department at the SLCC level, when the JIFAS is more stable and mature.
How to utilize the proposed ODA loan in the JIFAS? What would be the most important factor for achieving Vision 2035 despite the high cost of production in Mizoram?	LRSWCD	ODA loan in the JIFAS? What would be the most important factor for achieving Vision 2035 despite the high cost of production in Mizoram? Panel member: The proposed ODA loan has been revised and analyzed by the Planning Department and it is still in process for further discussion with the concern higher authorities. Considering the vision 2035, there may be multiple of factors and techniques to achieve its objectives, however, officers from the agriculture and its allied department has to stress upon the best suitable techniques for Mizoram. Cultivating other suitable techniques from other states may also be possible, if necessary.
Source of boundary information for drawing village map? DOA may have funds from external sources which may require specific area for its implementation; can such activities be implemented in the JIFAS system?	DOA	During the Capacity Enhancement Programme, officers received training on QGIS and other software. However, boundary lines of the villages were drawn based on the villages' topography, land, and water resources available without any specific technological data. Any fund received for agriculture development could be implemented using the JIFAS platform. It will be first discussed at the block level and the BAIDC Annual Activity Plan should be prepared by the block officers in consonance with the farmers' needs.
Can Zone-1 and Zone-2 be conjoint? Do market availability is given priority while preparing the seven different zones?	Mizoram University	The zones were prepared after collecting various data from different parts of the state. The information was clustered using PCA and group together. However, such zones are not static but bound to be adjusted/modified if any new data are available. Yes, during the preparation of different zones, market availability was taken into account.

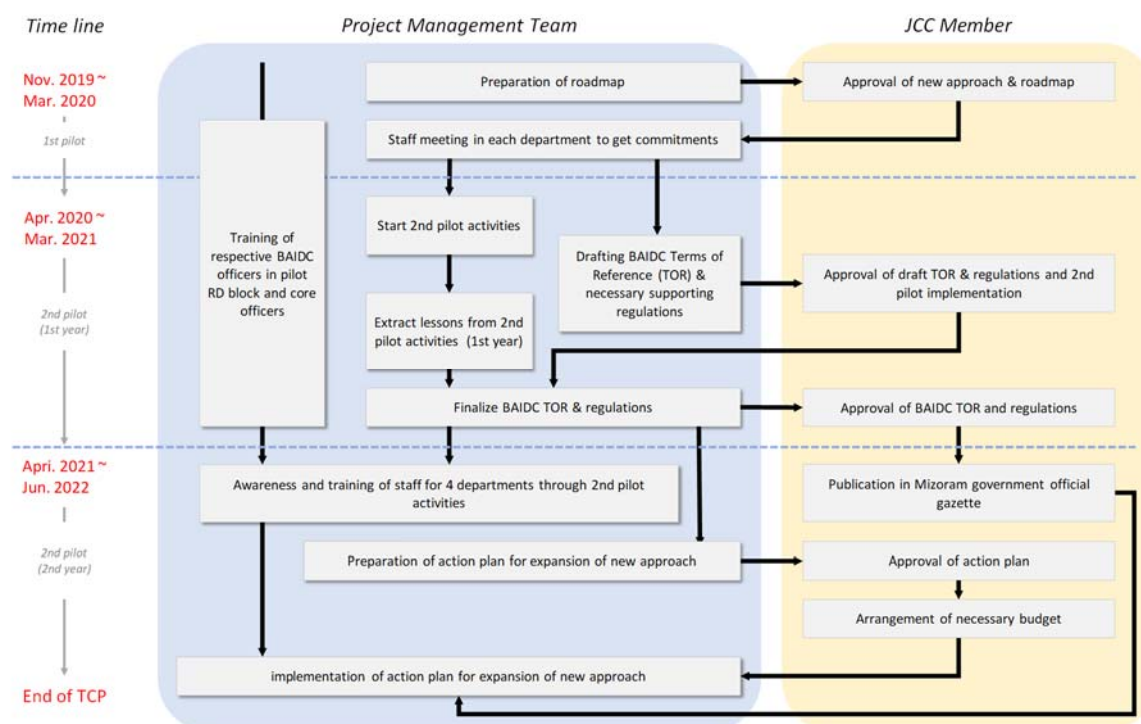
Source: JPT

2.20 Establishment of Collaborative Implementation Framework

2.20.1 Creation and Implementation of Roadmap for Institutionalization of Methods

Since the activity for the institutionalization of the methods is part of the important index of the success of this project, this activity was started in 2019 aiming at its operation from April 2022. Regarding the preparation of the roadmap, it was formulated mainly by PMT and the core training officers nominated by PMT, and then finalized after consultation with the directors of the four departments. In addition, in the opinion of the directors of each department, the consent of the staff at the district level is indispensable for the operation of the new system. The PMT therefore set up individual meetings before the finalization and collected opinions from the directors of each district.

The roadmap, which was finalized by PMT, clearly defines the role of the PMT and the role of higher officials at the JCC level. The roadmap was finally approved at the 4th JCC meeting.



Source: JPT

Figure 2.20.1 Roadmap for Institutionalization of Methods

The specific actions of the roadmap were also mentioned in the agenda of the workshop with related departments held by the JICA Monitoring and Advisory Mission Team in February 2020, and the contents were summarized (refer to the attached document for the results of the workshop). In March 2020, a sensitization meeting for all staff in IWRD was held and the staff of IWRD agreed to start the new operation based on the new methods for sustainable agriculture. The sensitization meeting for DOA, DOH, and LRSWCD was delayed due to the lockdown, but those were held in June 2021 with the support of Professor Dr. Lalnilawma of Mizoram University. Prof. Dr. Lalnilawma gave necessary advice and guidance to the explainers in each department before starting the meeting.

Since May 2020, five working committee meetings have been held, and finally, the outline of the new methods of operation was prepared and discussed at PMT. After that, at the 5th JCC meeting held in December 2020, this matter was put up on the agenda and the content was approved.

Since April 2020, the COVID-19 epidemic in the state has restricted meetings and movements of government agencies. In the meantime, in April 2021, when the lockdown was temporarily lifted, the roadmap milestone was reset in consultation with the Secretary of IWRD / DOA, PMT, JICA, and JPT. However, Mizoram has led to more stringent lockdowns after April, which have ceased activity and made it difficult to reach the set milestones. As a result, although the progress of the roadmap was delayed, it was achieved in the end as shown in the table below.

Table 2.20.1 Achievement of the Roadmap for Institutionalization of Methods

No.	Items	Achievements
1	Sensitization meeting for four departments	Sensitization meeting were held at IWRD in April 2020 and at DOA, DOH, and LRS WCD in June 2021, and the staff generally agreed on the operation of the new method.
2	Finalization of BAIDC TOR	The Operational Guidelines of JIFAS, which stipulated the TOR of BAIDC, were prepared and finalized after reflecting the results of the second pilot activity.
3	Preparation and issue of notification for new method and JIFAS	The operation of JIFAS was approved at the JCC held in December 2021, and the Minister in charge of DOA and IWRD and the representative of the PMT held discussions to decide to obtain the individual approval from the Chief Minister instead of cabinet approval. By February 2023, a formal notification was issued regarding the launch of the IDC, SLCC, and BAIDC, and the implementation of JIFAS.

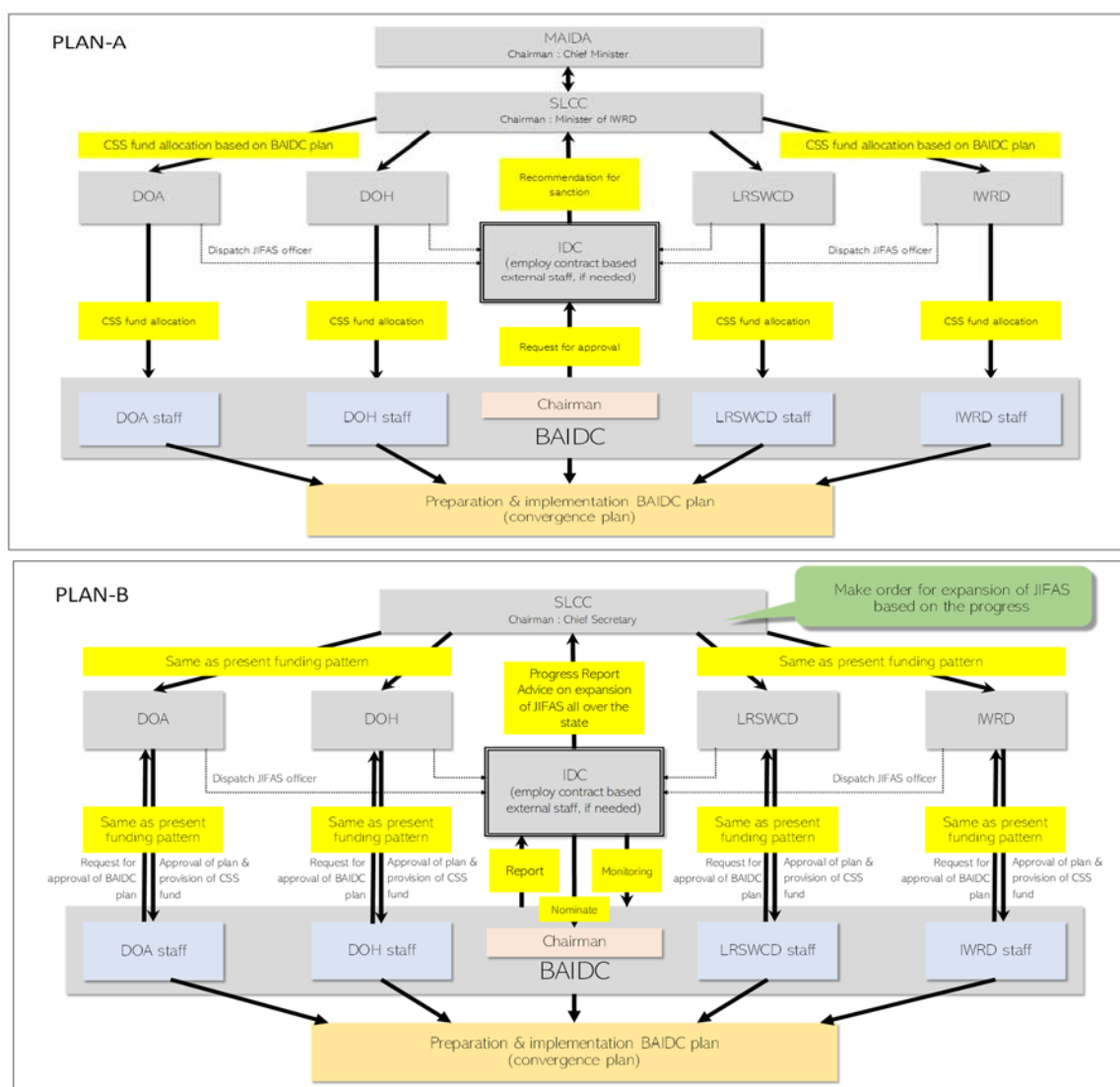
4	Establishment of Inter Departmental Committee (IDC) and State Level Coordination Committee (SLCC)	The PMT has obtained the consent of its establishment of IDC and SLCC after consulting with the Secretary of IWRD and DOA. Establishment of IDC and SLCC was approved by JCC in November 2021. In November 2022, the secretary of Agriculture and Irrigation and Water Resources issued the notifications to each department, and IDC and SLCC were officially established. A PMT/IDC meeting was held in December 2022 to confirm the roles of the authorized IDC and SLCC, as well as to report and check the progress of expansion of the new method in the state.
5	Preparation and approval of action plan for expansion of new method and JIFAS to all over the state. Arrangement of necessary budget for action plan	A draft action plan was created by the working committee, which had been decided to be established at the PMT meeting held in June 2021. Based on JPT's support and advice, PMT discussed the plan and decided to expand the new method to all 28 RD blocks in five years from 2022/23. The action plan was approved along with the implementation budget at the JCC meeting held in November 2021.

Source : JPT

2.20.2 Implementation Structure for Institutionalization of Methods

At the JCC in December 2021, the JIFAS implementation framework was decided. However, activities toward JIFAS institutionalization stagnated. The original plan (Plan-A) would significantly change the traditional budget system and involve Ministers concerned. Although this is an ideal system, there were concerns that discussions would not advance as it would require major changes. Therefore, Plan-B was proposed by JPT at the PMT in May 2022 for small start of JIFAS.

The difference in implementation structure between Plan-A and Plan-B is shown in the following figure.



	Plan B	Plan A
Pros	Easy to implement as it can be implemented without changing the current flow of funds. It is also easy to obtain consensus for implementation.	A joint implementation framework will be established at all levels, from ministerial level to block level. Therefore, it is possible to build a framework for joint implementation that is highly effective and highly transparent.
Cons	There is concern that the BAIDC plan will become a mere formality because no ministerial-level approve the plan	Since it involves major changes, it takes a lot of time to obtain agreement from the parties concerned for implementation. In addition, after the launch, the approval process for the BAIDC annual activity plan will take time as many parties are involved.

Source : JPT

Figure 2.20.2 Difference of Plan A & B in Implementation of JIFAS

The implementation structure was also discussed at the JCC meeting held in May 2022, and it was decided that a JCC sub-committee, chaired by the Secretary of Planning and Programme Implementation, will be set up to make the final decision on the structure. The Secretary of Planning and Programme Implementation visited the 1st pilot village to review the pilot activities which were conducted by using JIFAS. Based on the results of the two sub-committee meetings, the Department of Planning and Programme Implementation submitted a “Recommendation of Sub-Committee regarding Plan A/B” to the Chief Secretary in September 2022. Then, at the JCC meeting held in September 2022, the following decisions were made:

- The meeting approved Plan-B but JIFAS would go to Plan A when the system matures
- In order to improve the convergence in Plan B, it was decided in the meeting that the BAIDC plan will be refined and approved by IDC and endorsed to each department for funding. It was also decided to include the Planning and Programme Implementation Department in IDC as one of the members.
- The meeting also decided to include the district commissioners (DCs) of the districts and other departments such as Departments of Sericulture, Fishery and Veterinary in the JIFAS to enhance the system’s effectiveness, when the system matures.
- The meeting approved IWRD as a nodal department.

Table 2.20.2 Implementation Structure for JIFAS

Organization	Member	TOR
BAIDC	Chairperson	<ul style="list-style-type: none"> • To study available funding source • To update village information • To select priority village • To prepare BAIDC AAP • To send the AAP to the Inter-departmental Committee for approval • To implement the approved BAIDC Annual Activity Plan (AAP) • To nominate MIS operator for uploading the information • To determine the next year’s BAIDC AAP
	Member	
IDC	Chairperson	<ul style="list-style-type: none"> • Approve and endorse the BAIDC Annual Activity Plan for making a state level Agricultural & Irrigation Development Plan and send it to each department for administrative approval and sanction; • Appoint a chairman and members of BAIDC for each RD block; • Monitor and evaluate the progress and results of the activities of BAIDC • Conduct/facilitate training to BAIDC members and farmers
	Member secretary	
	Member	
SLCC	Chairperson	<ul style="list-style-type: none"> • Expansion of JIFAS • Monitoring progress of BAIDC Annual Activity Plan (AAP)
	Member secretary	

Member	<ul style="list-style-type: none"> Secretary to Finance Department Secretary to Department of Planning and Program Implementation Secretary to DOA, DOH, LRSWCD Chief Engineer, CWC Chief Engineer, IWRD 	<ul style="list-style-type: none"> Necessary coordination and guidance to IDC and BAIDC
--------	---	--

Source : JPT

2.20.3 Issue of Notification and Obtain Approval from Chief Minister

IDC and SLCC were launched on November 29, 2021 following the decision at the 8th JCC. In addition, on February 17, 2023, the Secretary to DOA and IWRD issued a notification approving the establishment of BAIDC and the implementation of JIFAS. The Chief Minister also approved the expansion plan (action plan) of JIFAS in the state as well as the operational guideline of JIFAS. In addition, the Mizoram Agriculture and Irrigation Development Authority (MAIDA), chaired by the Chief Minister in the Minister level, was launched on 17 February 2023 to monitor the future implementation of JIFAS and its expansion within the state.

2.21 Development of Action Plan for Deploying Outputs

2.21.1 Revision and Implementation of Action Plan

About 70 staff members from four departments have been working so far, as BAIDC members in pilot projects, and they have experience in implementing activities based on JIFAS implementation guidelines. However, due to the impact of COVID-19, skills training for BAIDC members and field training for final adjustment could not be conducted. It was then discussed that it is necessary to promote the dissemination of JIFAS within the state in stages, and to take measures such as simplifying the activities that are considered difficult for the current staff of the departments. The following four points were recognized and shared as important:

- BAIDC will not be established all at once but will be divided into three batches.
- Batch 1 will be started in the districts that have BAIDC members who have experienced pilot projects and CTOs. Such human resources with these experiences will serve as advisors to new BAIDC members who have no experience in pilot activities, and will be considered leaders for Batch 2 and 3.
- IDC, in cooperation with the JPT, will conduct awareness necessary for JIFAS operation in the first batch.
- IDC will work with SAMETI and the JPT to train new BAIDC members (Batch 2 and 3).

Based on the above opinions, the BAIDC establishment schedule shown in Table 1 was prepared. Aibawk, Bikhawthlir, Champhai, Kahwzawl, and Serchhip were selected as Batch 1 because these districts have BAIDC members who have experienced pilot activities, provincial office staff, and former CTOs, and Lunglei was also selected as Batch 1 because there are former PMT members (IWRD, etc.).

Table 2.21.1 BAIDC Establishment Schedule in each RD Block

No.	District	RD Block		
		2021/22 (Batch 1)	2022/23 (Batch 2)	2022/23 (Batch 3)
1	Aizawl	Aibawk	Tlangnuam	Darlawn Thingsulthliah
2	Kolasib	Bilkhawthlir	N' Thingdawl	
3	Champhai	Champhai		Khawbung
4	Serchhip	Serchhip	East Lungdar	
5	Mamit	-	Zawlnuam West Phaileng	Reiek
6	Lunglei	Lunglei	Lungsen	West Bunglei
7	Siaha	-	Tuipang	Siaha
8	Lawngtlai	-	Chawngte S. Bungtlang	Sangau Lawngtlai
9	Khawzawl	Khawzawl	-	-

regarding the budget for the external expert group, and the results showed that annual budget measures are difficult.

The JPT was looking for these alternatives, but in December 2021, the Japanese experts traveled to the site after 20 months and met with PMT members and the director of SAMETI (State Agricultural Management and Extension Training Institute). We were able to have a conversation. As a result, it was possible to implement SAMETI as regular training for BAIDC. And in this training, external experts would be invited as lecturers as necessary, and it is possible to pay the necessary expenses related to this. Based on this, the PMT held discussions with the Undersecretary of Agriculture and IWRD, and as a result, an official request was issued to SAMETI regarding the implementation of regular training for BAIDC members.

(2) Training to Strengthen the Ability of Government Officers to Implement the JIFAS

Regarding the deployment of the JIFAS to the 28 RD blocks in the state, it was agreed with the PMT that BAIDC would be divided into three batches and implemented from FY2022/23 to FY2024/25. In Batch 1, there are 3 RD blocks that have implemented pilot projects, and the other 3 RD blocks have experienced pilot projects, CTOs, and former PMT members, so they have individually educated them about the JIFAS. On the other hand, SAMETI (State Agriculture Management and Extension Training Institute) and JPT jointly conducted training for BAIDC members in Batch 2 and 3 in July, August, and September 2022. Details of training dates, number of participants, and RD block names for each batch are shown in the table below. Sixty-one people from four districts participated in Batch 1, 38 people participated in Batch 2, and a total of 99 BAIDC members were trained.

Since the IWRD and the LRSWCD have a small number of staff, they would not assign staff to Siaha and Lawngtlai, which are located at the southern end of Mizoram, and Mamit, which is located at the western end of Mizoram. Activities are carried out in the form of staff members from neighboring districts serving concurrently. Therefore, the number of personnel participating in this training at both departments is small.

Table 2.21.2 Number of BAIDC Members Who Participated in the Training and RD Block Names

No.	Date of Training	RD Block	District	IWRD	DOA	DOH	LRSWCD	Total
1	2022/07/19 and 20	Tlangnuam	Aizawl	1	1	2	1	5
		Ngopa	Saitual	1	3	-	1	5
2	2022/07/26 and 27	North Thingdawl	Kolasib	3	2	1	3	9
		East Lungdar	Serchhip	2	2	2	-	6
		Lungsen	Lunglei	2	3	3	-	8
3	2022/07/28 and 29	Zawlnuam	Mamit	1	2	1	-	4
		West Phaileng	Mamit	2	1	1	2	6
4	2022/08/02 and 03	Tuipang	Siaha	1	1	2	1	5
		Chawngte	Lawngtlai	-	2	1	2	5
		South Bungtlang	Lawngtlai	2	3	1	2	8
Total Training Participants in Batch 2				15	20	14	12	61
No.	Date of Training	RD Block	District	IWRD	DOA	DOH	LRSWCD	Total
1	2022/09/06 and 07	Lawngtlai	Lawngtlai	-	1	2	1	4
		Sangau	Lawngtlai	-	1	1	1	3
		Kawrtethawveng	Mamit	-	-	1	-	1
		Reiek	Mamit	-	1	1	-	2
2	2022/09/08 and 09	Hnahthial	Hnahthial	1	1	2	1	5
		Saiha	Siaha	-	1	-	-	1
		West Bunghmun	Lunglei	2	2	-	1	5
Tlabung	Lunglei							
3	2022/09/13 and 14	Khawbung	Champhai	-	1	2	-	3
		Thingsulthliah	Aizawl	-	4	1	-	5
		Darlawn	Aizawl	2	3	1	1	7
		Phullen	Aizawl	-	-	1	1	2
Total Training Participants in Batch 3				5	15	12	6	38
Total Training Participants in Batch 2 and 3				20	35	26	18	99

Source: JPT

(3) Schedule and Main Contents of Training

Each training was conducted for two days as one unit, and Batch 1 and Batch 2 were carried out with the same training contents and methods. Until that time, CSS has been implemented in a top-down manner, so each staff member has continued activities without being aware of the state's agricultural development goals and development methods. Therefore, the training introduced the agricultural policy intended by the federal government and the bottom-up approach, which is required to improve agricultural productivity and is also utilized by CSS. In addition, regarding agricultural development in Mizoram, the training was started in a way to increase the motivation of BAIDC members for agriculture and development in Mizoram by making them understand the contents of Mizoram's agriculture and irrigation development vision 2035 (master plan). Each training was conducted by SAMETI trainers and the JPT.

Table 2.21.3 BAIDC Training Content and Timetable

Day-1			
No.	Time	Training Content	Responsible person
1	10:30-10:40	Opening Remarks : Minster for DOH, IWRD, Directors for 4 Departments etc. were presented.	
2	10:40-10:45	Orientation	SAMETI
3	10:45-11:30	Contents of Indian Agriculture Toward 2030 and agriculture development method	JPT
		Mizoram Agriculture Development Vision toward 2035 (Lecture)	
Lunch Break 12:30 – 13:30			
4	13:30-15:00	Block Level Development Vision (Group work)	JPT/ SAMETI
Tea Break 15:00-15:30			
5	15:30-16:00	Presentation of Group work	JPT/ SAMETI
6	16:00-16:10	Wrap up of day-1	SAMETI
Day-2			
7	10:30-10:45	Recapturing of Day – 1	SAMETI
8	10:45-12:00	Introduction of JIFAS (Lecture)	JPT
9	12:00-13:00	1) 1) Selection of target (potential) villages and areas (Group work)	JPT / SAMETI
		2) 2) Review of the block level development vision (Day – 1)	
		3) 3) Characteristics of villages in respective RD block	
		4) 4) Available CSS/SSS and norms	
		5) 5) Selection of potential villages/ areas to be supported	
Lunch Break 13:00–14:00			
10	14:00-14:30	Presentation of Group work	JPT/ SAMETI
11	14:30–15:30	Operation of MIS-JIFAS (Lecture)	JPT
Tea Break 15:30-15:45			
12	15:45–16:00	Wrap up of Day – 2	JPT
13	16:00-16:15	Closing Remarks: Directors/ Deputy Directors for related divisions of 4 Departments were presented	

Source: JPT

(4) Main Contents of Training

The training was conducted jointly by SAMETI and JPT. The main contents of the training are as follows.

(a) Contents of Indian Agriculture Toward 2030 and Agriculture Development Method (Lecture)

The training was conducted by a SAMETI trainer. After referring to the problems of the agricultural extension system in the state, the lecture highlighted the improvement of productivity that reflects the needs of farmers demanded by the union government. The lecturer explained the importance of close consultation with farmers and the importance of delegating authority to the farmers. In addition, the specific methods of implementing CSS, such as the participatory approach and the farmer field school, were explained to the participants.

(b) Mizoram Agriculture Development Vision Toward 2035 (Lecture)

The training was conducted by the JPT. Lecturer explained the contents of Mizoram Agriculture and Irrigation Development Vision 2035 (Master Plan) which is in line with the background of union government policies. The lecturer explained the necessity of adopting JIFAS for examining the direction

of agricultural development based on the actual conditions and characteristics of the RD block and villages by BAIDC members and utilizing the funds and human resources effectively. Through the lecture, many participants agreed with the necessity of adopting JIFAS, and the younger generation in particular showed strong interest. On the other hand, there was also a request to the JPT and SAMETI to encourage the director to commit to JIFAS to avoid delays in budget allocation.

The lectures were given on the following six items; i) key factors of Mizoram agriculture, ii) state level issues and role of the agriculture sector, iii) environment surrounding the state agriculture sector, iv) vision and scenario of Mizoram agriculture, v) local characteristics and zoning, and vi) basic approaches and activities.

(c) Block Level Development Vision (Group Work)

A group was formed for each BAIDC with four department officials. In the beginning, opinions on the natural conditions, geographical conditions, and current agricultural conditions of the target RD block were discussed so that a common understanding was fostered among the members. After that, the direction of development for each RD block was discussed and compiled.

Usually, there are not many opportunities for the officers of the four departments to engage in such discussions and collaboration, and this was the first group work that they conducted jointly in the past. Many of the participants commented that it was a meaningful activity and that such an opportunity should be given positively in the development of the RD block.

(d) Explanation of JIFAS Implementation Procedure (Lecture)

JIFAS implementation procedures were explained in detail to the participants based on actual examples from pilot activities and BAIDC Batch 1. Also, before the explanation, a short video clip explaining JIFAS was presented so that the outline of JIFAS could be easily understood. At the end of the session, the participants answered questions from the trainees in a question-and-answer format and tried to deepen their understanding of the JIFAS procedures.

(e) Selection of Priority Villages (Group Work)

After reviewing the RD Block level development vision, characteristics of villages within each RD Block, and available CSS/SSS, BAIDC members selected villages/areas with high potential for assistance. Group work was facilitated by JPT and SAMETI staff. Since the current agriculture-related projects adopt a cluster approach, some participants expressed the opinion that it would be desirable to determine priority areas and priority villages in this way and to concentrate on implementing activities by the four departments.

(f) Establishment of a Monitoring System Using TRESSA (Exercise)

Regarding the operation of JIFAS monitoring using TRESSA, practical explanations were given to the trainees. The trainees learned how to upload the BAIDC plan and other evidence of activities on MIS-JIFAS and how to check progress. This monitoring system received strong interest from the trainees. Trainee expected the improvement of monitoring activities in all the department activities in the future.

(5) Necessity and Effect of Training by SAMETI in the Future

This training aimed at strengthening the implementation capacity of BAIDC members for the purpose of promoting the dissemination of JIFAS within the state. It can be said that a foundation has been created that will enable the capacity building of BAIDC members and the further improvement of the current extension system, which is necessary to implement sustainable agricultural development, and such regular training is so important.

Until that time, the PMT and JPT have made efforts to properly and continuously operate JIFAS, but since the establishment of Mizoram State in 1987, regular training for the officers have not been properly implemented, and the functions and weaknesses of norms were also understood. Considering the above comprehensively, it is very important for IDC to further consider the purpose and method of training in the future, and it is considered necessary for the proper operation of JIFAS. Ideally, by providing appropriate and regular training to all the staff of each department, it would form an institutional and

individual norm for the agricultural development of Mizoram, and the activities are carried out by the government as an efficient and effective organization.

(6) Management of Future Training and Practice

The training would be implemented with SAMETI's budget, but it is necessary for IDC and SAMETI to regularly discuss long-term and annual training and practice in detail. As mentioned above, regular high-quality training is indispensable for developing the capacity of the current officers of Mizoram, and it is also necessary for the efficient and effective operation of JIFAS. From this viewpoint, IDC should recognize that training is a high-priority activity in the operation of JIFAS, and should continue to operate training and practice by supplementing the state budget.

In addition to the regular training for the BAIDC members, training of trainers is also considered necessary. Until that time, the core training officers have been in a position to guide the BAIDC members, but in the future, there will be a need for trainers who will be able to provide practical guidance to the BAIDC, such as skills related to workshop management and participatory development with farmers. One way to train the trainers is to use distance learning provided by SAMETI, and also to use the external instructors at SAMETI.

2.21.4 Support for Implementation of Batch 1 and Batch 2 Training

(1) Batch 1

To promote the expansion of JIFAS, in May 2022, BAIDC members of Batch 1 received awareness training from the PMT and JPT, discussed and finalized target villages for 2022/23, formulated BAIDC annual plans, and discussed the plan with farmers. Twenty-five villages were selected for assistance in the six RD blocks of Batch 1 in 2022/23, and a BAIDC annual activity plan was formulated in each village (refer to the table below) and activities were started by BAIDC.

Table 2.21.4 BAIDC Annual Activity Plan in 2022/23 for Batch-1

No.	District	Rd Block	No.	Name of Village for the BAAP	No. of BAAP	Village-wise Priority Subject (BAAP)							
						1. WRC area productivity improvement	2. Vegetable productivity improvement	3. Perennial crop productivity improvement	4. Irrigation development (DPR Lift Irrigation)	5. Improvement of Jhum cultivation	6. Land preparation and improvement	7. Others	
1	Aizawl	Aibawk	1	Chawilung	3	0	0	2	1	0	0	0	
			2	Lamchhip	3	1	0	1	1	0	0	0	
			3	Sailam	4	3	0	0	1	0	0	0	
			4	Samlukhai	6	2	1	2	1	0	0	0	
			5	Sialsuk	3	2	0	0	1	0	0	0	
			6	Tachhip	4	0	1	2	1	0	0	0	
2	Champhai	Champhai	1	Hmunhmeltha	10	2	2	1	3	0	2	0	
			2	Ngur	8	1	1	1	3	1	1	0	
			3	Tualcheng	7	2	1	1	1	1	1	0	
3	Khawzawl	Khawzawl	1	Chawngtlai	7	2	1	0	2	1	1	0	
			2	Sialhawk	5	2	0	1	1	1	0	0	
			3	Tualte	8	2	2	0	1	1	2	0	
4	Kolasib	Bilkhawthlir	1	Chemphai	5	3	0	0	1	0	1	0	
			2	Kolasib	4	2	0	0	1	0	1	0	
			3	Meidum	6	3	0	1	1	0	1	0	
			4	Saipum	8	3	0	2	1	0	1	1	
5	Lunglei	Lunglei	1	Bualte	1	0	0	0	0	0	1	0	
			2	Haulawng	3	2	0	0	1	0	0	0	
			3	Hauruang	3	0	0	1	2	0	0	0	
			4	Lunglei	4	1	1	0	1	0	1	0	
			5	Thaizawl	3	1	1	0	1	0	0	0	
			6	Vanhne	2	0	0	0	2	0	0	0	
6	Serchhip	Serchhip	1	Bungtlang	5	2	1	0	1	0	1	0	
			2	Hmuntha	6	2	2	0	1	0	1	0	
			3	Thenzawl North	5	2	0	1	1	0	1	0	
Total					25	113	36	14	13	28	5	16	1

Source: JPT

A progress meeting was held in October 2022 to confirm the status of activities and problems at each BAIDC. In addition, several officials selected from each district, who had been recognized as having high implementation capabilities through past activities in the pilot villages and JIFAS and other training, participated in the meeting for receiving on-the-job training (OJT). These officials are expected to help with the activities in the RD blocks which will not receive support from core training officers after the end of the Project. OJT was also conducted during the formulation of the BAIDC annual plan for Batch-2.

From January to February 2023, each BAIDC held a meeting in each target village to obtain feedback from beneficiaries and to consider actions for the next plan. Achieved outcome, achievement, and actions for the next plan were summarized by each BAIDC (refer to the attachment). It is noted that there were many plans not implemented due to no funds available.

(2) Batch 2

Priority villages in the ten RD blocks targeted for Batch 2 were selected based on the direction of development for each block discussed in the training at SAMETI. By considering the JIFAS management after the end of the Project, the BAIDC annual activity plan in 2023/24 was formulated with the support of officials selected from each department mentioned in the previous section. During the formulation of the plan, many BAIDC members were fixed on the idea that agricultural extension activities cannot be carried out without CSS funds. It is hoped that the continuation of JIFAS will lead to more opportunities to discuss with various stakeholders including other departments and realizations for raising the level of agricultural development in Mizoram as a whole.

The BAIDC annual activity plans for Batch 2 are summarized in the table below. Due to the limited funds, two to three villages were often selected from each RD block, and the number of target villages tended to decrease compared to Batch 1.

Table 2.21.5 BAIDC Annual Activity Plan in 2023/24 for Batch-2

No.	District	Rd Block	No.	Name of Village for the BAAP	No. of BAAP	Village-wise Priority Subject (BAAP)					
						1. WRC area productivity improvement	2. Vegetable productivity improvement	3. Perennial crop productivity improvement (DPR, Lift Irrigation)	4. Irrigation improvement	5. Improvement of Jhum cultivation	6. Land preparation and improvement
1	Serchhip	E Lungdar	1	East Lungdar	7	3	1	1	1	1	0
			2	Leng	7	3	1	1	1	1	0
			3	Mualcheng	7	3	1	1	1	1	0
2	Kolasib	N Thingdawl	1	Bualpui Tumtlang Zau	7	2	2	2	1	0	0
			2	Hortoki (Dilzau)	5	3	0	1	1	0	0
			3	Lungdai Zauau	5	0	0	2	1	2	0
3	Mamit	W Phaileng	1	Lallen	9	4	1	2	1	0	1
			2	Saithah	6	3	1	1	1	0	0
			3	West Phaileng	10	3	1	4	1	0	1
4	Mamit	Zaiwnuam	1	Thinghlun	7	2	1	3	1	0	0
			2	Zawlnuam	7	2	0	4	1	0	0
5	Aizawl	Tlangnuam	1	Samtlang	6	0	0	3	1	1	1
			2	North Lungleng	3	0	0	1	1	1	0
6	Saitual	Ngopa	1	Lamzawl (Tuiphal)	5	2	1	1	1	0	0
			2	Ngopa (Tuithil)	5	2	1	1	1	0	0
7	Lunglei	Lungsen	1	Phairuankai	5	0	2	2	1	0	0
			2	Putlungasih	3	0	1	1	1	0	0
			3	Zawlpui	5	0	2	1	1	0	1
8	Lawngtlai	Bungtlang S	1	Bungtlang South	8	2	0	5	1	0	0
			2	M Kawnpui	5	0	0	4	0	1	0
			3	Nghalimlui	8	3	0	4	1	0	0
9	Lawngtlai	Chawngte	1	Chhotaguisury	8	3	2	3	0	0	0
			2	Golasury	8	3	2	3	0	0	0
			3	Udalhana-I	8	3	2	3	0	0	0
10	Siaha	Tipa	1	Siasi	6	2	3	0	1	0	0
			2	Zyhno	8	3	2	2	1	0	0
Total				26	168	51	27	56	22	8	4

Source: JPT

2.21.5 Establishment of Monitoring System Using Digital Technology

(1) Applications to be Used (MIS_JIFAS)

In consultation with the PMT, it was decided to build a monitoring system using digital technology in order to facilitate an understanding of the plans formulated by BAIDC and the implementation status. The JPT listed TRESSA and Kobotoolbox as candidate applications for building a monitoring system, examined their superiority, and finally, TRESSA was adopted. Since TRESSA is operated on a web server, the IWRD entered an annual contract with a company in India and started operation.

The features of TRESSA are as follows.

Table 2.21.6 Main Feature of TRESSA

Item	Contents
Developer	Nippon Koei Co., Ltd.
Introduction cost	No burden on Mizoram Government side
Application usage fee	Free
Running cost	Web server usage fee only INR 10,000~15,000/month
Improvements for future applications	Conditionally possible
Input and assembling BAIDC plan information	It is possible to register in advance the CSS implementation procedure used in the BAIDC plan to be drafted. The implementation procedure (step) is

	simply displayed by arranging CSS according to the priority of each village according to the BAIDC annual plan.
Upload of each material generated in the BAIDC implementation process	For activities implemented according to the BAIDC plan, the activity results are uploaded as images or files from a PC or smartphone each time.
Confirmation and monitoring of the progress of the BAIDC plan	All the parties with access rights can check the progress of BAIDC. It is easy to grasp the progress for each CSS procedure, and can be checked using the dashboard function and map display function.
Data aggregation	Data can be exported in Excel format. Regarding data aggregation, it is necessary to separately assemble it with the macro function in Excel.

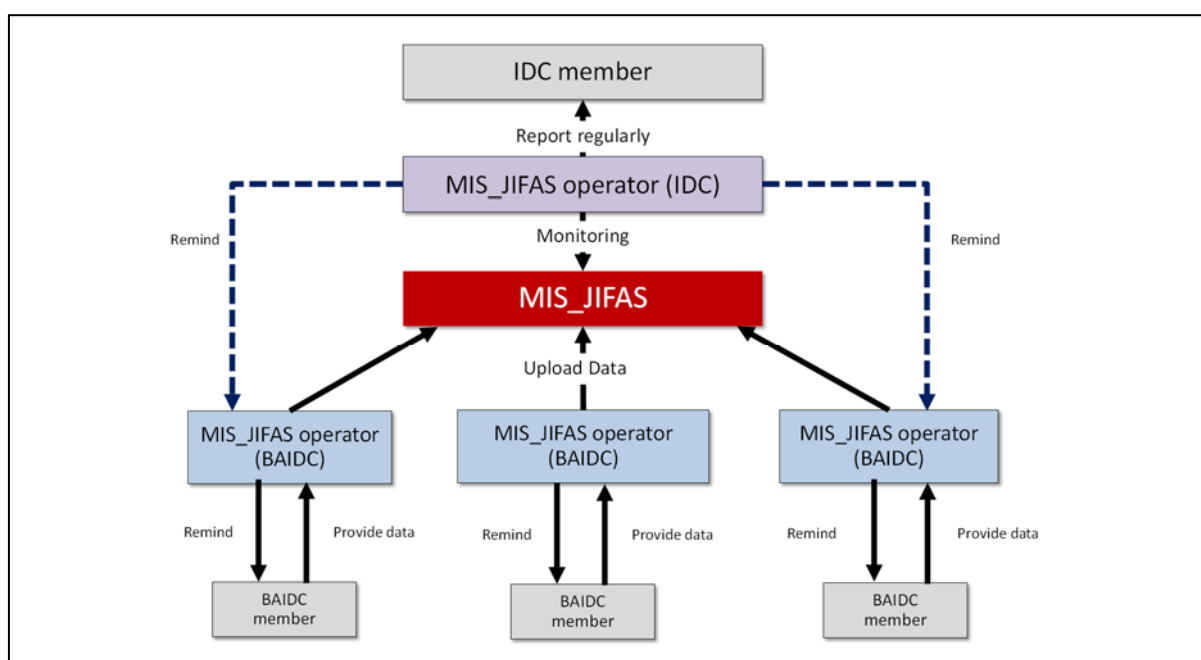
Source: JPT

(2) Operation System

Input to MIS_JIFAS is performed by MIS operators appointed at the BAIDC office. The placement of the MIS operators was determined by each BAIDC. The MIS operators at each BAIDC office follow the steps indicated in the JIFAS Operation Guideline and input the data at each time the work for each step is completed. The data to be input is photographs and documents. Also, when the BAIDC plan is formulated, the plan details are entered. For the contents of the plan, the priority items determined for each priority village in the target year (improvement of WRC productivity, improvement of slope land productivity, improvement of Jhum farming, etc.) and the CSS to be used are entered. Once entered, the pre-entered procedure for each CSS is displayed, so BAIDC members follow the procedure to perform work in the field and upload the information to MIS_JIFAS each time. The MIS operators at the BAIDC office understand of all the BAIDC annual plans and remind each BAIDC member to upload data via WhatsApp, etc.

The entered information is collected by IDC's MIS operators and sent to IDC and SLCC every month. If there is a delay in implementation at BAIDC, IDC requests improvements to all the departments and the target BAIDCs.

The operational system of MIS_JIFAS is shown below.



Source: JPT

Figure 2.21.2 Operational System of MIS_JIFAS

(1) Training for Operation

The following training was conducted for the operation of the monitoring system using MIS_JIFAS. The training was conducted as part of the JIFAS awareness training conducted at SAMETI, and at the same time, the JPT visited each BAIDC individually for the 1st Batch. In addition, education for PMT members and training for IDC MIS operators was conducted.

The data from 25 villages in Batch 1 was completed in July and the monitoring operation was started. In addition, from the 26th of July to the 4th of August, BAIDC of Batch 1 was trained to introduce the monitoring system. As a result, it was confirmed that almost all the BAIDCs, especially young staff, have knowledge of such digital technology and can use this system without any problems.

Table 2.21.7 Outline of MIS JIFAS Operator Training

Date	RD Block	Department	Participant	Comments
26 th July 2022	Champhai RDB	IWRD	3	Almost all the BAIDC members have computer knowledge, and the training allowed them to easily create sub-projects and understand the functions of MIS. Some departments have appointed an LDC and a computer operator to be in charge of the department's MIS.
		DOA	5	
		DOH	2	
		LRSWCD	2	
28 th July 2022	Khawzawl RDB	IWRD	3	The possibility was confirmed that most BAIDC members were able to manage MIS by themselves. Each department will appoint its own MIS operator. In training, all departments seemed to be able to do MIS sufficiently.
		DOA	2	
		DOH	3	
		LRSWCD	3	
1 st Aug 2022	Lunglei RDB	IWRD	4	Almost all the BAIDC members have mastered the MIS to manage it themselves. One MIS operator was appointed in each department, and an IWRD operator was appointed as the leader of the MIS operators.
		DOA	2	
		DOH	2	
		LRSWCD	4	
3 rd Aug 2022	Serchhip RDB	IWRD	4	During the training, the trainees mastered MIS, created sub-projects, and understood the role of operators. A DOA operator was appointed as the head operator.
		DOA	2	
		DOH	0	
		LRSWCD	1	
4 th Aug 2022	Aibawk RDB	IWRD	11	On the day of the training, only IWRD participated from Aibawk RD Block. A BAIDC member of the IWRD cannot manage his MIS by himself, but he understood the methods and procedures for providing data to the MIS operator.
		DOA	2	
		DOH	0	
		LRSWCD	2	
5 th July 2022	Bilkhawthlir RDB	IWRD	7	During training, DOA's non-BAIDC members fully understood MIS, and three departments other than DOA agreed to have their own MIS operators. IWRD MIS operator was appointed as head operator of RD Block.
		DOA	1	
		DOH	1	
		LRSWCD	1	
20th Jan. 2023	IDC	IWRD	1	Each participant has basic knowledge to operate a computer and is able to access MIS JIFAS. During the training, the trainee was able to operate their MIS and create subprojects, subproject groupings and BAAP schedules. They can upload and monitor data, and they also understood the role of notifying BAIDC to implement and upload activities.
		DOA	1	
		DOH	1	
		LRSWCD	1	
Total			71	

Source: JPT

2.21.6 Development of Promotion Materials

A 5-minute promotional video was prepared in English and Mizo for dissemination of the outputs within the state. The prepared video was utilized in training at SAMETI, enlightenment, and seminars for BAIDC members of Bacth-1. In addition, since it is necessary to explain how to handle the construction of a monitoring system using digital technology, a separate video was prepared.

In addition, a one-minute video was prepared for TV commercials, signed contracts with ZONET and LPS, cable network companies in Mizoram, and followed the procedures for TV commercial distribution. The TV commercial will run for six months.

2.22 Work for Project Monitoring

2.22.1 Project Management Team Meetings

The progress management team meetings and BAIDC meetings were held in order to share the progress and decision-making. The list of the periodical meetings excluding unofficial discussions is shown in the table hereinafter.

Table 2.22.1 List of Project Management Team and BAIDC Meetings

Date	Place	No. Of Participants	Agenda
2018/05/04	DoH, Aizawl	15	1. Advice and approval of BAIDC Annual Activity Plan 2018. 2. PDM verification indicator.
2018/05/11	JICA Committee Room, Aizawl	14	1. Finalize the draft Initial Environment Examination (IEE) report of the pilot activities (rehabilitation and construction of small scale irrigation facilities). 2. Prepare the Environment Management Plan and establish an environment monitoring framework.
2018/06/29	IWRD, Aizawl	14	1. Progress review of 1st pilot activities. 2. Preparation of Monitoring Sheet Version 2. 3. Submission of Progress Report (Phase-1). 4. 2nd JCC Meeting. 5. Schedule of field visit by JICA officials on 4th July 2018. 6. Training in Japan
2018/09/14	IWRD, Aizawl	20	1. Discussion and approval of work plan (Phase-2). 2. Outline and schedule of training in Japan.
2018/10/26	IWRD, Aizawl	40	1. Confirmation of the work plan for phase-2. 2. Discussion of contractor procurements and Implementation Guidelines for construction.
2018/12/19	IWRD, Aizawl	16	1. Progress review of 20 projects under four pilot villages. 2. Preparation of Monitoring Sheet Ver.3.
2019/02/08	IWRD, Aizawl	16	1. Preparation of field visit for JICA Head Office Mission. 2. Preparation for JCC.
2019/02/13	IWRD, Aizawl	10	Meeting with PMT members (JICA Mission)
2019/02/19	JICA Committee Room, Aizawl	10	Meeting was at 18th Feb 2019, it was preparation for JCC meeting
2019/03/12	IWRD, Aizawl	18	1. Approval of BAIDC Annual Activity Plan 2019. 2. Discussion of necessary actions against eight recommendations issued by the JICA Review Mission.
2019/05/28	IWRD, Aizawl	30	1. Progress review of ten projects under four pilot villages. 2. Role and working schedule of 'Core Officer'. 3. Preparation of 2nd pilot activities (Selection criteria of 2nd pilot activities). 4. Necessary actions for institutionalization of BAIDC functions. 5. Outline and schedule of training in Japan.
2019/08/02	IWRD, Aizawl	25	1. Progress review of ten projects under four pilot villages. 2. Selection of 2nd pilot villages. 3. Discussion of monitoring sheet Ver.4. 4. Schedule and necessary arrangement for training in Japan.
2019/10/03	IWRD, Aizawl	30	1. Progress review of BAIDC Annual Activity Plan 2019. 2. Achievement report of training in Japan during 1st - 15th Sep 2019. 3. Issue to be discussed in JCC.
2019/11/21	IWRD, Aizawl	19	1. Review of BAIDC Annual Activity Plan 2020-21. 2. Institutionalization of JIFAS.
2019/12/19	IWRD, Aizawl	17	1. Approval of BAIDC Annual Activity Plan 2020.
2020/02/13	IWRD, Aizawl	18	1. Preparation for visit of JICA Monitoring Mission Team to Mizoram.
2020/02/29	IWRD, Aizawl	19	1. Review and future actions for Monitoring Mission Workshop. 2. Followup actions for 1st pilot villages. 3. Fund allocation of 2nd pilot villages.
2020/05/21	IWRD, Aizawl	21	1. Wrap up of 1st pilot project. 2. Approval of BAIDC followup plan for 1st pilot village. 3. Arrangements for sensitization programme. 4. Setting up of Task Force.
2020/07/03	IWRD, Aizawl	15	1. Progress report on 1st and 2nd pilot activities. 2. Preparation of monitoring sheet Ver.6. 3. Proposal to combat Covid-19.

Date	Place	No. Of Participants	Agenda
2020/08/26	IWRD, Aizawl	Not recorded	1. Discussion on proposal to combat Covid19 under TCP.
2020/10/16	IWRD, Aizawl	12	1. Review of Draft BAIDC Terms of Reference. 2. Review of ODA Loan Proposal.
2021/03/23	IWRD, Aizawl	13	1. Approval of BAIDC Annual Activity Plan 2021 - 22.
2021/04/20	IWRD, Aizawl	22	1. Allocation for irrigation development fund for 2nd pilot activities. 2. Motivation of PMT members for institutionalization of new method. 3. Progress of road map implementation. 4. Early implementation of Inter departmental Committee. 5. Official establishment of external organization to back support for new system expansion. 6. Fund allocation for functioning JIFAS after 2022 April. 7. Exit strategy after completion of project. 8. Increase of number of pilot farmers to establishment of technologies in the village. 9. Increase of number of core trainers.
2021/06/16	IWRD, Aizawl	14	1. Discussion of milestone for roadmap
2021/08/19	IWRD, Aizawl	12	1. Action plan and Gazette of institutionalization. 2. Revision of BAIDC TOR 3. JCC Meeting
2018/05/04	DoH, Aizawl	15	1. Advice and approval of BAIDC Annual Activity Plan 2018. 2. PDM verification indicator.
2018/05/11	JICA Committee Room, Aizawl	14	1. Finalize the draft Initial Environment Examination (IEE) report of the pilot activities (rehabilitation and construction of small scale irrigation facilities). 2. Prepare the Environment Management Plan and establish an environment monitoring framework.
2018/06/29	IWRD, Aizawl	14	1. Progress review of 1st pilot activities. 2. Preparation of Monitoring Sheet Version 2. 3. Submission of Progress Report (Phase-1). 4. 2nd JCC Meeting. 5. Schedule of field visit by JICA officials on 4th July 2018. 6. Training in Japan
2018/09/14	IWRD, Aizawl	20	1. Discussion and approval of work plan (Phase-2). 2. Outline and schedule of training in Japan.
2018/10/26	IWRD, Aizawl	40	1. Confirmation of the work plan for phase-2. 2. Discussion of contractor procurements and Implementation Guidelines for construction.
2018/12/19	IWRD, Aizawl	16	1. Progress review of 20 projects under four pilot villages. 2. Preparation of Monitoring Sheet Ver.3.
2019/02/08	IWRD, Aizawl	16	1. Preparation of field visit for JICA Head Office Mission. 2. Preparation for JCC.
2019/02/13	IWRD, Aizawl	10	Meeting with PMT members (JICA Mission)
2019/02/19	JICA Committee Room, Aizawl	10	Meeting was at 18th Feb 2019, it was preparation for JCC meeting
2019/03/12	IWRD, Aizawl	18	1. Approval of BAIDC Annual Activity Plan 2019. 2. Discussion of necessary actions against eight recommendations issued by the JICA Review Mission.
2019/05/28	IWRD, Aizawl	30	1. Progress review of ten projects under four pilot villages. 2. Role and working schedule of 'Core Officer'. 3. Preparation of 2nd pilot activities (Selection criteria of 2nd pilot activities). 4. Necessary actions for institutionalization of BAIDC functions. 5. Outline and schedule of training in Japan.
2019/08/02	IWRD, Aizawl	25	1. Progress review of ten projects under four pilot villages. 2. Selection of 2nd pilot villages. 3. Discussion of monitoring sheet Ver.4. 4. Schedule and necessary arrangement for training in Japan.
2019/10/03	IWRD, Aizawl	30	1. Progress review of BAIDC Annual Activity Plan 2019. 2. Achievement report of training in Japan during 1st - 15th Sep 2019. 3. Issue to be discussed in JCC.
2019/11/21	IWRD, Aizawl	19	1. Review of BAIDC Annual Activity Plan 2020-21. 2. Institutionalization of JIFAS.
2019/12/19	IWRD, Aizawl	17	1. Approval of BAIDC Annual Activity Plan 2020.
2020/02/13	IWRD, Aizawl	18	1. Preparation for visit of JICA Monitoring Mission Team to

Date	Place	No. Of Participants	Agenda
			Mizoram.
2020/02/29	IWRD, Aizawl	19	1. Review and future actions for Monitoring Mission Workshop. 2. Followup actions for 1st pilot villages. 3. Fund allocation of 2nd pilot villages.
2020/05/21	IWRD, Aizawl	21	1. Wrap up of 1st pilot project. 2. Approval of BAIDC followup plan for 1st pilot village. 3. Arrangements for sensitization programme. 4. Setting up of Task Force.
2020/07/03	IWRD, Aizawl	15	1. Progress report on 1st and 2nd pilot activities. 2. Preparation of monitoring sheet Ver.6. 3. Proposal to combat Covid-19.
2020/08/26	IWRD, Aizawl	Not recorded	1. Discussion on proposal to combat Covid19 under TCP.
2020/10/16	IWRD, Aizawl	12	1. Review of Draft BAIDC Terms of Reference. 2. Review of ODA Loan Proposal.
2021/03/23	IWRD, Aizawl	13	1. Approval of BAIDC Annual Activity Plan 2021 - 22.
2021/04/20	IWRD, Aizawl	22	1. Allocation for irrigation development fund for 2nd pilot activities. 2. Motivation of PMT members for institutionalization of new method. 3. Progress of road map implementation. 4. Early implementation of Inter departmental Committee. 5. Official establishment of external organization to back support for new system expansion. 6. Fund allocation for functioning JIFAS after 2022 April. 7. Exit strategy after completion of project. 8. Increase of number of pilot farmers to establishment of technologies in the village. 9. Increase of number of core trainers.
2021/06/16	IWRD, Aizawl	14	1. Discussion of milestone for roadmap
2021/08/19	IWRD, Aizawl	12	1. Action plan and Gazette of institutionalization. 2. Revision of BAIDC TOR 3. JCC Meeting
2021/09/27	DoH, Aizawl	15	1. To review JICA Action Plan 2. To review BAIDC Terms of Reference 3. ODA Loan project proposal
2021/10/20	IWRD, Aizawl	10	1. Review of BAIDC TOR 2. Review of action plan for JIFAS 3. Progress report of TCP 4. AOB
2021/12/01	IWRD, Aizawl	17	1. Preparation for JCC Meeting. 2. Review of Action Plan and Work Schedule 3. Endline Survey Kickoff
2022/02/14	Video Conference	17	1. Work Plan for commencement of JIFAS 2. Progress on institutionalization of JIFAS 3. Progress on Endline Survey 4. Training of trainers for CTOs 5. Progress on 2 nd pilot activities
2022/03/11	Video Conference	18	1. Sharing of Endline Survey result (Discussion of additional inputs) 2. Institutionalization of JIFAS
2022/04/08	IWRD, Aizawl	18	1. Approval of pilot villages selected by BAIDC for expansion of JIFAS 2. Progress of JIFAS institutionalization 3. Time extension
2022/06/29	Office of the Secy., IWRD	9	1. Detailed Activity Plan during project extension period 2. MIS 3. SAMETI Training in July 4. Appointing BAIDC Chairman 5. Monitoring Sheet Ver.10
2022/08/26	IWRD, Aizawl	12	1. Progress review of Batch 1 & 2 2. Recommendation of Sub-committee regarding Plan A/B 3. Role of PMT/IDC in MIS operation 4. Nomination of MIS operator from PMT/IDC members and TOR
2022/09/28	IWRD, Aizawl	14	1. Terminal evaluation of TCP 2. Cost sharing of MIS operation 3. ODA loan 4. Progress review of Batch 1

Date	Place	No. Of Participants	Agenda
			5. Tentative schedule for preparation of BAAP 2023-24, Batch 2 6. Revision of BAAP format 7. Result of Sub-committee of JCC recommendation and further necessary action 8. SHEP review mission
2022/12/19	IWRD, Aizawl	11	1. Notification of constitution of IDC, SLCC & BAIDC 2. Batch 1 & 2 progress 3. Terminal evaluation (schedule and evaluators) 4. Seminar on 20 th Jan 2023 5. Printing of officers' manual and guideline 6. Monitoring sheet Ver.11 7. others

Source : JPT

2.22.2 Joint Coordination Committee Meeting

Nine JCCs were held during entire project period. The list of JCC meetings and the members of JCC are shown in tables hereinafter.

Table 2.22.2 Summary of JCC Meeting

Date	Meeting	Venue	Chairman	Agenda / Topic of discussion
2017/08/08	1 st JCC	Conference Room of Chief Secretary	Mr. Arvind Ray	<ul style="list-style-type: none"> Explanation and approval of workplan Undertakings by GOM
2018/07/05	2 nd JCC	Conference Room of Chief Secretary	Mr. Lalnunmawia Chuaungo	<ul style="list-style-type: none"> Report on progress and issues of 1st pilot activities. Preparation of 1st draft methods. Discussion and preparation of Phase-2.
2019/02/18	3 rd JCC	Conference Room of Chief Secretary	Mr. Lalnunmawia Chuaungo	<ul style="list-style-type: none"> Approval of 1st pilot activities. Request and recommendation by JICA Review Mission.
2019/11/22	4 th JCC	Conference Room of Chief Secretary	Mr. Lalnunmawia Chuaungo	<ul style="list-style-type: none"> Necessary actions for institutionalization of 'Method' and 'BAIDC Function' referring to achievements of training in Japan. Necessary budget for implementation of 2nd pilot activities (specially irrigation works).
2020/12/15	5 th JCC	Conference Room of Chief Secretary (On line)	Mr. JC Ramthanga	<ul style="list-style-type: none"> Approval of BAIDC Terms of Reference for institutionalization of 'New Approach'. Necessary budget for implementation of 2nd pilot activities (specially irrigation works).
2021/12/06	6 th JCC	Conference Room of Chief Secretary	Dr.Renu Sharma	<ul style="list-style-type: none"> Progress Report and achievements of TCP. Approval of JIFAS. Action plan for establishment of JIFAS. Project Evaluation.
2022/05/24	7 th JCC	Conference Room of Chief Secretary	Dr.Renu Sharma	<ul style="list-style-type: none"> Report on the project progress. Report on the result of Endline Survey. Extension of the project duration. Change of the term BAIDC System to JIFAS. Discussion and finalization of Plan A/B.
2022/09/21	8 th JCC	Conference Room of Chief Secretary	Dr.Renu Sharma	<ul style="list-style-type: none"> Recommendation of Sub-committee for institutionalization of JIFAS. Further actions to be taken. Activity Progress Report on Batch 1 & 2. Other issues, if any.
2023/02/15	9 th JCC	Conference Room of Chief Secretary	Dr.Renu Sharma	<ul style="list-style-type: none"> Recommendation form terminal evaluation team Signing of MM Contents of completion report

Source : JPT

2.22.3 Submission of Monitoring Sheet

The monitoring sheet stipulated in the R/D was prepared by the PMT and the JPT which were submitted to the JICA India office. A total of 11 monitoring sheets were submitted during the project period.

Table 2.22.3 Submission of Monitoring Sheet

Month	Monitoring Sheet
December 2017	Monitoring Sheet Ver.1
June 2018	Monitoring Sheet Ver.2
December 2018	Monitoring Sheet Ver.3
June 2019	Monitoring Sheet Ver.4
December 2019	Monitoring Sheet Ver.5
June 2020	Monitoring Sheet Ver.6
December 2020	Monitoring Sheet Ver.7
June 2021	Monitoring Sheet Ver.8
December 2021	Monitoring Sheet Ver.9
June 2022	Monitoring Sheet Ver.10
December 2022	Monitoring Sheet Ver.11

Source: JPT

2.22.4 Public Relation Activities

Public relations activities including the distribution of calendars, newsletters, and the publication of articles through local newspapers and Facebook were carried out since the commencement of the Project. The Facebook page (account name: Mizo-CESAID) was updated about ten times a month. It currently has 485 followers, with an average of 397 monthly viewers in 2021 and 608 viewers in 2022. The newsletter was published once a month since March 2019 and the calendar was distributed once from the beginning of the year 2019 to 2022.

In the local newspaper, the 5th JCC was published on December 16, 2020, and the progress of the follow-up activities of the first pilot and the influence of COVID-19 on the second pilot activities were introduced.

In addition, the meeting between Agriculture Minister C. Lalrinsanga and the JPT was taken up on December 20, 2020, and the importance and cooperation of the project were introduced with the progress of small-scale irrigation work, and the selected project villages.

On Facebook, the progress of project activities was uploaded with about four photos per article, and information is disseminated externally. The content of the article was a progress report on the implementation and monitoring of pilot activities, a progress report on cultivation technology guidance and cultivation status in pilot villages, yield surveys, and a progress report on training for counterpart staff, training in Japan and cultivation. The state of implementation of management training and construction management training was described in simple and easy-to-understand sentences centered on photographs.

In addition, the meetings such as PMT meetings, BAIDC progress meetings, and JCC meetings, and the contents of discussions are also shared.

In the newsletter, the monthly work progress was summarized, created using activity photos, and distributed through the nodal department.



Source : JPT

Figure 2.22.1 Mizo-CESAID Facebook



Source: JPT

Figure 2.22.2 Monthly Newsletter (March 2019)

2.22.5 JICA Monitoring Mission

The JICA monitoring missions were dispatched by the JICA Economic Development Department twice, in February 2019 and February 2020. The outline of each JICA monitoring mission as well as the main recommendations and requests is summarized in the table below.

Table 2.22.4 Outline of JICA Monitoring Missions

No.	Timing	Member	Major Recommendation and Points Discussed
1st	February 2019	Dr. Narihide Nagayo (Mission leader) Ms. Yutori Sadamoto Mr. Ryohei Chiyojima	<ul style="list-style-type: none"> Improve the mechanism on communication and chain of command between PMT and BAIDC Clarification of BAIDC functions Institutionalization of BAIDC Capacity development of core trainers for dissemination of technical skills Preparation of second pilot activities utilizing the government fund and resources Improve the guidelines and manuals to be more practical Allocation of counterpart funds for the project For the future project activity
2nd	February 2020	Dr. Narihide Nagayo (Mission leader) Mr. Ryohei Chiyojima	<ul style="list-style-type: none"> The vision of future development of Mizoram agriculture The benefits and challenges for “new approach” for sustainable agriculture and irrigation development The necessary actions until March 2022 to proceed “roadmap” for institutionalization of “new approach”

Source JPT

Regarding the matters pointed out in the JICA monitoring mission, countermeasures are discussed at the subsequent PMT meetings and appropriate measures are taken. At regular progress meetings by the JICA Economic Development and JPT, the progress of the response is monitored by putting it on the agenda.

2.22.6 Endline Survey

The endline survey was entrusted to the Faculty of Economics, University of Mizoram and conducted from November 2021 to February 2022. The summary of the survey is shown in Table 2.21.3 below.

Table 2.22.5 Summary of Endline Survey

Item	Description
Objective	Reviewing the achievement of each outcome and project objective: collecting data to extract lessons learned for improving operations for the remainder of the project
Survey area and Target Group	JCC members, government officials belonging to IWRD, DOA, DOH, and LRSWCD, officials with jurisdiction over the districts and pilot areas (Aibawk, Bilkawthir, and Champhai), direct and indirect beneficiary farmers in the pilot areas and surrounding farmers
Survey Method	Household survey from the target village/focus group discussion/interview survey/stakeholder analysis/document survey, and analysis/online test
Survey Items	【Survey items related to project purpose】
	(1) Approval or rejection of the method, discussion for approval
	(2) Status of implementation of BAIDC annual plan, government ownership and funding in 2 nd pilot project
	(3) Status of approval of the new method, discussions, and background to the approval, etc.
	【Survey items related to Output 1】
	(1) Yields and production changes of food crops in the 1 st pilot villages
	(2) Yields and production changes of cash crops in the 1 st pilot villages
	(3) Technology transfer from pilot farmers to surrounding farmers in the 1 st pilot village
(4) Implementation status of the BAIDC action plan in the 1 st pilot villages	
(5) Implementation status of the BAIDC action plan in the 2 nd pilot villages and Government funding status	
【Survey items related to Output 2】	
(1) Degree of capacity building of BAIDC members	
(2) Knowledge required to implement the new methodology for PMT and BAIDC members/current skills acquisition	
【Survey items related to Output 3】	
(1) Status of approval of the action plan, discussions, and background to the approval, etc.	

Source: JPT

Based on the analysis of the survey results, achievements of indicators of the project design matrix (PDM) are summarized in the Table 2.21.4 below.

Table 2.22.6 Achievement of PDM Indicators

Item	Indicator	Achievement	
【Project Purpose】 Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.	The methods are approved by JCC, and adopted officially.	Not achieved	Approved by JCC but official gazette is not issued yet
	At least two activities based on collaborative implementation framework in each block are implemented by BAIDC in the 2 nd pilot project	Achieved	Out of 108 activities under 11 pilot projects in 2 nd pilot villages, 92 sub-plans (85%) were implemented through funding support from State (department fund) and Central Govt.
	Action plan to expand project output to all RD blocks and the methods are endorsed by Chief Minister (CM)	Not achieved	Approved by JCC but not yet endorsed by CM.
【Output 1】 Methods for sustainable agriculture and irrigation development are developed.	Production of food crop is increased by 12.5% in pilot farmers in the first pilot villages.	Achieved	The average yield for three years for 12 WRC pilot farmers in three villages are achieved 4,455 kg/ha which is more than 60% higher than productivity of controlled farmers' average of 2,777 kg/ha

	Farm income of cash crop is increased by 12.5% in the pilot farmers (excluding orchard or plantation farmers) in first stage pilot villages.	Achieved	The cash income of pilot farmers and controlled farmers are INR121,433 and INR 88,917 respectively in average. The income of pilot farmers is 36% higher than the one of controlled farmers.
	50% of the technologies practiced in the pilot farmers are disseminated to other farmers in the first pilot villages	Achieved	Out of 21 major skills provided to pilot farmers, 11 skills (52%) are disseminated to others in cultivation technologies. Out of 42 skills in total provided in three pilot villages, 26 skills (59%) are rooted in WUA.
	More than 80% of village plan are implemented in the first pilot villages.	Achieved	Out of 82 activities under 7 following up 1st pilot projects, 79 activities (96%) are implemented
	Activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram gov.	Achieved	Out of 108 activities under 11 pilot projects in 2nd pilot villages, 92 sub-plans (85%) were implemented through funding support from state (department fund) and central govt.
【Output 2】 Capacity of the state government officials in planning and implementation of sustainable agriculture and irrigation development is enhanced.	More than 60% of the nominated counterparts achieved the goal set by them.	To be confirmed	Compare to self-rating score between 2017 and 2021, scores on all the subjects are increased.
	More than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development	To be confirmed	More than 88% of the BAIDC and PMT members understand more than 50% of the contents of Officers' Manual for Improving Agriculture Extension More than 77% of the staff understand 75% of the contents of the operational guidelines. IWRD staff test is not compiled yet.
【Output 3】 Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.	Action plan to expand project output to all RD blocks in Mizoram is prepared by PMT	Achieved	Action plan was prepared and approved by JCC.

Source: JPT

As shown in the table above, the PDM indicators were mostly achieved. Meanwhile, the following general reviews and comments were made in the survey report and at the PMT and JCC meetings.

- Due to the COVID-19 epidemic from March 2020, restrictions are imposed on the movement of government officials in the state and JPT. Hence farmers' meetings, PMT meetings, BAIDC meetings, training for farmers and counterparts, purchase of agricultural equipment and materials, etc. were difficult. Despite such activity restrictions, pilot activities, based on the implementation plan instructed before March 2020 continued as much as possible. However, there were insufficient aspects regarding the verification of manuals and deep discussions toward institutionalization.
- Regarding the results shown in the PDM, the target indicators were generally achieved in all items. However, although the project purpose has been approved at the JCC level, the JIFAS has not yet been institutionalized. It is necessary to continue activities to achieve the final goal until the end of the Project.
- The project participants have a general understanding of the effectiveness of the JIFAS tried in the pilot project and the need in Mizoram. However, the commitment of government officials is not sufficient. Some state officials made the following comments:
 - It should be enacted as a state system first and then get expanded to the whole state.
 - It is necessary to simplify or improve JIFAS to operate it more smoothly.

- It is necessary for all the parties concerned to understand the benefits of the system properly to avoid misunderstanding during the operation of the JIFAS.
- Many BAIDC members simply follow instructions from the directorates. It is necessary to change the mindset of the BAIDC members to make plans by themselves.

Noting that these general reviews and comments would be put to good use, all activities including the institutionalization of the methods were carried out until the end of the Project.

2.23 Impact on Farming Activity and Livelihood amid COVID-19

Mizoram State declared the first lockdown in March 2020 and it lasted for two months. During the lockdown period, movement was restricted and agro-products and farming inputs usually imported from other states did not come into Mizoram. Under the circumstances, it was expected that such a draconian measure will induce crucial impact on farming activities and livelihood. And therefore, the JPT has decided to conduct an impact survey on farming activities and livelihood amid COVID-19. In addition to grasping current situation, considering countermeasures to mitigate the damage to farming activities as well as project implementation were taken into account.

2.23.1 General Information about Survey

Forty-eight informants were randomly selected from pilot farmers in the first and second pilot projects. To avoid physical contact between informant and enumerator, the questionnaire was prepared using "Google Forms" and interview session was conducted over the mobile phone. Enumerator asked questions based on the questionnaire and input the answer onto questionnaire through webpage. So far, the JPT conducted the survey three times to grasp the temporary change of the impact caused by COVID-19. The schedule and attribution of informants of the survey are summarized in Table 2.23.1, Figure 2.23.1 and Figure 2.23.2.

Table 2.23.1 Schedule of the Impact Survey for COVID-19

Batch	Target Period	Survey Period
1 st Survey	March 2020 – May 2020	16/Jun/2020 – 29/Jun/2020
2 nd Survey	June 2020 – August 2020	18/Aug/2020 – 31/Aug/2020
3 rd Survey	September 2020 – November 2020	26/Nov/2020 – 16/Dec/2020

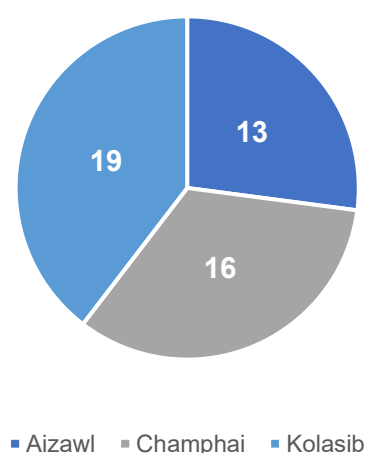


Figure 2.23.1 Number of Informants by District

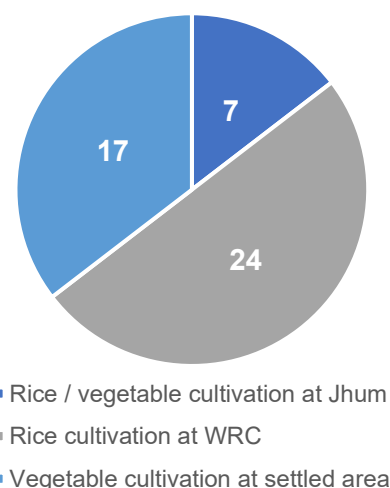
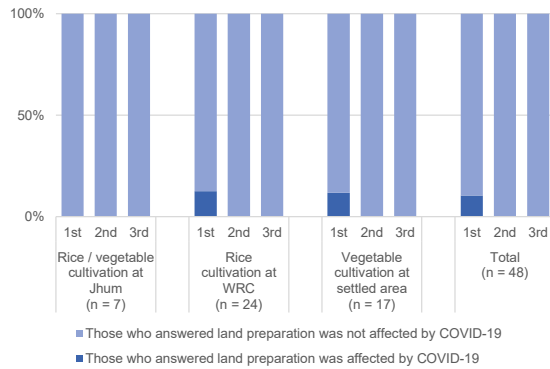


Figure 2.23.2 Number of Informants by Main Crop

2.23.2 Survey Results

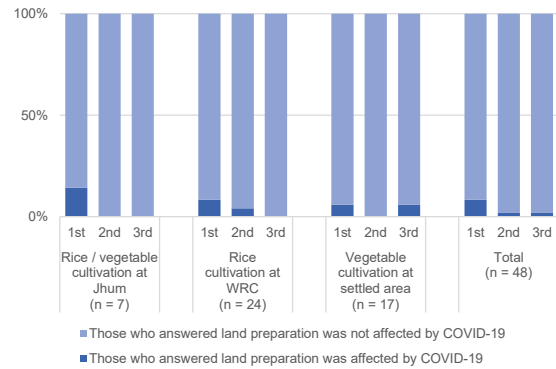
Throughout the survey period, in general, COVID-19 did not affect farming activities too much. Some farmers described that their farming activities were affected by several reasons such as travel restriction, poor access to farming input, price increase in input, and lack of transportation. However, in many cases, those who answered COVID-19 affected farming activities was less than 10% (Figure 2.23.3 to Figure

2.23.10). As time progressed, those who answered COVID-19 affected farming activities tend to decrease. The exception is for marketing activity. Approximately 20%–30% of informants answered COVID-19 affected their marketing activities. In the first and second survey, major constraints were the travel restrictions, closure of market, absence of middleman, and lack of transportation. Interestingly, the third survey showed that major constraints for marketing were the decrease in instruction from stakeholders and lack of market information. As mentioned below, many farmers expanded their cultivation area for cash crops to meet increasing demand amid COVID-19, however, they did not consider any sales plan.



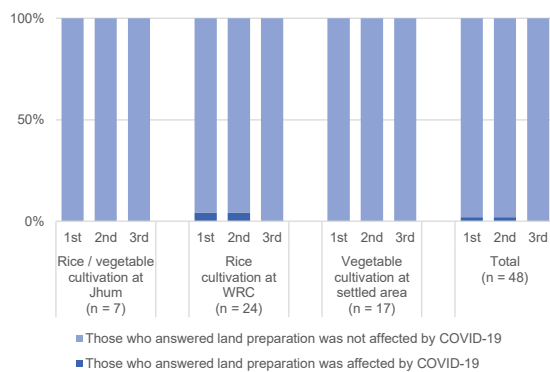
Source: JPT

Figure 2.23.3 Share of Informants Who Answered COVID-19 Affected Land Preparation



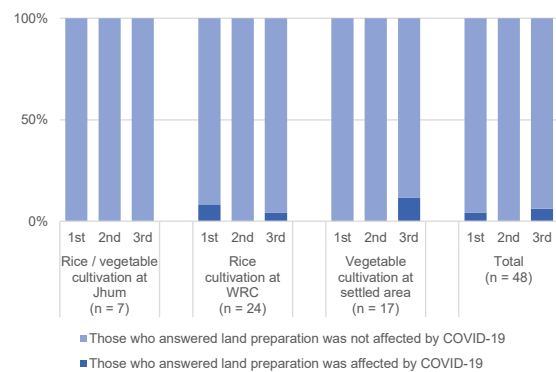
Source: JPT

Figure 2.23.4 Share of Informants Who Answered COVID-19 Affected Sowing



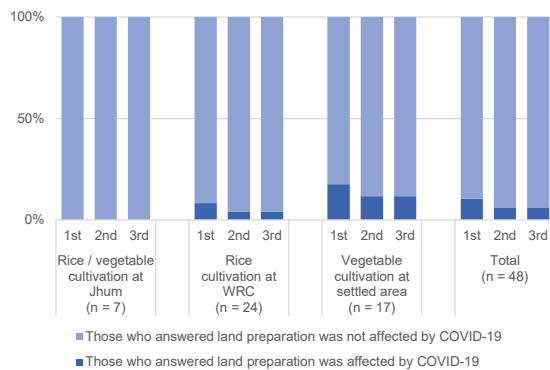
Source: JPT

Figure 2.23.5 Share of Informants Who Answered COVID-19 Affected Transplanting



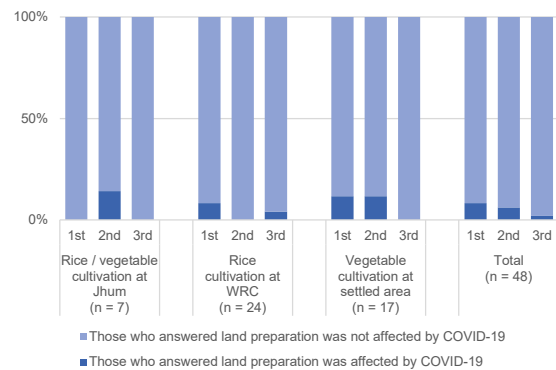
Source: JPT

Figure 2.23.6 Share of Informants Who Answered COVID-19 Affected Weeding



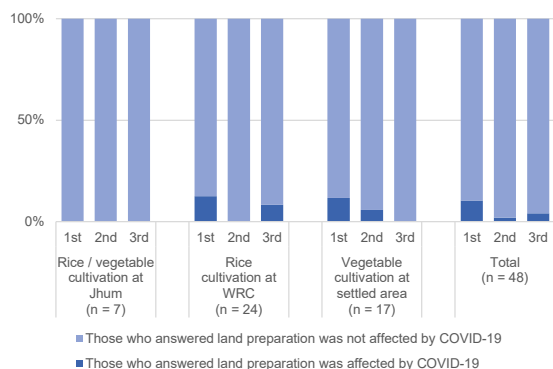
Source: JPT

Figure 2.23.7 Share of Informants Who Answered COVID-19 Affected Fertilizer Application



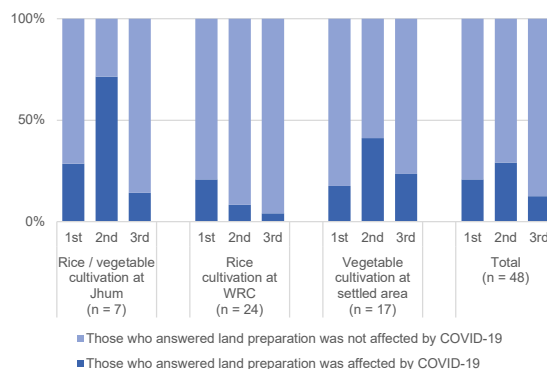
Source: JPT

Figure 2.23.8 Share of Informants Who Answered COVID-19 Affected Chemical Application



Source: JPT

Figure 2.23.9 Share of Informants Who Answered COVID-19 Affected Harvesting



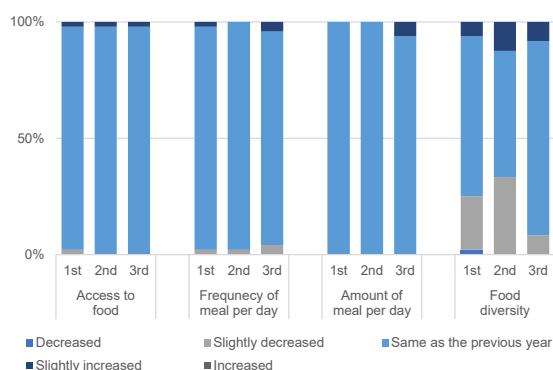
Source: JPT

Figure 2.23.10 Share of Informants Who Answered COVID-19 Affected Marketing

As for impact on dietary habit, access to food, and frequency and amount of meal per day were not affected by COVID-19, whereas food diversity decreased during the 1st and 2nd survey period (Figure 2.23.11). To cope with the difficult situation, farmers employed some measures such as expansion of cultivation area for food crop and it helped the farmer out to maintain their usual dietary habit (Figure 2.23.12). In the 3rd survey, food diversity almost recovered because farmers harvested agro-products from their farms.

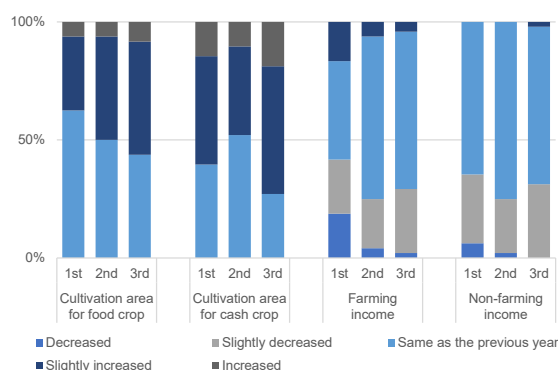
Throughout the survey period, approximately 30% of farmers mentioned that their income decreased due to COVID-19. Hence, the farmers' mindset after COVID-19 tends to change from food crop-oriented farming to cash crop-oriented farming (Figure 2.23.13). To supplement the income gap from the previous year, more than 50% of farmers expanded their cultivation area for cash crops. It made sense during 1st and 2nd survey period because imports of agro-products from other states were limited and the price of agro-products increased. However, after lockdown was lifted, commodities comparatively smoothly come from other states, and in the latest survey, farmers were faced with the difficulty to sell their agro-products. Farmers also showed desire to multiply seeds and cultivate oil seed crops to reduce their expenditures.

Top three future concerns after COVID-19 raised by pilot farmers are summarized in Figure 2.23.14. Many farmers were concerned about price increase in food, commodities, and farming inputs. In addition to these concerns, more than 80% of farmers were anxious about access to seeds, inputs, and labours. As for future prospects, many farmers believed that demand for domestically-produced agro-products would increase. Also, there was momentum for seed production and formulation of farmers' organization.



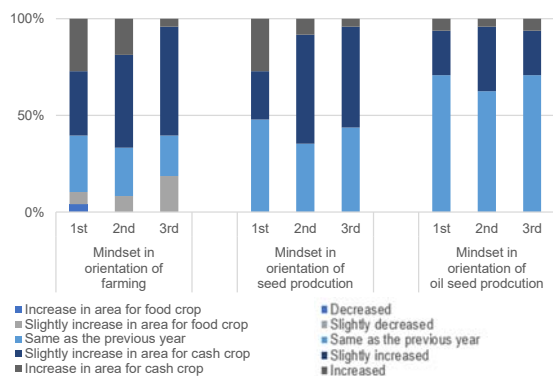
Source: JPT

Figure 2.23.11 Share of Informants Who Answered COVID-19 Affected Dietary Habit



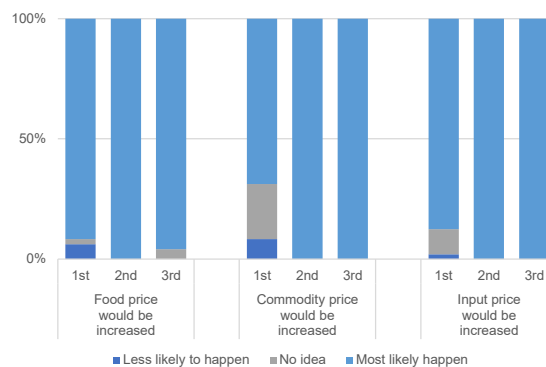
Source: JPT

Figure 2.23.12 Share of Informants Who Answered COVID-19 Affected Area and Income



Source: JPT

Figure 2.23.13 Share of Informants about Change of Mindset after COVID-19



Source: JPT

Figure 2.23.14 Share of Informants about Future Concerns

2.23.3 Countermeasures Proposed

Based on the results, the JPT proposed the following activities for the future pilot project:

- Introduction of cultivation techniques which contribute to stable food crop production, e.g., manure production;
- Value addition to cash crop, e.g., timing of cultivation, grading, packaging, and storage;
- Introduction of new varieties to maintain food diversity;
- Training on seed multiplication and oil seed crop production; and
- Examination of labour saving techniques.

Chapter 3 ISSUES, FINDINGS, AND LESSONS LEARNED FOR PROJECT IMPLEMENTATION

3.1 Challenges and Countermeasures in Project Implementation

3.1.1 Challenges and Countermeasures in Overall Project Implementation

The project started in July 2017 and continued until March 2023. However, from March 2020 to March 2022, all stakeholders involved in the project such as C/P, Japanese experts, JPT national staff, farmers, were restricted of the movement and meeting due COVID-19 pandemic. Including them, the challenges faced in the project implementation including the countermeasures are summarized in the following table.

Table 3.1.1 Challenges and Countermeasures on Overall Project Implementation

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
Lack of initiatives of the BAIDC members at the inception of the Project	<u>A lack of understanding on a technical cooperation project</u> (The Project was the first technical cooperation in Mizoram, and it took time to understand the difference with an ordinary Centrally Sponsored Scheme (CSS) - which just deliver the agriculture inputs or construction of infrastructure)	In every meeting, the Japanese experts and national experts explained the purpose, outcomes of the Project, and tried to make the counterparts understand the project purposes. Since the national experts had been explaining the concept of the Project in Mizo language, the counterparts gradually understood the propose and structure of the Project and they took positive actions.
	<u>Lack of the target in value in the agriculture sector in the state</u> (There is no target value set as a state or a department, and the expectations for farmers are low. Therefore, it was an environment where C/P is less motivated to improve his work.)	The Project presented the Vison 2035 and explained carefully the actual standpoint of the Mizoram agriculture sector. The Project fostered the officers to participate in the feedback meeting with farmers in order to recognize the differences between the officers' action and farmers' demands. By repeating these meetings, the initiatives of officers' to improve their performance were encouraged.
	<u>Waiting for instructions becomes a habit</u> (In the past, BAIDC often only distributed CSS equipment or materials. BAIDC had little experience to plan by themselves and carry out work).	By implementing feedback, many ideas to improve the project activities were expressed by farmers as well as by their colleagues. Ideas include integrating several activities, canceling activities, increasing the target farmers, etc. By implementing those ideas, they began to think and act on their own. The DOA staff searched for small machines suitable for the agricultural conditions in Mizoram and exchange the ordination machines imposed by their boss. Through those experiences, officers started to initiate the actions on their own idea.
	<u>Inadequate transport means</u> (There are few staff members who can use vehicles freely. In the early stages, few bosses allowed to use vehicles for the Project due to low awareness of the Project).	Since the 1 st pilot villages were selected by the PMT, the villages far from the BAIDC office were selected. Since BAIDC did not have enough travel means at that time, their motivation for the project implementation was low. On the other hand, BAIDC had selected the 2 nd Pilot villages that are easily accessible to the BAIDC members. Accordingly, as the travelling arrangement to the villages became easy, the initiatives of the BAIDC members increased.
Difficulty of Formulating a Plan by Bottom-up System	<u>Lack of Basic Data on Villages</u> (Village data necessary for development planning was not put in order by the state government. The information of the DOA and the DOH was wrapped up on each circle for a unit of the extension. Further, the data on the farmers who have a willingness and technologies to	The proposed project specified the data required for development of agriculture and irrigation and trained how to get those data. In addition, the acquiring of data became easy as the Village Profile 2017-2018 was published after 2020. Both DOA and DOH demolished the circle offices and unified to the block offices as the extension units after 2020. Accordingly, the arrangement of the village data became easier.

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
	produce were not gained.) <u>Confidence between BAIDC and farmers was not created</u> (The officer, in some cases, just distributed the equipment or input that were easy to arrange to the farmers without knowing their needs. The officer did not realize that distributing items did not meet their needs, and they just criticized the farmers who did not utilize the delivered items as he expected. By continuing these, the expectations of the farmers to the BAIDC were declining, and the farmer was thinking only to get some from the officer).	The Project gave support to increase opportunities for the BAIDC and farmers to exchange ideas and information from the beginning. The Project explained repeatedly the role of the public servant and to change the mindset of the officers.
Delay of the knowledge transfer to counterparts	<u>Some of the staff had less motivation to increase their skill level.</u> (There is no target value set as a state or a department, and the expectations for farmers are low. Therefore, it was an environment where C/P is less motivated to improve his work.)	The Project identified officers to face farmers sincerely and to be motivated to get skills and knowledge. The technical knowledge was then transferred to these officers intensively. The Project tried for the officers to fill gaps between the farmers' needs and the officers' work by increasing opportunities for monitoring of the activities and discussion with farmers. Some officials spoke in front of the farmers and listened to their voices under the new system, and trust between officers and farmers were gradually created. Young government officials were able to strongly recognize the importance of bottom-up planning and implementation.
	<u>Transfers of counterparts</u>	At the time the new counterparts came, the national staff of the project carefully explained the project outlines and progress. Further, the project-trained core training officers (CTOs) become the trainers of the new system. With the cooperation of SAMETI, JIFAS awareness training was given to BAIDC members.
Difficulty in building consensus among the four departments (Director, Secretary, Minister)	<u>Lack of experience in joint implementation</u> (Less experiences in joint meetings and less opportunities to get together physically due to the physical distances)	Meetings between the four departments was held so many times from the beginning. As for the trainings in Japan, officers from the four departments were invited in a proper balance. It could stimulate a mutual understanding among officers during the training. By frequently boosting information sharing, the merit of joint implementation was understood.
	<u>Difference in way of thinking depending on the department</u>	The JPT supported the IWRD in all aspects of project implementation. By involving the secretary and the minister, the Project was able to get the consensus for the institutionalization of the JIFAS.
	<u>Difficulty of consultation with the level of the Minister and the Secretary</u>	The explanatory materials which should be used for the consultation with the minister and the secretary were prepared jointly by the counterparts with the Japanese experts and the national staff.
Delay in the decision on the collaborative implementation framework	It was difficult to move from the general consensus to the specifics. It took time to share the recognition of the agendas.	The change of mind was encouraged in the following various opportunities. <ul style="list-style-type: none"> • Discussions with the planning department which are looking after the Mizoram in a cross-sectional manner was encouraged. • Facilitate the exchange of opinion of the BAIDC with the PMT level members. • Providing the opportunity to understand the present standing point of the Mizoram agriculture based on agriculture development Vision 2035. Fostering to understand the actions to be taken by the agriculture sector with explaining the other sectors progress during eight years since 2015. • By presenting the Plan-B as the alterable plan of the

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
		<p>implementation set up of JIFAS, the challenges was cleared to facilitate deeper discussion in the counterparts.</p> <ul style="list-style-type: none"> • The road map was prepared in advance. • The trainings with the SAMETI to all the BAIDC members in the 28 RD blocks was carried out and accelerated for the internalization of JIFAS. • To reduce the work load of the IDC, the monitoring system with the use of the digital technology was introduced. Further awareness was made by the development of the PR material. • The trainings of the Tokushima prefecture in Japan were put to practical use as useful learnings on the administrative organizations. However, the 3rd training in Japan was lost due to the COVID-19.
The project management under COVID-19	Delay of activities	<ul style="list-style-type: none"> • Utilization of the national staff. Conduct online meetings, online tests, online trainings. Application of precise monitoring sheet helped online monitoring. • Although the BAIDC field activities were not fully carried out due to COVID-19, more than 80% of the annual activity plan had been implemented with the use of smartphones and WhatsApp.

Source: JPT

3.1.2 Challenges and Countermeasures in the Implementation of the BAIDC Plan for the Irrigation Sector

During the project implementation, a total of five pilot projects were implemented for irrigation development. Table 3.1.1 below summarizes the challenges faced and actions made to overcome the challenges in the formulation of the DPR, supervision of construction and strengthening of the capacity of Water Users' Associations (WUAs) for the operation and maintenance (O&M) of the irrigation facilities.

Table 3.1.2 Challenges and Countermeasures in the Implementation of the BAIDC Plan for the Irrigation Sector

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
Despite using the DPR Preparation Guideline, the quality of the DPRs was poor and the accuracy of the design and cost estimation was low.	Insufficient survey and basic investigation (Most of the areas are difficult to access, and surveys take time and cost, therefore some surveys had to be omitted)	<ul style="list-style-type: none"> • Well-balanced investigation using the manuals prepared under the Project. • Efficient understanding of the local situation through joint surveys with farmers who know the local area. • Understanding the requirements in advance, checking Indian design standards and specifications. • Overall guidance on procedures and methods of survey and investigation
	Unfamiliar with cumulative cost estimate. (Some officers were accustomed to budget-based estimation according to CSS norms)	<ul style="list-style-type: none"> • Technical guidance on cost estimate and reformation of thinking.
	Inability to plan irrigation facilities for efficient water management. (Some design were not conscious of operation and maintenance of the facilities, and there were discrepancies in the location and number of diversion works etc.)	<ul style="list-style-type: none"> • Confirmation of the farmer's intentions after understanding the farmland information of the beneficiary farmers. • Facilitation of understanding of common practice of rotational irrigation and water management facilities in other countries.
	Inability to plan temporary works. (Lacking cost estimate for temporary road, etc.)	<ul style="list-style-type: none"> • Technical guidance on planning for temporary works.
Difficulty in procuring good contractors	Inappropriate environment for the growth of good contractors. (Construction was customary to subdivide and downsize the contract package)	<ul style="list-style-type: none"> • Appropriate construction scale determined based on the contractor's implementation capability. • Adoption of the community contract, in the case of a suitable construction scale.

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
	No information accumulation of good contractors. (Information and records on the experience of past bids and procurement of constructors were not properly maintained and managed.)	<ul style="list-style-type: none"> • A questionnaire survey was conducted based on the list of state contractors prepared by the state finance department. • In order to eliminate pressure from politicians, the Project Team prepared a short list and conducted the designated competitive bidding according to JICA's Guidelines.
Construction was significantly delayed due to various reasons in addition to the elections, weather, and COVID-19 travel restrictions.	Low contractors' ability to manage construction work and low motivation in keeping construction schedules, (It was impractical for the IWRD to simply apply penalties for delay.)	<ul style="list-style-type: none"> • Guidance in writing to the contractors. • Holding general meetings with contractors with the participation of senior management of IWRD for promotion of improvements.
	Delay in responding to design changes. (A lack of trust in the relationship between the contractors and government officials, and the contractor's slow response when site instructions led to an increase in costs.)	<ul style="list-style-type: none"> • Guidance in writing to the contractors. • Holding general meetings with contractors and the participation of senior management of IWRD for promotion of improvements.
	Delay in payment. (The delay in the work of government officials in checking the quality of the completed construction work, measuring the quantity, and checking the various documents submitted by the contractors.)	<ul style="list-style-type: none"> • Guidance on improving the efficiency of on-site work such as quality checks and quantity measurements and various documents submitted by contractors. • Guidance on the standardization of a series of work from construction to payment.
	Labor shortage. (Many of the construction workers were recruited from local or distant farmers, and hence it was difficult to secure workers during the farming season. In addition, there were restrictions on stoppage of water flow in the canals for repair works during the irrigation period.)	<ul style="list-style-type: none"> • Collaboration with the IWRD to invite local residents to participate in the construction work.
It took time to develop the O&M capacity for irrigation facilities.	Insufficient understanding of the roles, responsibilities, and required activities of WUAs	<ul style="list-style-type: none"> • Guidance on the importance of O&M from a long-term perspective using examples from other countries and photographs of the current situation. • Utilization of on-site OJT. • Guidance and preparation of O&M manuals. • Implementation of accounting training and guidance on updating account books on a regular basis. • Promoting understanding of what WUA should be through learnings about Japan's land improvement system, and strengthening leadership skills of BAIDC members.

Source: JPT

3.1.3 Challenges and Countermeasures in the Implementation of the BAIDC Plan for Agriculture Extension

In the implementation of the project, at the time to carry out the BAIDC activity plan, the challenges faced in the agriculture extension, and the action taken to overcome the challenges are summarized in the Table 3.1.2.

Table 3.1.3 Challenges and Countermeasures in the Implementation of the BAIDC Plan for Agriculture Extension

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
Difficulty in information exchanges with farmers and dissemination of technologies from the pilot farmer to the	<ul style="list-style-type: none"> • In Sailam, there are difficulty in the exchange of information with farmers. • The farmers are traditionally not informed of where and what government activities are on-going in the village. 	<ul style="list-style-type: none"> • The meetings had been held with the representatives of the village (members of the VC, group leader of the church, in charge of accounting in VC, farmer leaders on the Jhum cultivation, paddy cultivation, fruit tree cultivation, etc.). • The participants proposed to organize the JICA Project Monitoring Committee (JPMC) in the village and PMT/JPT agreed it. The JPMC assumed the role of the

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
other farmers.	<ul style="list-style-type: none"> • There is no proper system to disseminate the technologies gained by the pilot farmers to the other farmers. 	<ul style="list-style-type: none"> • window for the project implementation in the village. • The log-book was placed at the committee leader's house and all activities were recorded in the log-book, and the meetings were held on a number of occasions. • The JPT and the BAIDC had also obtained various support from the JPMC.
Upgrade and maintain the motivation on the activities of the pilot farmers	<ul style="list-style-type: none"> • Paddy cultivation is for self-consumption. Farmers attach high value on paddy varieties of which the taste is good, and they do not use chemical fertilizers and agricultural chemicals. Ever since the DOA recommended the Indica type paddy, which is high-yielding but does not taste good to the farmers, farmers' willingness to produce the paddy did not increase. • Since the winter crop of paddy in the pilot villages was not cultivated, it was difficult to reach the cultivation in winter. 	<ul style="list-style-type: none"> • Hearing of the paddy taste conducted from farmers and consumers. In Buhchangphai they mainly eat Indica type rice, and within the city of Aizawl younger generations responded that Indica type rice is easy-to-eat. There were differences of the taste depending on areas and generations, but it was understood that majority of the people preferred the Japonica type rice. • An information from the farmer that the edible oil similar to the imported one from Assam is produced in Serchhip was obtained. Therefore, based on the site visit to Serchhip and the oil milling results by the DOA, the introduction of the colza cultivation in the pilot activities were decided.
	<ul style="list-style-type: none"> • Orange and areca nut farming was practiced as a settled agriculture, but annual harvesting is one time and farmers could not obtain a stable income, resulting in management problems. 	<ul style="list-style-type: none"> • Mixed cropping of crops that are harvested in a single year with those that can be harvested more than once a year was considered, and a mixed planting of areca nut (LRSWCD CSS) and banana (DOH CSS) was implemented. Due to BAIDC's inexperience in this field, multiple crop planting was avoided.
Methods of disseminating cultivation techniques in Mizoram have not been defined.	<p>Cultivation methods such as bloom grass and areca nut etc. have not yet been established to suit Mizoram's climate condition.</p>	<ul style="list-style-type: none"> • Improving the extension environment while considering BAIDC's capacity: POPs (cultivation manuals) are available for registered crops. If BAIDC obtained seeds with POPs it makes it easier to provide accurate information to farmers. • Farmers also chose the varieties that were easy to produce and BAIDC distributed seeds with POPs. • BAIDC members can consult the KVK on crops they have no experience of growing. Alternatively, they can seek out villages and farmers as good models of agricultural management and facilitate farmer-to-farmer extension activities. • Interviews were conducted with traders who have been dealing with Mizoram agricultural products for decades and their information was utilized in extension activities.
	<p>In Mizoram, there were no registered varieties of rice preferred by farmers. Many of the rice varieties that farmers are cultivating were unknown. Therefore, it makes it difficult to provide accurate technical information/guidance to the farmers.</p>	<ul style="list-style-type: none"> • The ICAR and the Agricultural University in Manipur were consulted to select several varieties preferred by the Mizoram people that have good yields, and purchased seeds paddy. Then, in cooperation with the DOA, the project was carried out for trial cultivation and seed paddy production, and distributed to the other villages as well. As a result, Buhchangphai also selected Japonica rice.
Issues related to landowners and tenant farmers	<ul style="list-style-type: none"> • In Buhchangphai, landowners used Assamese tenants to grow rice. However, the output results for DOA inputs were very small because the tenant did not receive any training and inputs. • Rabi (winter) season cropping in paddy fields was practiced only by the tenants. 	<ul style="list-style-type: none"> • In the first year, practical training in rice cultivation was provided to landowners on small plots of land. The opinion of the BAIDC and PMT is that the landowners should have a practical knowledge of rice cultivation and the use of irrigation facilities. • In the second year, discussions were held with the DOA and PMT on improving agricultural productivity in the area by giving training and agricultural materials to tenant farmers, under the control of the landowners. As a result, training was provided to both landowners and tenants, and pesticides and fertilizers were distributed to the tenant farmers.

Challenge Faced	Description of Challenge	Countermeasures Taken by the Project
		<ul style="list-style-type: none"> • Rabi (winter) season cultivation in paddy fields was introduced with rapeseed of Sailam, but the landowners failed to cultivate it, and it was later changed to Rajma (red kidney bean) cultivation, which is a favorite of the tenants, and started to be implemented on a larger scale. • The BAIDC explained to the farmers in Chemphai the relationship and problems of tenants and landowners in Buhchangphai. It then aimed for a new (co-existing) relationship between tenants and landowners in the Chemphai area in the 2nd pilot. • A university-educated farmer led a loose-knit group of Mizo farmers and young Assamese agricultural laborers, and this leader started to provide guidance on cultivation. The IWRD, DOA, and DOH provided support to these activities. • In Buhchangphai, BAIDC recommended training for tenants, etc., while in Chemphai, BAIDC set out specific issues and the farmers voluntarily advanced better methods by themselves. The farmers taking spontaneous action seems to have increased.
Market disruption due to COVID-19	<ul style="list-style-type: none"> • In the Chemphai area of the 2nd pilot village, the market disruption caused by the COVID-19 pandemic made it difficult to select cash crops for Rabi season (winter) cultivation. 	<ul style="list-style-type: none"> • The BAIDC provided assistance to one farmer's proposal to cultivate watermelons, which resulted in sales of approximately INR 140,000. In the second year, farmers from neighboring villages requested the DOH to provide training in watermelon cultivation. However, watermelons from Myanmar also started coming in and the training was carried out with a limited number of farmers. • In 2022, Chemphai farmers conducted a melon cultivation trial that did not compete with Myanmar produce. They stated that the ultimate objective is to grow muskmelons. • In addition, the group started growing Rajma (red kidney bean), which can also be sold to Assam for winter crops, and tomato cultivation. In the past, winter cultivation in paddy fields was carried out by DOAs, but the DOH is now also actively involved, depending on the crops decided by the farmers. • The BAIDC selected the Chemphai area, where there are farmers who are keen on agriculture, and the four departments jointly implemented paddy and field development, rehabilitation of irrigation facilities, and flood erosion control in a way that was visible (and easy to understand) to farmers. The activities were highly sustainable by solving problems that the farmers wanted and stimulated stronger spontaneous action.

Source: JPT

3.2 Lessons Learned

Lessons learned through the Project are as follows.

3.2.1 Lessons Learned in Implementation of Overall Project

(1) Validation of Implementation System

One of the outputs of this project is the establishment of a collaborative implementation framework among the four departments. Before commencement of the project, since the directors of the four departments were at the same rank in the government, it was rare for all four directors to meet together. Although the Chief Engineer of the Irrigation and Water Resources Department was appointed as the Project Director, he had some difficulties calling for a meeting with the other three directors. However, after starting the discussion on the institutionalization and internalization of the practical collaborative implementation framework, the Secretary, who is the higher-ranking officer, called for the meetings in many cases. Opportunities for the four directors to participate in the meeting increased. Under these

circumstances, it is believed that a system should have been created from the beginning of the project to enable working-level consultations at the Secretary I or ministerial level.

(2) Effective Utilization of Training in Japan

In this project, a total of three training programs in Japan were planned, and two had been carried out. With the Tokushima Prefecture Government and the Tsurugi Town Hall serving as hosts, information and opinions were exchanged between the prefectural officers and the counter parts, which are in-charge of the same local administration, to promote understanding of the importance and validity of project purposes. The participants learned a lot from Tokushima Prefecture government officials, such as the establishment of the BAIDC, the operation of the BAIDC plan, and the staff's attitude to farmers in agriculture extension work. In addition, the participants of the training exchanged opinions during the two-week training period. The participants were allocated well-balanced personnel, including director-level and deputy director-level personnel of the four departments. As a result, collaboration among the four departments increased.

Training in Japan is a tool for technology transfer in a JICA project. It was effective to promote the awareness of the project outline and background idea and fostering trust between Japanese experts and counterparts.

(3) Effective Utilization of National Staff and Local Experts

In this project, the national staff played an important role. The first point is to explain the project details in the local language to counterparts who are accustomed to the operation of CSS, and to promote understanding of the role of counterparts. Although the counterparts changed frequently due to the administrative transfer, every time a new person was appointed, they gave a polite explanation. Secondly, when implementing the BAIDC plan in the field, they gave reminders, consultations on implementation, and advices. These were effective during the period when Japanese experts were unable to travel during the COVID-19 pandemic. In addition, the Project received support from professors and associate professors of Mizoram University as resource persons. The JPT received advice from them in advance when making some proposals to counterparts. These resource personnel encouraged counterparts in several aspects to achieve the project outcomes in PMT meetings.

(4) Use of Digital Technology

Due to the COVID-19 pandemic, remote meetings and information exchange using digital technology have become more common. In Mizoram, information was exchanged using WhatsApp among the government officials (BAIDC, PMT) and between the government officials and farmers. A number of staff distribute technical dissemination materials and exchange data such as pest and diseases control on crop with farmers. In addition, the project introduced the Management Information System (MIS), into the JIFAS monitoring system so that counterparts could efficiently monitor the activities of the 28 BAIDC offices. When developing similar projects in the future, it is desirable to formulate a project implementation policy that considers the maximum use of these digital technologies.

3.2.2 Lessons Learned in Implementing Minor Irrigation Projects

- When implementing a minor irrigation project in a mountainous area, it is necessary to consider its specificity (access to the mountainous area, available materials, equipment, etc.).
- In formulating the plan, it is necessary to provide sufficient explanations and discussions with the beneficiary residents, and conduct efficient surveys to draw out the information that the residents have.
- Temporary roads should be planned not only as approach roads, but also in consideration of future functions as farm roads and village roads, and should be planned in cooperation with the farm road plans of related departments such as the Rural Development Department.
- At the start of construction, it is necessary to conduct a joint site reconnaissance to confirm and discuss the canal route, the location of structures, and the necessity of the land acquisition. During the construction period, there were cases where it was difficult for government officials to visit the site due to poor access. Regarding progress control, it is necessary to proceed with the help

of the beneficiaries. For this reason, it is important to hold regular progress meetings on the construction supervision in general, including construction progress. It is necessary to consider documenting the matters to be discussed and decisions made in the form of minutes and periodic reports, etc. and distributing them to the relevant parties. In progress control, it is important to visualize delays in construction using monitoring sheets, bar charts, S-curves, etc., so that all stakeholders have a common understanding of the delays and take necessary measures to catch up on the delays.

- When planning and designing facilities, it is necessary to consider the future water management and O&M, and reflect the intentions and wishes of farmers. At the initial stage of planning, it is necessary to involve farmers and raise awareness for better maintenance after the completion of construction.
- It is important to avoid splitting or downsizing the contract package more than necessary, and to determine the appropriate construction scale after ascertaining the execution capability of the contractors. Depending on the scale and contents of the construction, community contracts with the WUAs should also be considered. Depending on the content and scale of the work, the construction work carried out by the WUAs is comparable to that of general contractors, and they have a sense of ownership as future users of the facilities, and are highly conscious of the quality and construction schedule. It is important to evaluate the capabilities of the contractors after the project is implemented, based on which a database of the capabilities of the contractors should be created.
- It is important to be fully aware that delays in payment to contractors will affect the progress of construction, and to routinize the series of work for payments and to perform them appropriately. When preparing bidding documents and contract conditions, it is necessary to consider the contractor's cash flow and determine appropriate payment timing and conditions.
- When implementing a project in rural areas or existing irrigated areas, the actual situation of agricultural production activities in the target area should be ascertained at the time of project planning. The plan should be adapted to the current situation and should not impede current agricultural activities. It is also necessary for project proponents to change their awareness of ownership and a sense of responsibility for meeting construction schedules.

3.2.3 Lessons Learned in Implementing Agriculture Extension Activities

- The JPMC in Sailam was established based on frank opinions from the representatives of the village and farmers. The JPMC considered the horizontal agricultural extension in the village and recommended pilot farmers who were suitable. The problem for the villagers was that they did not know what was being done by which department and for whom. This was the response from the villagers to the question of how the JICA project should proceed. The JPT visited Sailam several times with officials from the DAO to obtain their opinions. Rather than sticking only to the theory and skills required to implement a bottom-up or participatory approach, the most important thing is to hold sufficient discussions until all the villagers can come up with an opinion that they can agree with when starting an activity. Agricultural extension is usually carried out using a top-down approach in Mizoram. However, it is fundamental and should be practiced to discuss before taking action and to start after all the participants agree.
- Since the capacities of extension officers/BAIDC members in Mizoram are still not sufficient, it will take several years to improve their overall capacities through training. Therefore, it is necessary to establish a support environment for extension officers so that they can disseminate proper knowledge and techniques to the farmers. Many paddy farmers in Mizoram grow rice of good taste but of unknown cultivar characteristics obtained from neighbouring states and regions. Therefore, BAIDC and JPT decided to introduce rice varieties registered with the government that have the same quality as the rice demanded by farmers. Since POPs (cultivation manuals) for registered rice varieties have been published, extension officers can accurately disseminate the characteristics and cultivation methods of these varieties to farmers. If it takes time to strengthen the capacity of extension officers, it is necessary to improve extension services to the farmers by creating an extension package that complements their implementation capacity and

improving the support environment for extension. Obviously, regular training and study tour for the extension officers are required.

- The BAIDC members in Bilkhawthir RD block selected the Chemphai area by themselves, and PMT positively approved the reason for the selection and the extension method. The basic approach of BAIDC is i) to support the area where there are motivated farmers, ii) to jointly carry out activities by the four departments in the same area in a manner visible to farmers, and iii) to respond to farmers' issues. The BAIDC members considered ways to work jointly with the four departments, shared the results among members, and PMT left the decision to the BAIDC to select an area and conduct extension activities. As a result, BAIDC's motivation increased even further. Although flood countermeasures by the Land Resources, Soil, and Water Conservation Department were partially unsuccessful, the BAIDC activities were highly evaluated by the farmers. In Chemphai area, BAIDC's motivation had a positive impact on the farmers and activated their activities. A university graduate farmer (57 years old) with knowledge and skills in cultivation, organizational management, marketing, effective use of irrigation facilities, etc., has the ability to lead a group and guide young people including workers from Assam on an equal footing. This was also a major factor in the success of the activity. When the farmers' satisfaction level is high, the satisfaction level of BAIDC is also relatively high, which provides great motivation to promote extension activities. Such an extension style will lead a sustainable agriculture development or an extension service unique to Mizoram.

Chapter 4 ACHIEVEMENT OF PROJECT PURPOSE

As shown in Section 2.22.6 of the "Endline Survey", as of November 2021, the indicators for the three outputs of the Project had been achieved. Although some indicators of the project purpose were not achieved at the time of the endline survey due to the spread of coronavirus disease (COVID-19), these were done during the extension period of the Project.

4.1 Achievement of Output 1: Methods for Sustainable Agriculture and Irrigation Development are Developed.

Output 1 was achieved since all five indicators exceeded the target as shown below.

- **Indicator 1-1: Production of food crop is increased by 12.5% for pilot farmers in the first pilot villages.**

As shown in Table 4.1.1 below, the achieved average yield in three years for 12 WRC pilot famers in the three villages is 4.5 t/ha, which is 60% higher than the productivity of controlled farmers' average of 2.8 t/ha. Thus, indicator 1-1 has been achieved.

Table 4.1.1 Rice Production in WRC in the 1st Pilot Villages

Year	Pilot Farmers		Controlled Farmers	
	No. of Cases	Average Yield (t/ha)	No. of Cases	Average Yield (t/ha)
2018-19	11	4.3	12	2.7
2019-20	12	5.0	12	2.8
2020-21	12	4.1	12	2.8
Average of 3 years		4.5		2.8

Source: Endline Survey Report 2022

- **Indicator 1-2: Farm income of pilot farmers from cash crop is increased by 12.5% (excluding orchard or plantation farmers) in the first pilot villages.**

As shown in Table 4.1.2 below, the average income of the pilot farmers in three years from cash crops is at 37% higher than that of the controlled farmers.

Table 4.1.2 Annual Income from Cash Crops in the 1st Pilot Villages

	2018-19		2019-20		2020-21		3 Years Average	
	Controlled	Pilot	Controlled	Pilot	Controlled	Pilot	Controlled	Pilot
Annual income by cash crops (INR)	104,050	203,650	95,550	103,150	67,150	57,500	88,917	121,433
Difference	96%		8%		-14%		37%	

<Note> Cash crops: Broom, Sweet Corn, French Bean, Tomato, Mizo Chili, Mustard Leaf, Mock Tomato, Chana, Potatoes, Cowpea Leaf
Source : Endline Survey Report 2022

- **Indicator 1-3: Half of the technologies practiced with the pilot farmers are disseminated to other farmers in the first pilot villages.**

As shown in Table 4.1.3 below, 14 out of the total 21 technologies for cultivation were disseminated to other farmers. The dissemination rate is 67%.

Table 4.1.3 List of Cultivation Technology Introduced in the 1st Pilot Villages

ID	Activity	Technology	Dissemination to Other farmers
HN-03	Improvement of WRC area productivity	Nursery management (shifting from <i>Jhum</i> type nursery) Line transplanting Weeding at the proper time	Yes Yes Yes
HN-02	Promotion of vegetable cultivation in grape fields	Selection of marketable vegetable Raising of vegetable seedlings Proper fertilizer application	No No No
BU-03	Improvement of WRC area productivity	Nursery management Line transplanting Weeding at the proper time	No No No
BU-01	Improvement of arecanut productivity	Nursery preparation for raising healthy arecanut seedlings Inter crop cultivation (banana) Construction of half-moon terrace	Yes Yes Yes
BU-02	Improvement of Broom Grass productivity	Selection of <i>Phiahpui</i> variety to meet a market need Proper time of harvesting to sell Grade 1 quality products Contour line planting	Yes Yes No
SA-04	Improvement of WRC area productivity	Nursery management Line transplanting Weeding at the proper time	Yes Yes Yes
SA-03	Improvement of orange productivity	Pruning and training Construction of half-moon terrace INM and IPM	Yes Yes Yes

Source : Endline Survey Report 2022

As shown in Table 4.1.4 below, among the 42 key technologies (14 technologies/village) transferred to the Water User Association (WUA), 26 key technologies achieved at least 75% of their planned targets, indicating that the technologies are being adopted and utilized.

Table 4.1.4 List of Technology on Water Management Introduced in the 1st Pilot Villages

WUA	Activity	Key technology	Achievement
Laului MIP, Water User Association – Sailam	Water User Association (WUA)	Establishment and registration of WUA	100%
		Awareness of the role and responsibilities of WUA	75%
		Financial management and book keeping	100%
	Community managed construction work	Management of manpower, machinery, and material supply Quality control of construction works Monitoring and recording of the works Financial management and book keeping	75% 100% 100% 100%
Operation of irrigation facilities	Water distribution plan Normal operation and emergency measures Water management at the on-farm level Measurement and recording	50%	
		75%	
		75%	
		50%	
Maintenance for irrigation system	Preparation of maintenance plan Maintenance activities, cleaning, and repair works Collection of water fee and budget allocation	50%	
		75%	
		50%	
		50%	
Tuikhurlui MIP, Water User Association – Buhchangphai	Water User Association (WUA)	Establishment and registration of WUA	100%
		Awareness of the role and responsibilities of WUA	100%
		Financial management and book keeping	100%
	Community managed construction work	Management of manpower, machinery, and material supply Quality control of construction works Monitoring and recording of the works Financial management and book keeping	50% 75% 75% 75%
Operation of irrigation facilities	Water distribution plan Normal operation and emergency measures Water management at the on-farm level Measurement and recording	75%	
		50%	
		75%	
		50%	
Maintenance for irrigation system	Preparation of maintenance plan Maintenance activities, cleaning, and repair works Collection of water fee and budget allocation	75%	
		75%	
		50%	
		50%	
Dilhnuai, Water User Association – Hnahlan	Water User Association (WUA)	Establishment and registration of WUA	100%
		Awareness of the role and responsibilities of WUA	75%
		Financial management and book keeping	100%

Community Managed Construction Work	Management of manpower, machinery, and material supply	75%
	Quality control of construction works	50%
	Monitoring and recording of the works	50%
Operation of Irrigation Facilities	Financial management and book keeping	50%
	Water distribution plan	75%
	Normal operation and emergency measures	50%
	Water management at the on-farm level	75%
Maintenance for irrigation system	Measurement and recording	25%
	Preparation of maintenance plan	50%
	Maintenance activities, cleaning, and repair works	50%
	Collection of water fee and budget allocation	25%

Source : Endline Survey Report 2022

- Indicator 1-4: More than 80% of the village plan is implemented in the first pilot villages.**

As shown in Table 4.1.5 below, out of 82 activities in the following up on the 1st pilot projects, 79 activities (96%) were implemented as planned.

Table 4.1.5 Seven Implemented Activities Following up on the 1st Pilot Projects

ID	Pilot project	Planned activities	Implemented	Activities not implemented
HN-02	Promotion of vegetable cultivation in the grape field	11	10	Field Investigation, topographic survey, and construction
HN-04	Improvement of WRC area productivity	15	15	
SA-03	Improvement of orange productivity	7	7	
SA-05	Improvement of WRC area productivity	15	15	
BU-01	Improvement of arecanut productivity	7	6	Evaluation
BU-02	Improvement of broom grass productivity	9	9	
BU-03	Improvement of WRC area productivity	18	17	Development of strategy
Total		82	79	

Source : Endline Survey Report 2022

- Indicator 1-5: Activities commenced based on the BAIDC annual plan in the second stage pilot villages by utilizing the budget of the Indian Central/Mizoram government.**

As shown in Table 4.1.6 below, 77 activities under 11 pilot projects were implemented by BAIDC in the 2nd pilot villages with funding support from the state and central government.

Table 4.1.6 Implemented Activities in the 2nd Pilot Projects

ID	Pilot project	Planned	Done
BN-01	Increase production of paddy and productivity of WRC area	15	15
BN-02	Improvement of vegetables productivity	7	7
BN-03	To control and reduce stream bank erosion and protect the cropland from huge loss of fertile soil	5	4
BN-04	Rehabilitation and extension of Lungzawn M.I Project	6	6
LC-01	Achieve sustainable vegetable cultivation	10	9
LC-02	Enhance paddy production	8	6
LC-03	Promote <i>Rabi</i> crops	6	1
TL-01	Increase vegetable production in <i>Kharif</i>	13	10
TL-02	Promotion of vegetables cultivation in <i>Rabi</i>	7	7
TL-03	Improvement of WRC area productivity	9	7
TL-04	Introduction of <i>Rabi</i> crops	9	5
計		95	77

Source : Endline Survey Report 2022

4.2 Achievement of Output 2: Capacity of the State Government Officials in Planning and Implementation of Sustainable Agriculture and Irrigation Development is Enhanced

Output 2 was achieved since both indicators exceeded the target as shown below.

- **Indicator 2-1: More than 60% of the nominated counterparts achieved their set goal.**

As shown in Table 4.2.1 below, comparing the self-rating scores between 2017 and 2021, 80% of the PMT members increased their skills level and 100% of BAIDC member acquired some knowledge to improve their services.

Table 4.2.1 Technical and Management Skills Acquired by Nominated Counterparts

Major Skill Test Parameters	PMT Members					BAIDC Members				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
A. Officers from DOA, DOH, and LRSWCD										
Extension of farm management skills	3.43	3.48	3.91	4.09	4.13	2.56	2.58	3.02	3.23	3.24
Extension of cultivation skills	3.59	3.65	4.12	4.28	4.48	3.09	3.10	3.63	3.86	3.87
Extension of soil management	3.12	3.24	3.62	3.88	4.05	3.38	3.39	3.73	4.33	4.33
Irrigation	3.00	3.08	3.58	3.83	4.00	2.84	2.84	3.16	3.72	3.72
Capacity development of farmers' organizations	2.92	3.00	3.28	3.44	3.56	3.07	3.13	3.43	4.07	4.07
Overall management	2.87	2.94	3.32	3.49	3.53	2.60	2.65	3.00	3.49	3.49
B. Officers from IWRD										
Survey and investigation	2.25	2.47	3.06	3.16	3.16	2.89	2.89	3.68	3.72	3.69
Planning	2.57	2.67	3.43	3.71	3.71	2.85	2.88	3.48	3.48	3.48
Design	2.98	3.04	3.64	3.89	4.44	2.96	2.96	3.90	3.80	3.81
Tendering	3.22	3.22	3.89	3.89	5.94	3.38	3.38	4.36	4.36	4.36
Construction management	3.04	3.17	3.79	4.08	10.63	3.11	3.13	4.81	4.06	4.09
Operation and maintenance	3.00	3.18	3.82	4.18	4.18	3.19	3.19	4.19	4.19	4.19
Others	3.67	3.67	4.00	4.33	4.33	2.67	2.67	3.67	3.67	3.67

Source : Endline Survey Report 2022

- **Indicator 2-2: More than 50% of BAIDC and PMT members acquire necessary skills for the implementation of sustainable agriculture and irrigation development.**

As shown in Table 4.2.2 below, 88.9% of BAIDC and PMT members understand more than 50% of the contents of the Officers' Manual for Improving Agriculture Extension developed through project activities.

Table 4.2.2 Online Test Result on Comprehension Test of Officers' Manual for Improving Agriculture Extension

Test Parameters	N	Mean	Min.	Max
Making Cropping Calendar	18	78.5	46	93
Conduct of Training	18	71.67	20	100
Preparation of Extension Materials	18	71.39	60	82
Establishment of Trial/Demonstration Plot	18	90	40	100
Field Visit	18	47.17	32	49
Total Score	18	358.72	247	409
Distribution of Marks Obtained (% of respondents)	Total	Mark Range (%)		
		<50%	50-75%	75%<
Making Cropping Calendar	100	5.6	22.2	72.2
Conduct of Training	100	11.1	27.8	61.1
Preparation of Extension Materials	100	0.0	100	0.0
Establishment of Trial/Demonstration Plot	100	5.6	0.0	94.4
Field Visit	100	100	0.0	0.0
Overall Score	100	11.1	88.9	0.0

Source : Endline Survey Report 2022

The online test results for the comprehension test of the Officers' Manual for Construction Management are presented in Table 5.10. The marks obtained by the respondent in each major section are also presented. The average of the total marks (from all questions) is 45.59 which is 94.9% of the full mark (48).

Table 4.2.3 Online Test Result on Comprehension Test of Officers' Manual for Construction Management

Test Parameters	N	Mean	Min.	Max
Before Construction	15	13.46	8	14
Construction supervision	15	23.2	16	24
Handing over and follow up	15	8.93	4	10
Total Score	15	45.59	32	48
Distribution of Marks Obtained (% of respondents)	Total	Mark Range (%)		
		<50%	50-75%	75%<
Before Construction	48	0.0	6.6	93.3
Construction supervision	48	0.0	6.6	93.3
Handing over and follow up	48	6.6	0.0	93.3
Overall Score	48	0.0	7.1	93.3

Source : Endline Survey Report 2022

Table 4.2.4 Online Test Result on Comprehension Test of Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme

Test Parameters	N	Mean	Min.	Max
Water Users' Association (WUA)	15	9.33	6	10
Operation of irrigation facilities	15	17.73	14	20
Maintenance of irrigation facilities	15	13.46	8	18
Total Score	15	40.52	28	48
Distribution of Marks Obtained (% of respondents)	Total	Mark Range (%)		
		<50%	50-75%	75%<
Water Users' Association (WUA)	48	0	3	12
Operation of irrigation facilities	48	0	0	15
Maintenance of irrigation facilities	48	2	0	13
Overall Score	48	0	13.3	86.6

Source : Endline Survey Report 2022

The lower panel of Table 4.2.3 presents the detailed distribution of mark scores by the respondents in three marks ranges, viz. below 50%, 50-75%, and 75% and <. Overall, significant success of the counterparts to achieve the target of acquiring necessary skills could be seen from the mark distribution. None of the respondents score less than 50% of the total marks, and more than 90% of them scored more than 75% of the total marks.

Table 4.2.4 presents the online test result on the Officers' Manual for Strengthening of WUA for O&M of Irrigation Scheme. While the full mark for this test is 48, the average marks obtained by the counterparts turn out to be 40.52 (i.e., 84%). This is justified by the distribution of counterparts over three-mark ranges (<50%, 50-75%, and 75 and<), which shows that about 90% of the respondents score more than 75% of the total marks. The respondents are also showing uniform and good performances in the sub-section of the test questions.

The two online test results - on comprehension test of the construction management manual and the O&M manual, showed that around 90% (88.9%) of the sample BAIDC and PMT members get more than 75% of the total marks on the test. This clearly revealed the gaining of necessary skills by the members after the implementation of TCP in Mizoram. It may, therefore, be concluded that more than 80% of BAIDC and PMT members acquired the necessary skills for the implementation of a minor irrigation project. As shown in table below, 77.8% of BAIDC and PMT members understand more than 75% of the contents of the operational guideline.

Table 4.2.5 Online Test Results on Operational Guidelines

Test Parameters	N	Mean	Min.	Max
General Question	18	16.89	0	22
Compile Village Based Information	18	11.11	6	14
Conduct Awareness Meeting on Sustainable Land Use and Resource Management	18	6.11	3	7
Discuss Village Agriculture Development Vision	18	14.11	2	16
Prepare BAIDC Annual Activity Plan	18	11	4	12
Approve BAIDC Annual Activity Plan by Higher Authority and Issue Official Order	18	3.56	2	4
Meeting with Farmers Group for Explanation of Approved BAIDC Annual Activity Plan	18	7.67	2	10
Monitoring and Evaluation	18		4	12
Total Score	18	10.33	29	97
		82.33		
Distribution of Total Scores	Mark (%)	<50%	50-75%	75%<
	% of resp.	11.1	11.1	77.8

Source : Endline Survey Report 2022

4.3 Achievement of Output 3: Collaborative Implementation Framework Among the State Government Departments in the Field of Sustainable Agriculture and Irrigation Development is Established.

- **Indicator 3-1: Action plan to expand the project output to all RD blocks in Mizoram is prepared by the PMT.**

An action plan was prepared by PMT and approved at JCC. Therefore, this indicator was achieved.

4.4 Achievement of Project Purpose: Organizational Capacity of the Government of Mizoram to Promote Sustainable Agriculture and Irrigation Development is Enhanced.

The project purpose has been achieved since all the indicators were on target as described in Indicators 1 to 3 below.

- **Indicator 1: The methods are approved by JCC and officialized.**

The operational guidelines for JIFAS has been officially approved from Government of Mizoram and have obtained approval from the Chief Minister. In addition, BAIDC for executing JIFAS, Inter Departmental Committee (IDC), and the State Level Coordination Committee (SLCC) were officially established.

- **Indicator 2: At least two activities based on the collaborative implementation framework in each block are implemented by BAIDC in the 2nd pilot project.**

As mentioned in the above 4.1 indicators 1-5, in the three villages of the 2nd pilot, 77 activities were implemented out of 95 activities planned under 11 BAIDC Annual Activity Plan with the Union Government or Mizoram Government fund.

- **Indicator 3: Action plan to expand the project output to all RD blocks and the methods are endorsed by the Chief Minister.**

On February 17, 2023, formal approval for implementation and deployment of JIFAS was obtained from the Chief Minister. The Mizoram Agriculture and Irrigation Development Agency (MAIDA) chaired by the Chief Minister has been launched, and MAIDA will monitor the JIFAS implementation and deployment from the minister level.

Chapter 5 RECOMMENDATIONS FOR ACHIEVING THE OVERALL GOAL

The overall goal of the Project is “to expand the sustainable agriculture and irrigation development in Mizoram” and its indicator is the "commencement of the projects for sustainable agriculture and irrigation development in more than four blocks in Mizoram.” The recommendations for achieving the overall goal are described below.

5.1 Recommendations for Implementation

As mentioned in Chapter 2, to smoothly and efficiently expand the JICA Sustainable Farming System (JIFAS) to all over the state, an operational guideline and officers' manuals were created, an implementation system was established, and an action plan was drawn up during the project implementation period. In order to achieve the overall goal, it is necessary to ensure the utilization and operation of these guideline/manuals, system, and plan after the end of the Project.

5.1.1 Reliable Operation of JIFAS in Accordance with the Action Plan and Operational Guideline

In order to implement sustainable agriculture and irrigation development properly and effectively in the four RD blocks and all 28 blocks in Mizoram, it is required to steadily implement JIFAS throughout the state in accordance with the action plan and the operational guideline. It is especially necessary to operate JIFAS with particular attention to the following points:

- The Inter Departmental Committee (IDC) and State Level Coordination Committee (SLCC) should constantly grasp the implementation status of the action plan for expanding JIFAS throughout the state and should immediately take necessary actions in the case of delays in progress or other problems.
- Once the BAIDC annual action plan is approved, each department should promptly secure a sufficient budget based on the plan and implement it appropriately.
- The approved BAIDC annual activity plan should immediately be registered in the monitoring system (MIS_JIFAS) that utilizes digital technology, and the monitoring results of BAIDC activities should properly be inputted. The IDC and SLCC should share the progress of monitoring regularly among members to ensure accuracy.
- Although JIFAS will be operated in accordance with the operational guideline, it will be possible for unforeseen problems and new challenges to arise during the expansion of JIFAS. The IDC and SLCC should conduct annual evaluation of JIFAS effectiveness and revise the operational guideline as necessary.
- For the proper expansion of JIFAS, it is desirable to employ at least one full-time staff to operate JIFAS.

5.1.2 Continuous Capacity Building by SAMETI

In order for JIFAS to properly operate, BAIDC members and other state government officials should fully understand JIFAS and provide appropriate extension services based on the BAIDC annual activity plan. Therefore, it is required to continuously strengthen the capabilities of the officials by emphasizing the following points:

- In collaboration with State Agricultural Management and Extension Training Institute (SAMETI), the IDC should regularly provide training opportunities for BAIDC members to enhance their knowledge of the JIFAS operational guideline and to teach them of any revisions of the guideline.
- Trainings on the JIFAS implementation capacity building was held at SAMETI for all BAIDC members from July to September 2022. This training should be continued for new officials as well.

5.1.3 Strengthening of Implementation Structure

As mentioned in Section 2.20.3, JCC adopted Plan-B for the JIFAS implementation structure to kick-off. Meanwhile, as decided at the JCC meeting, when the JIFAS matures to enhance the system effectiveness, the structure will be developed into Plan-A, which is a more ideal initial plan, and other departments like the

Sericulture Department, Fishery Department, and Veterinary Department will be added in the structure to strengthen the system that will cover the entire agricultural and rural development of Mizoram.

5.1.4 Promotion of Agriculture Development in Mizoram Based on the Vision and Master Plan

This Project aims to develop the capacities of the state government for agriculture and irrigation development in accordance with the “Mizoram Agriculture and Irrigation Development Vision 2035” and the “Master Plan for Land and Water Resources Development and Management for Sustainable Agriculture” formulated in 2015. Therefore, JIFAS should be expanded in this context and the BAIDC action plan should be prepared embodying the vision and master plan. The vision was also taken up as one of the lectures in the training at SAMETI in 2022 mentioned above, and each BAIDC summarized the development direction in line with the vision. It is required to continue this type of training. In addition, the IDC and SLCC should review and approve the BAIDC annual activity plan, considering its consistency with the vision.

5.1.5 Measure to Address the Shortage of Funds and Human Resources

Even during the implementation of the pilot activities, there were cases where activities could not be implemented as planned due to shortage of funds and human resources at both state and RD block levels. It is thought that these problems will not be dispelled even after the end of the Project. As mentioned in Section 5.1.1, once the BAIDC annual activity plan is approved, it is necessary to secure a sufficient budget without fail. Meanwhile, it is also required to implement the agriculture development effectively and efficiently under the given conditions of funds and staff. Since BAIDC is an excellent system that can provide more efficient and effective government services at the RD block level through collaboration among departments under the given conditions of each department, it should also be effectively operated to address the shortage of funds and human resources.

5.2 Recommendations for Agriculture Extension Services

For the successful expansion of JIFAS throughout the state, it is essential that extension activities by BAIDC have a positive impact on the beneficiaries by increasing agriculture production and improving farmers' income. During the project implementation, the JICA Project Team (JPT) encountered various problems at the fields of the pilot activities and learned many lessons. To contribute not only to the JIFAS expansion but also to the agriculture development in Mizoram in the future, the following recommendations are made based on deeply digging up the experiences related to the agriculture extension activities and extracting the issues.

5.2.1 Deployment of Extension Activities by a Method, and Formulation of a System and a Structure to Reinforce/Support it

The methods were to make a study on and confirm BAIDC's capability, the corresponding capacity of each department, the number of officers, the operation conditions of the CSS, etc., during the pilot project period, and simplify a part for BAIDC to be able to use. The sustainable agriculture development was aimed by changing the activities in a top-down approach to a bottom-up approach.

The pilot project was started in four districts from 2018, and the activities had been continued finally in six villages in three blocks in three districts. From March 2020, the Japanese experts were not able to come to the site for nearly two years, and it became possible for them to visit for only a week in December 2021. At the site, although they could not visit the fields fully due to the confines of the state government and the district authorities, more than 80% of the annual activity plans were carried out using smartphones and the WhatsApp application. The various activities for the final stage of the Project with the Japanese experts such as the capacity strengthening activities of the BAIDC in the fields and the adequate discussions and the general review of the activities by facing farmers and at the session of the stakeholders were not conducted due to the COVID-19 pandemic.

Meanwhile, many officers in the four departments who were recruited at the period when the Mizoram became an autonomous state, came to the age of retirement. Accordingly, it was easy in recent years to notice the deflection of age composition and decrease of officers in the departments. The countermeasure to this agenda would be after the state council election scheduled in 2023. After explaining in the PMT meeting to carry out monitoring by the external experts from the academics, NGO, banks etc., providing technical assistances and various trainings to the BAIDC, and preparing various arrangements the JPT considers the high necessity of a technical support to the BAIDC even after the Project. However, it came to a decision in 2022 that budgets for payments to the experts could not be secured. As an alternative, the availability of

regular trainings to the BAIDC members by the SAMETI and contents of the trainings as well as the design of the implementation plan were proposed to the PMT and were approved. Further, the official document which could make the regular trainings to the BAIDC by the SAMETI continuously, was released to the state government and the SAMETI. Further, the SAMETI expressed that it was possible for the external experts to attend for the trainings as instructors. Also, the external experts had been conducting through the project implementation to the officers of the four departments and the BAIDC, the seminars on sustainable agriculture development, the trainings on organizing farmers for irrigation associations and registration method of the association, operation and management method of organization, accounting methods, etc. Accordingly, it was also possible to consult with the external experts for the practical cases.

As to the lessons and suggestions for future activities, the following particulars should be shared with the four departments and personnel relevant to the Project.

- The Package of Practice (POP): cultivation manual/guide of each variety of crops is available in the KVK, the agriculture related departments, the research center and a part of them also could be searched through the internet. It is also possible that the farmers could directly download the materials written in Mizo language prepared by the Mizoram KVK and utilize it. However, the quantum is very small compared with other states. In the future, in the viewpoints of the BAIDC environment and improving the extension activities of each department and supporting the IDC, it is necessary to fulfil the available POP written in Mizo language. In this regard, the POP written in Mizo language at present is listed in the bottom note of Chapter 2 BN-01.
- Since this Project commenced, the possession of smartphones by farmers had increased, the Project regularly confirmed the growing conditions of the paddy by utilizing the WhatsApp application with the farmers to make a habit of consciously recording. This method was helpful to understand the growing conditions of the paddy even in the COVID-19 pandemic. In addition, a part of the research on the rapeseed cultivation and its yield was carried out online, the results were much better than expected. Since the activities conducted with the farmers online were coordinated and expanded, it was well understood that the formulation and strengthening of effective extension activities could be implemented, including the POP as discussed in the preceding section. The system would be considered as an efficient countermeasure to resolve the agenda for the shortage of staff. Further, an implementation of basic agriculture education programs and an introduction of a model farmer and a farmers' organization in YouTube and TV are also expected to bring forward an effect of an extension impact from farmers to farmers.
- In SAMETI there are correspondence courses for the graduates, but confirming the students who take the courses, almost all students were casual employees, but no regular employees. In the project, although core training officers were being strengthened as the back-up staff, in the future, it would be possible to upgrade the capacity of the staff by utilizing online education. Since the reasons of not participating in the courses are that there were no opportunities for a career advancement, no increase in pay even if attending the courses, and too busy for the present works, each department should take some countermeasures as one organization.
- A response was indicated that the trainings of the BAIDC members by the SAMETI was not possible from the PMT conference. Later, there was a response that the trainings could be possible after proposing and discussing a concrete implementation method with the SAMETI. In fact, all existing organizations and functions of the four departments would be verified by having an effective agriculture development and boosting of extension activities, and by considering efficient activities and utilization methods, specific measures to complement and support the IDC/BAIDC members are to be clarified. It was understood that an improvement of agriculture productivities was implemented efficiently and effectively and the path to achieve the objective raised by the state government would materialize.

5.2.2 Measures to Raise Farmers' Will to Produce Agriculture Extension Activities: Reducing a Degree of Dependence on the *Jhum* Cultivation by Transforming from Self-sufficient Cultivation to Commercial Cultivation

In Chapter 2, it was explained that the functions of *Jhum* farming are: i) a vegetable supply of the surplus production to villagers who are living away from the vegetables and fruits market and ii) if a farmer whose yield and earnings of products were drastically reduced like the orange farmers or a farmer would have no income due to any reason, and they are the 'common' functions of the *Jhum* farming on which the farmers

used to depend on their foods and incomes because they could not work. Therefore, the reduction of the *Jhum* farming should be conducted in a careful manner on the viewpoint of dependency ratio of the village people and social functions.

Permanent crop cultivation would become the settled agriculture to replace *Jhum* farming. However, it was clarified through the pilot activities that if farmers could not cater to a household economy by settled agriculture as cultivating permanent crops like oranges in an area away from an urban area where the means of cash income is limited, farmers have no way other than depending upon the *Jhum* cultivation to avoid an economical risk. Therefore, agriculture not dependent on the *Jhum* farming should be called as settled agriculture, and it was considered that unless clarifying reasons and causes depending on the *Jhum* farming and treating them in appropriate ways, reducing the *Jhum* cultivation with the consent of the farmers would be difficult. For comparison, dependency ratios of the pilot villages and activities to be required are wrapped up in the following table below.

Table 5.2.1 Dependency Ratios on the *Jhum* Cultivation of Pilot Farmers and Activities Required

District/Block	Village	Type of Farming*	Present Dependency Ratios on the <i>Jhum</i> Cultivation and Activities Required
Kolasib District Bikhawthlir RD Block	Buhchangphai	A, C, D, F	Located at the border to Assam State. Dependency ratios on the <i>Jhum</i> cultivation are small. Farmers engaged in settled agriculture are not much. Agriculture is on a passage changing to a commercial agriculture by selecting highly marketable and price stable vegetables such as cash crops. It is required to learn cultivation skills and conditioning of after-harvest.
	Bikhawthlir North	A, C, D, F	
Aizawl District Aibawk RD Block	Sailam	A, B, E, F	Dependency on the <i>Jhum</i> farming is very high and it is required at present. For making dependency low, promotion of a commercial agriculture is required. For reducing the <i>Jhum</i> cultivation, and increasing opportunities to increase farmers' income, especially the orange cultivation with intercropping is necessary.
	Lamchhip	A, B, E, F	
Champhai District Champhai RD Block	Hnahlan	A, B, E, F, G	Located at the border to Myanmar. As the wine production was broken, dependency on the <i>Jhum</i> farming of the grape farmers was increased. A revival of the commercial agriculture is necessary.
	Tlamsam	A, F	Dependency on <i>Jhum</i> is very small. The distance to the state capital is 8 km and is an advantageous location for commercial agriculture. It needs to select highly marketable and stable cash crops and to learn cultivation skills, watering methods, postharvest treatment, etc.

Note : Type of Agriculture – A: WRC, B: *Jhum*, C: Areca nut, D: Broom Grass, E: Orange, F: Vegetable, G: Others (Grape, etc.)

Source : JPT

Based on the methods studied and formulated under the Project, the Project had reached the stage of expanding the JIFAS in the state, and carrying it forward for agriculture extension. However, as to the results of the feedback meeting with farmers, it became necessary to focus on the following remarks as the farmers' agendas:

- Although the paddy yield had increased through the guidance of the Project, activities such as improved nursery bed, line planting, weeding, etc., are tough and there is no margin to employ laborers. Further, since the surplus paddy produced could not necessarily be sold out, it would be sufficient to produce paddy for self-consumption.
- Vegetables were produced well by the guidance of the BAIDC, but market places are not available other than the small markets nearby. Prices of many fresh vegetables from Assam and Myanmar were cheap.
- There is no income from the areca nut and orange from the planting of saplings to harvesting, and the orange could only be harvested once a year and the income is not stable because the quality is not constant. Accordingly, the pulling out of the *Jhum* cultivation could not be realistic.
- It requires a month to get the payment after shipping the broom grass. The grade 1 quality which was a well dried one could be sold in a higher price. However, as the payment to labours for the harvest and daily living expenses are urgently required by poor farmers, the grasses, which are not dried enough had to be sold to the agent in the village in cheaper prices.

Further, in Mizoram, since there are assistance from the central government as the Public Distribution System (PDS) rice and the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), the farmers are not depending much on agriculture income. It was observed that the Mizoram farmers' mentality to stabilize their life by increasing their agriculture income through skill mastery and increase farming productivity is scarce. Accordingly, as discussed in the preceding section, the mystical farmers' remarks in the feedback meeting were presented. For the agriculture development in Mizoram, it would be necessary to replace the present norms of farmers.

On the other hand, in bringing the pilot activities forward, many scenes for farmers to act willingly were observed. There were two major cases, one was to make money from agriculture activities, and the other agriculture activity, which was strongly interesting to farmers, is farmers educate farmers on crop cultivations and processing.

For example, as for rapeseed cultivation and oil press in Serchhip, the skills required for rapeseed cultivation was learned from the Serchhip farmers while the oil press conditions by the Serchhip farmers at the DOA of the Serchhip District were observed. Although in the 1st year, the rapeseed cultivation failed, the cultivation continued for five years by receiving technical support from the farmers of Serchhip. At present, the farmers supported by the DOA and KVK have been implementing up to the oil pressing. Because of the reduction of imports and the transfer of vegetables and fruits, farmers in Bikhawthlir North were able to earn a lot on watermelon cultivation. Farmers in the adjacent areas requested DOH to provide trainings on watermelon cultivation. As this case example showed, farmers in both cases positively put the effort into the activities, and the involvement of BAIDC was small. On the other hand, for paddy cultivation, the BAIDC provided a thorough guidance by following the cultivation calendar, and the yield increased significantly. However, as the new cultivation required much more laborers and efforts than the traditional cultivation method, the new cultivation method would not be sustained in the paddy cultivation based on agriculture for self-consumption. It is considered to be sufficient for the farmers to harvest the paddy for their self-consumption.

In the case in Mizoram, for implementing an earning agriculture, agriculture products should be exported to other states and foreign countries. It would be very hard for the BAIDC to start the guidance from the beginning. Accordingly, by conducting the discussions and meetings with specific traders of each crop, the countermeasures shown in Table 5.2.2 were taken. However, the activities should not spread out broadly at once, but it is necessary to establish a model case which could be copied by farmers. On the model case as the starting point, spreading it should be conducted for extension from the farmers-to-farmers method. As far as the JPT can predict, the methods compiled in Table 5.2.2 should have broad utility except the singular case like the grape cultivation in Hnahlan.

Table 5.2.2 Method and Countermeasure of Profitable Agriculture Depending on Agriculture Type

A: Wet Paddy Cultivation	Self-consumption agriculture + commercial agriculture	Increasing yield of paddy and marketing it, paddy and cash crop cultivation in winter, establishment of marketing system	By enhancing farmers' will to produce paddy and consolidating a market system, fixing of skills could be advanced. Production of oilseed crops for winter crops: rapeseed, sunflower, etc.	To outside of the state through traders
B: <i>Jhum</i>	Self-consumption agriculture + commercial agriculture	Selection of cash crops and establishment of marketing system	Mixed cultivation with oilseed crops: Production and sales of cash crops, cultivation like sesame, perilla, etc.	In the state through traders
C: Areca nut	Securement of gaining till harvest and increasing of earnings	Establishment of augmentation system for earning by mixed cultivation	Implementation of mixed cultivation: Expanding earnings by mixed cultivation of banana, taro, cardamom, paper, etc.	To outside of the state through traders
D: Broom Grass	Quality upgrading and stabilization of earnings	Establishing producers' associations and saving groups	Implementation to strengthen farmers' organization in collaboration with the Rural Development Bank	To outside of the state through traders
E: Orange	Stabilization of earnings + increasing of gaining	Plural harvests and income in a year by mixed cultivation	Crops for mixed cultivation : tea, coffee, gram, etc., and earth retaining works by vetiver grass	Tea and Coffee Board, outside of the state
F: Vegetable	Vegetable production for self-consumption +	Establishment of marketing system to outside of the state	Traders, processing factories, etc.: selection of suited vegetables and confirmation of processing, etc.	To outside of the state through

	commercial agriculture			traders
G: Others	(Grape cultivation)	-	-	-

Source : JPT

Under the pilot project, highly sustainable extension activities such as data collection from traders, the utilization of helpful organizations and personnel as a practical model for farmers to conduct agriculture extension were conducted. These are listed in table below.

Table 5.2.3 List of Extension Model, Organizations, Farmers Concerned to the Pilot Activities

No.	Particulars	
1.	Saipum Village: Broom Cultivation and Association	
	Name of Association:	Mizoram Forest Marketing Association (MIFMA)
	Address:	Saipum, Bilkhawthlir RDB, Kolasib District, Mizoram
	Contact person:	Lalthlamuanga
	Telephone No.:	6909713490
2.	Other Broom Production Recommended by the Traders as Good Quality Producers	
1)	Marpara Village (Mamit)	
	Name of Association:	-
	Address:	Marpara, West Phaileng RDB, Mamit District
	Contact Person:	-
	Telephone No.:	-
2)	Tlabung Village (Lunglei)	
	Name of Association:	Tegha Valley Broom Farmers Committee
	Address:	Tipperaghat-III, Tlabung RDB, Lunglei District
	Contact Person:	Sunil Bikash Chakma
	Telephone No.:	8974721969
	Telephone No.:	7005801145
3)	Darlawn (Aizawl)	
	Name of Association:	There are no broom farmers associations in the village
	Address:	Darlawn, Aizawl District
	Contact Person:	Mrs. K. Lalchhungi
	Telephone No.:	9436197277
3.	Traders at Bhaga Bazar, Assam: Broom, Sesame, Dried Ginger, etc.	
1)	Name of Company	
	Address	Hills Woodcrafts Pvt. Ltd
	Contact Person	Bhaga Bazar, Assam, Beltolla (Headquarter Office) Gauhati -28
	Telephone No.:	Mr. Sakir Ahmed and Mr. Misba
	Telephone No.:	985 993 2680, 700 275 8143
2)	Name of Company:	
	Address:	Taj Green Broom
	Contact Person	Bhaga Bazar, Assam, Beltolla (Headquarter Office) Gauhati -28
	Telephone No.:	Mr. Rukhan and Mr. Samsul
	Telephone No.:	986 470 6367, 700 277 9778
4.	Charcoal Burner (Producing Japanese Style Charcoal and Wood/ Bamboo Vinegar)	
	Contact Person	Mr. Saikhuma
	Address:	Chhingchhip, Serchhip District
	Telephone No.:	91 74218 65407
	Telephone No.:	91 96120 45757

Source : JPT

As to the lessons and suggestions for the future, the following particulars could be shared with the four departments and concerned personnel of the Project:

- The capability for extension works of the BAIDC members could not be said to be high yet. And since the farmers' fundamental approach is based on agriculture of self-consumption and *Jhum* farming, it would be very difficult to change farmers' attitude to the skills and ideas for commercial agriculture by the guidance and trainings. However, it was understood through the activities of the pilot projects that introduce models of the farmers and the organizations to the farmers and implementing the support which the farmers wanted, could easily make the shift to the highly sustainable and self-organized agriculture.
- As for villages, where good quality of broom grasses were produced and introduced by traders, are located in the back-country areas, it would be difficult to conduct a profit aiming agriculture without the presence of traders in the area. Accordingly, it could be possible to bring the commercial agriculture forward for the BAIDC to select and introduce villages with high potential to the reliable traders.

However, as the harvest of orange is once a year, and areca nut takes 5 to 7 years till the harvest, it is necessary to confirm crops mixed with these fruit trees and marketability of the fruits and the mixed crops before commencement of the planting.

- After the villages, organizations and farmers were fostered as models for commercial agriculture, the extension of it as the origination point was brought forward to the similar villages. Although there was a group that deals with the difficulty, farmers in the group were subject to influences of the political movement. Accordingly, it was well understood that trainings for functions, rules and norms, and accounting of the organization were specifically important. The BAIDC members, on the opportunity of the trainings of the SAMETI and regular meetings, should be required to discuss the cases and record them properly by compiling the succeeded cases and failed cases. Further, this kind of activity should be implemented in a courteous manner and sustained continuously, as it could stimulate upgrading the practical capability of the BAIDC.
- Although the yield of the wet paddy cultivation was increased in a short period through the pilot activities, unless the excess productions were able to be sold, the activities for increasing yields should be often assumed as additional works. It was considered for the state government to purchase the excess production of rice as the PDS rice. However, in Mizoram although there are paddy hulling machines, no rice milling machines are available. Therefore, proper rice milling machines should be introduced in Mizoram.

5.2.3 Positive Consideration on Community Contract

Four irrigation and drainage works were implemented in the 1st pilot activities. The contractors were selected through designated competitive bidding by contractors registered with the Finance Department of Mizoram and who were judged by questionnaire to have high implementation capabilities. Although they are top-level contractors in the state, they lacked motivation to complete the construction works within the schedule with high quality of work. In response to the JCC's decision, some parts of the construction works were outsourced to the water users' associations in the four irrigation works. The quality of the works carried out by the water users' associations were good enough by procureing the quality sand and aggregate, by getting support from trusted technicians and by attending the work sinserely kept high sense of ownership. Especially in Hnahlan, there was a difference in the construction period between private contractor and community as shown in the table below.

Table 5.2.4 Comparison of Contractor's and Community's Works in Dilhnuai MIP

Contractor/Community	Amount of Works	Duration of Works
MIZOTECH Pvt. Ltd.	INR 3,484,843.25	21 months
Dilhnuai Farmer's Society	INR 3,594,684.04	10 months and 19days

Source : JPT

Based on the above results, it is proposed to consider a system which orders water users associations to do construction work within their capabilities for small-scale irrigation works in the future.

In irrigation development in the mountainous state of Mizoram always requires construction of multiple water intake structures, long canal and the access road. Those are the factors that push up the construction unit cost per development area. At the same time, they impose a relatively high maintenance burden on water users associations. It is hoped that efforts will be made to reduce the burden of maintenance as much as possible by transferring the technology and providing funds necessary for maintenance through community contract so that the facility can continue to perform its functions.

Attachment 1

PROJECT DESIGN MATRIX (PDM)

Logical Framework (Project Design Matrix: PDM)

Project Title:	The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram
Period:	5 years from the arrival of the Chief Advisor to the state of Mizoram
Counterpart Agency (Executing Agency):	Minor Irrigation Department (MID), Department of Agriculture (DOA), Department of Horticulture (DOH), Soil and Water Conservation Department (SWCD) in the State of Mizoram, India
Target Areas:	Pilot Rural Development (RD) blocks: Bilkhawthlir RD block (Kolasib district), Aibawk RD block (Aizawl District), Serchhip RD block (Serchhip district) and Champhai RD block (Champhai district) in Mizoram Specific pilot villages (1 village in the first stage and 2-3 villages in the second stage will be determined in each pilot RD block, after the commencement of the Project.
Target Group	Direct target: The state government officials (MID, DOA, DOH, SWCD) Indirect target: Farmers at the pilot RD blocks and other relevant organizations.
Date Formulated:	March 24, 2016 (Ver. 0)

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal: Sustainable agriculture and irrigation development* will be expanded in Mizoram</p> <p>* Sustainable agriculture and irrigation development must be economically viable, socially responsible and ecologically sound. These shall be achieved by uplifting the farmers' income with due regard to environmental conservation through proper assessment of farmers' needs, available resources and market opportunities.</p>	<ol style="list-style-type: none"> Projects for sustainable agriculture and irrigation development are commenced in more than XX% of RD blocks in Mizoram. More than XX (number) of farmers are trained by the methods established by the Project. 	<ul style="list-style-type: none"> Monitoring data of MID, DOA, DOH and SWCD 	
<p>Project Purpose: Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.</p>	<ol style="list-style-type: none"> More than XX% of farmers provided the services and trainings under the Project are satisfied 	<ul style="list-style-type: none"> Technical Cooperation Project (TCP) Progress and completion reports Monitoring reports by extension officers 	<ul style="list-style-type: none"> Policies of Central and Mizoram government on agriculture and irrigation development are maintained.
<p>Outputs: 1. Methods* for sustainable agriculture and irrigation development are developed.</p>	<p>Indicators: 1.1 Production of food crop is increased XX% in the first stage pilot villages.</p>	<ul style="list-style-type: none"> Baseline survey reports. 	<ul style="list-style-type: none"> Majority of MID, DOA, DOH, SWCD

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>* Methods comprise implementing guideline, officers' manuals, and training materials for farmers. The methods will be refined through pilot activities.</p>	<p>1.2 Farm income of cash crop is increased XX% in the first stage pilot villages. 1.3 More than XX% of number of specified targets in village farming plan are achieved in the first stage pilot villages. 1.4 XX (number) of activities are commenced based on the land-use plan, resource management plan, village farming plan and village irrigation plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram government 1.5 The methods are approved by JCC, and officialised.</p>	<ul style="list-style-type: none"> • Questionnaire survey and analysis • TCP Progress and completion reports • Finalized documentation of the methods • Minutes of the Meetings of JCC 	<p>staff who acquire the technologies under the Project are not transferred or resigned.</p>
<p>2. Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced.</p>	<p>2.1 At least XX% / More than XX% of the state government field officers trained by the TC Project reach achievement goal for the field staff training activities. 2.2 At least XX% of the state government field officers attended the seminars understand the methods and lessons learned from the Project.</p>	<ul style="list-style-type: none"> • Established achievement goal • Questionnaire survey and reports • TCP Progress and completion reports 	
<p>3. Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.</p>	<p>3.1 Action Plan is endorsed by higher authority (Chief Minister).</p>	<ul style="list-style-type: none"> • Finalized Action Plans • The official letter from higher authority (Chief Minister) 	

<p>Activities:</p> <p><Formulation of draft Methods in the first pilot villages></p> <ol style="list-style-type: none"> 1.1 Conduct baseline survey (Satellite image, GIS data, land use, farming situation, and socio-economic conditions) in order to understand the current situation of pilot RD blocks. 1.2 Collect and analyze existing guidelines, manuals and training materials in specific subjects* and draft the methods. 1.3 Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation and monitoring at each pilot RD block. 1.4 Select one pilot village in each pilot RD block. 1.5 Conduct participatory rural appraisal (PRA) and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village. 1.6 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Project fund and resources. 1.7 Monitor and evaluate the progress and results of the activities by BAIDC. 1.8 Revise the methods for agriculture and irrigation development according to the results of activities. 1.9 Conduct follow-up activities. <p><Verification and refinement of the methods in the second pilot villages></p> <ol style="list-style-type: none"> 1.10 Select two or three pilot villages in each pilot RD block. 1.11 Conduct PRA and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village. 1.12 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Government fund and resources. 1.13 Monitor and evaluate the progress and results of the activities by BAIDC. 1.14 Finalize the methods. <p>* Subjects comprise of i) land-use plan, ii) resource management plan, iii) village farming plan, iv) village irrigation plan, v) design, construction and operation & maintenance (O&M) of small-scale irrigation facilities, vi) establishment and strengthening of water users' associations, vii) dissemination technologies of food and cash crop production, viii) dissemination skills on farm management and marketing etc.</p>	<p>Inputs:</p> <p>From Indian side</p> <ol style="list-style-type: none"> 1) Personnel Counterpart (C/P) personnel of related departments 2) Equipment/facilities Office space at MID in Aizawl, Kolasib, Serchhip and Champhai 3) Others Travel expenses and allowances for C/P personnel <p>From Japan side</p> <ol style="list-style-type: none"> 1) Personnel/ Experts <ul style="list-style-type: none"> - Chief Advisor/Development Planning - Irrigation and O&M and Farmers' Organization - Food Crop Cultivation Technologies - Cash Crop Cultivation Technologies - Farm Management and Marketing - Land Use and Resources Management - Environmental and Social Considerations - Project Coordinator/Training 1) Equipment <ul style="list-style-type: none"> • Satellite image map • Machineries and equipment necessary for offices, surveys, activities in the pilot villages (such as irrigation facilities) 	<ul style="list-style-type: none"> • Climate change does not affect agricultural production drastically. • Activities in the pilot villages are not restricted due to natural disaster • Farmers in pilot villages are willing to participate in the Project activities • Central and Mizoram government provide enough fund to implement activities in the second pilot villages.
--	---	--

<p><Capacity enhancement of the state government officials></p> <p>2.1 Assess the technical level of the counterpart (C/P) personnel and set up goals of capacity enhancement.</p> <p>2.2 Conduct study tours to learn domestic and foreign advanced practices.</p> <p>2.3 Conduct basic trainings to the state government field staff</p> <p>2.4 Conduct on the job training (OJT) through activities in the pilot villages.</p> <p>2.5 Verify the achievement of the goals set by C/P personnel.</p> <p>2.6 Organize seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the Project.</p>	<p>2) Counterpart Training</p> <ul style="list-style-type: none"> • Training in other states of India • Training in Japan 	
<p><Establishment of collaborative implementation framework among the state government departments></p> <p>3.1 Prepare a collaboration and cooperation framework (institutional and organizational structure, budget allocation, decision-making process etc.) among state departments relating to agriculture and irrigation development in Mizoram based on the activity 1 and 2.</p> <p>3.2 Elaborate an action plan to expand project outputs to all RD blocks in Mizoram.</p>		

Abbreviations: Block Agriculture and Irrigation Development Committee (BAIDC), Rural Development (RD), Technical Cooperation Project (TCP)

Project Design Matrix

Version 2.0
Date : 04 May 2018

Project Title:	The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram
Implementation Agency :	Irrigation and Water Resources Department (IWRD), Department of Agriculture (DOA), Department of Horticulture (DOH), Land Resources and Soil and Water Conservation Department (LRSWCD) in the State of Mizoram, India
Target Group	Direct target: The state government officials (IWRD, DOA, DOH, LRSWCD) Indirect target: Farmers at the pilot RD blocks and other relevant organizations.
Period of Project:	July 2017 to July 2022 (5 years)
Project Site :	All of Mizoram State Pilot Rural Development (RD) blocks: Bilkhawthlir RD block (Kolasib district), Aibawk RD block (Aizawl District), Serchhip RD block (Serchhip district) and Champhai RD block (Champhai district) in Mizoram 1st pilot villages : Buhchangpai (Bilkhawthlir), Sailam (Aibawk), Serchhip II (Serchhip) and Hnahlan (Champhai) 2 nd pilot villages : 2-3 villages will be selected in each pilot RD block

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
<p>Overall Goal: Sustainable agriculture and irrigation development* will be expanded in Mizoram</p> <p>* Sustainable agriculture and irrigation development must be economically viable, socially responsible and ecologically sound. These shall be achieved by uplifting the farmers' income with due regard to environmental conservation through proper assessment of farmers' needs, available resources and market opportunities.</p>	<ol style="list-style-type: none"> Projects for sustainable agriculture and irrigation development are commenced in more than 50% of RD blocks in Mizoram. More than 260 farmers are trained by the methods established by the Project. 	<ul style="list-style-type: none"> Monitoring data of IWRD, DOA, DOH and LRSWCD 		N/A	
<p>Project Purpose: Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.</p>	<ol style="list-style-type: none"> More than 80% of farmers provided the services and trainings under the Project are satisfied 	<ul style="list-style-type: none"> Technical Cooperation Project (TCP) Progress and completion reports Monitoring reports 	<ul style="list-style-type: none"> Policies of Central and Mizoram government on agriculture and irrigation 	N/A	

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
		by extension officers	development are maintained.		
<p>Outputs:</p> <p>1. Methods* for sustainable agriculture and irrigation development are developed.</p> <p>* Methods comprise implementing guideline, officers' manuals, and training materials for farmers. The methods will be refined through pilot activities.</p>	<p>Indicators:</p> <p>1.1 Production of food crop is increased by 12.5% in pilot farmers in the first pilot villages.</p> <p>1.2 Farm income of cash crop is increased by 12.5% in the pilot farmers (excluding orchard or plantation farmers) in first stage pilot villages.</p> <p>1.3 50% of the technologies practiced in the pilot farmers are disseminated to other farmers in the first pilot villages</p> <p>1.4 More than 80% of village plan are implemented in the first pilot villages.</p> <p>1.5 16 of activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram government</p> <p>1.6 The methods are approved by JCC, and officialised.</p>	<ul style="list-style-type: none"> • Baseline survey reports. • Questionnaire survey and analysis • TCP Progress and completion reports • Finalized documentation of the methods • Minutes of the Meetings of JCC 	<ul style="list-style-type: none"> • Majority of IWRD, DOA, DOH, LRSWCD staff who acquire the technologies under the Project are not transferred or resigned. 	<p>1st draft of Methods are completed as follows</p> <p>(1) Implementation guideline</p> <p>(2) Officers' Manual and Training Material</p> <ul style="list-style-type: none"> • Construction Management • Strengthening of WUA for O&M of MIP • Farm Management for Sustainable Agriculture • Strengthening of FO (cultivation & marketing group) 	

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
2. Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced.	2.1 More than 60% of the nominated counterparts achievement goal set by them. 2.2 More than 50% of the state government field officers attended the seminars understand the methods and lessons learned from the Project.	<ul style="list-style-type: none"> • Established achievement goal • Questionnaire survey and reports • TCP Progress and completion reports 		Several government officials achieved the following skills + Basic knowledge of participatory planning + Abstract necessary data for planning from GIS + Water balance study on irrigation development planning + DPR preparation for MIP + Marketing and farm management + Cultivation of paddy and production of organic fertilizer + Quality seed production + Cultivation of vegetable (cabbage, Chinese cabbage, cucumber, French bean and sweet corn) + Soil erosion control	
3. Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.	3.1 Action Plan is endorsed by higher authority (Chief Minister).	<ul style="list-style-type: none"> • Finalized Action Plans • The official letter from higher authority (Chief Minister) 		<ul style="list-style-type: none"> • Communication among 4 departments were encouraged after forming PMT and BAIDC which will contribute to the establishment of collaborative implementation framework 	

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
				<ul style="list-style-type: none"> Through the preparation of method in the working group discussion, the platform to collaborate each department are gradually established. 	

Activities	Input		Important Assumptions
	Japan	Mizoram	
<p><Formulation of draft Methods in the first pilot villages></p> <p>1.1 Conduct baseline survey (Satellite image, GIS data, land use, farming situation, and socio-economic conditions) in order to understand the current situation of pilot RD blocks.</p> <p>1.2 Collect and analyze existing guidelines, manuals and training materials in specific subjects* and draft the methods.</p> <p>1.3 Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation and monitoring at each pilot RD block.</p> <p>1.4 Select one pilot village in each pilot RD block.</p> <p>1.5 Conduct participatory rural appraisal (PRA) and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.</p> <p>1.6 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Project fund and resources.</p> <p>1.7 Monitor and evaluate the progress and results of the activities by BAIDC.</p> <p>1.8 Revise the methods for agriculture and irrigation development according to the results of activities.</p> <p>1.9 Conduct follow-up activities.</p>	<p>1) Personnel/ Experts</p> <ul style="list-style-type: none"> - Chief Advisor/Development Planning - Irrigation / O&M / Farmers' Organization (1) - Food Crop Cultivation Technologies and Farmers' Organization (2) - Cash Crop Cultivation Technologies (1) & (2) - Marketing - Land Use and Resources Management - Environmental and Social Considerations - Project Coordinator/Training <p>2) Equipment</p> <ul style="list-style-type: none"> • Satellite image map (if necessary) • Machineries and 	<p>1) Personnel</p> <ul style="list-style-type: none"> Counterpart (C/P) personnel of related departments <p>2) Equipment/facilities</p> <ul style="list-style-type: none"> Office space at MID in Aizawl, Kolasib, Serchhip and Champhai <p>3) Others</p> <ul style="list-style-type: none"> Travel expenses and allowances for C/P personnel 	<ul style="list-style-type: none"> Climate change does not affect agricultural production drastically. Activities in the pilot villages are not restricted due to natural disaster Farmers in pilot villages are willing to participate in the Project activities Central and Mizoram government provide enough fund to implement activities in the second pilot villages.

Activities	Input		Important Assumptions
	Japan	Mizoram	
<p><Verification and refinement of the methods in the second pilot villages></p> <p>1.10 Select two or three pilot villages in each pilot RD block.</p> <p>1.11 Conduct PRA and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.</p> <p>1.12 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Government fund and resources.</p> <p>1.13 Monitor and evaluate the progress and results of the activities by BAIDC.</p> <p>1.14 Finalize the methods.</p> <p>* Subjects comprise of i) land-use plan, ii) resource management plan, iii) village farming plan, iv) village irrigation plan, v) design, construction and operation & maintenance (O&M) of small-scale irrigation facilities, vi) establishment and strengthening of water users' associations, vii) dissemination technologies of food and cash crop production, viii) dissemination skills on farm management and marketing etc.</p>	<p>equipment necessary for offices, surveys, activities in the pilot villages (such as irrigation facilities)</p> <p>3) Counterpart Training</p> <ul style="list-style-type: none"> • Training in other states of India • Training in Japan 		
<p><Capacity enhancement of the state government officials></p> <p>2.1 Assess the technical level of the counterpart (C/P) personnel and set up goals of capacity enhancement.</p> <p>2.2 Conduct study tours to learn domestic and foreign advanced practices.</p> <p>2.3 Conduct basic trainings to the state government field staff</p> <p>2.4 Conduct on the job training (OJT) through activities in the pilot villages.</p> <p>2.5 Verify the achievement of the goals set by C/P personnel.</p> <p>2.6 Organize seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the Project.</p>			
<p><Establishment of collaborative implementation framework among the state government departments></p>			

Activities	Input		Important Assumptions
	Japan	Mizoram	
3.1 Prepare a collaboration and cooperation framework (institutional and organizational structure, budget allocation, decision-making process etc.) among state departments relating to agriculture and irrigation development in Mizoram based on the activity 1 and 2. 3.2 Elaborate an action plan to expand project outputs to all RD blocks in Mizoram.			

Abbreviations: Block Agriculture and Irrigation Development Committee (BAIDC), Rural Development (RD), Technical Cooperation Project (TCP)

Project Design Matrix

Version 3.0

Date : 18 February 2019

Project Title:	The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram
Implementation Agency :	Irrigation and Water Resources Department (IWRD), Department of Agriculture (DOA), Department of Horticulture (DOH), Land Resources and Soil and Water Conservation Department (LRSWCD) in the State of Mizoram, India
Target Group	Direct target: The state government officials (IWRD, DOA, DOH, LRSWCD) Indirect target: Farmers at the pilot RD blocks and other relevant organizations.
Period of Project:	July 2017 to July 2022 (5 years)
Project Site :	All of Mizoram State Pilot Rural Development (RD) blocks: Bilkhawthlir RD block (Kolasib district), Aibawk RD block (Aizawl District) and Champhai RD block (Champhai district) in Mizoram 1st pilot villages : Buhchangpai (Bilkhawthlir), Sailam (Aibawk) and Hnahlan (Champhai) 2 nd pilot villages : 1 villages will be selected in each pilot RD block

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
<p>Overall Goal: Sustainable agriculture and irrigation development* will be expanded in Mizoram</p> <p>* Sustainable agriculture and irrigation development must be economically viable, socially responsible and ecologically sound. These shall be achieved by uplifting the farmers' income with due regard to environmental conservation through proper assessment of farmers' needs, available resources and market opportunities.</p>	<p>1. Projects for sustainable agriculture and irrigation development are commenced in more than additional 4 blocks in Mizoram</p>	<ul style="list-style-type: none"> • Monitoring data of IWRD, DOA, DOH and LRSWCD 			
<p>Project Purpose: Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation</p>	<p>1. The methods are approved by JCC, and officialised. 2. At least 2 activities based</p>	<ul style="list-style-type: none"> • Minutes of the Meetings of JCC • The official letter 	<ul style="list-style-type: none"> • Policies of Central and Mizoram government on 		

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
development is enhanced.	<p>on collaborative implementation framework in each block are implemented by BAIDC in the 2nd pilot project</p> <p>3. Action plan to expand project output to all RD blocks and the Methods are endorsed by Chief Minister</p>	<p>from higher authority (Chief Minister)</p> <ul style="list-style-type: none"> • Technical Cooperation Project (TCP) Progress and completion reports 	<p>agriculture and irrigation development are maintained.</p>		
<p>Outputs:</p> <p>1. Methods* for sustainable agriculture and irrigation development are developed.</p> <p>* Methods comprise implementing guideline, officers' manuals, and training materials for farmers. The methods will be refined through pilot activities.</p>	<p>Indicators:</p> <p>1.1 Production of food crop is increased by 12.5% in pilot farmers in the first pilot villages.</p> <p>1.2 Farm income of cash crop is increased by 12.5% in the pilot farmers (excluding orchard or plantation farmers) in first stage pilot villages.</p> <p>1.3 50% of the technologies practiced in the pilot farmers are disseminated to other farmers in the first pilot villages</p> <p>1.4 More than 80% of village plan are implemented in the first pilot villages.</p> <p>1.5 Activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram gov.</p>	<ul style="list-style-type: none"> • Baseline survey reports. • Questionnaire survey and analysis • TCP Progress and completion reports • Finalized documentation of the methods 	<ul style="list-style-type: none"> • Majority of IWRD, DOA, DOH, LRSWCD staff who acquire the technologies under the Project are not transferred or resigned. 	<ul style="list-style-type: none"> • 	

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
1. Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced.	2.1 More than 60% of the nominated counterparts achievement goal set by them. 2.2 More than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development	<ul style="list-style-type: none"> • Established achievement goal • Questionnaire survey and reports 			
2. Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.	3.1 Action plan to expand project output to all RD blocks in Mizoram is prepared by PMT	<ul style="list-style-type: none"> • Finalized Action Plans 		<ul style="list-style-type: none"> • Communication among 4 departments were encouraged after forming PMT and BAIDC which will contribute to the establishment of collaborative implementation framework • Through the preparation of method in the working group discussion, the platform to collaborate each department are gradually established. 	

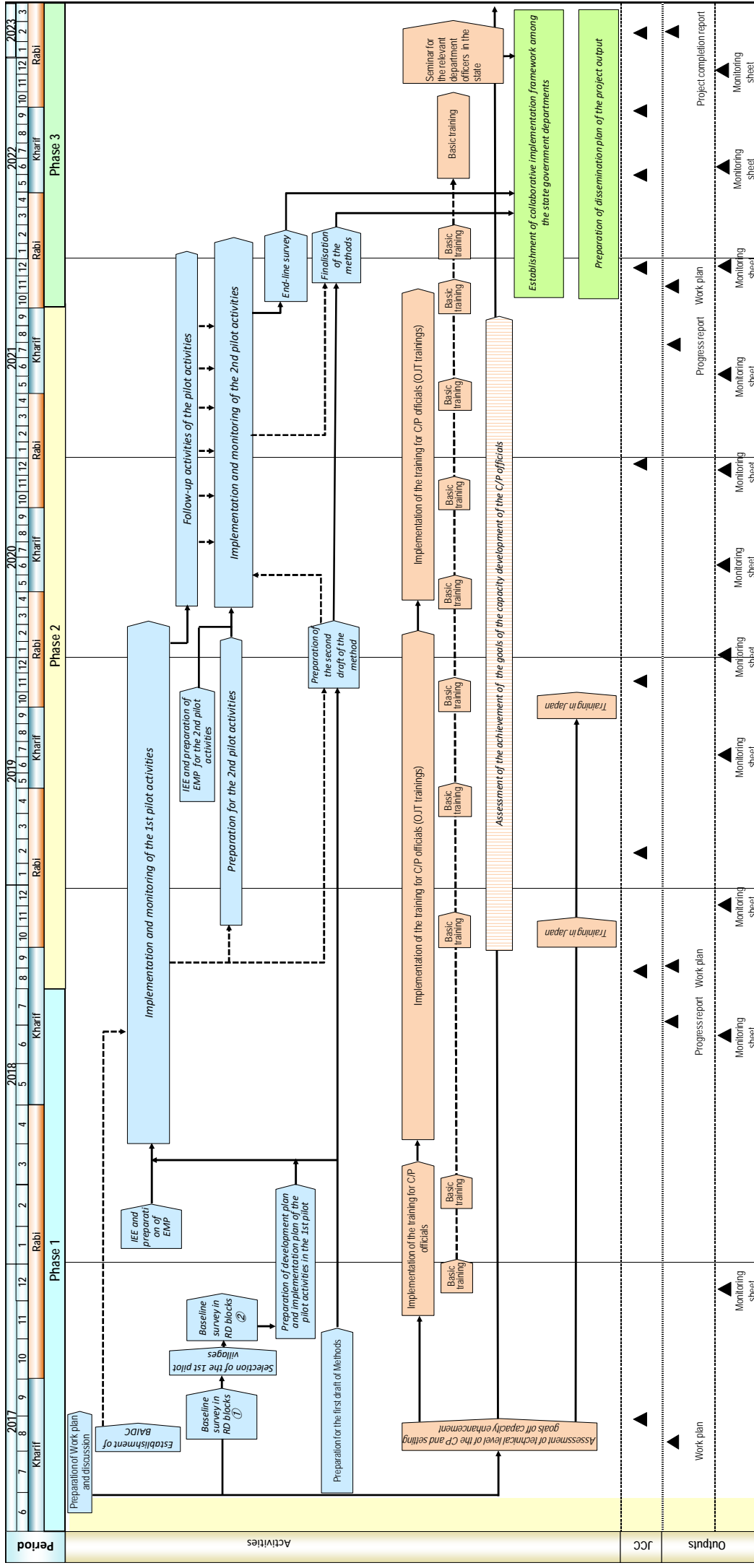
Activities	Input		Important Assumptions
	Japan	Mizoram	
<p><Formulation of draft Methods in the first pilot villages></p> <p>1.1 Conduct baseline survey (Satellite image, GIS data, land use, farming situation, and socio-economic conditions) in order to understand the current situation of pilot RD blocks.</p> <p>1.2 Collect and analyze existing guidelines, manuals and training materials in specific subjects* and draft the methods.</p> <p>1.3 Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation and monitoring at each pilot RD block.</p> <p>1.4 Select one pilot village in each pilot RD block.</p> <p>1.5 Conduct participatory rural appraisal (PRA) and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.</p> <p>1.6 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Project fund and resources.</p> <p>1.7 Monitor and evaluate the progress and results of the activities by BAIDC.</p> <p>1.8 Revise the methods for agriculture and irrigation development according to the results of activities.</p> <p>1.9 Conduct follow-up activities.</p> <p><Verification and refinement of the methods in the second pilot villages></p> <p>1.10 Select two or three pilot villages in each pilot RD block.</p> <p>1.11 Conduct PRA and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.</p> <p>1.12 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Government fund and resources.</p> <p>1.13 Monitor and evaluate the progress and results of the activities by BAIDC.</p> <p>1.14 Finalize the methods.</p>	<p>1) Personnel/ Experts</p> <ul style="list-style-type: none"> - Chief Advisor/Development Planning - Irrigation / O&M / Farmers' Organization (1) - Food Crop Cultivation Technologies and Farmers' Organization (2) - Cash Crop Cultivation Technologies (1) & (2) - Marketing - Land Use and Resources Management - Environmental and Social Considerations - Project Coordinator/Training <p>2) Equipment</p> <ul style="list-style-type: none"> • Satellite image map (if necessary) • Machineries and equipment necessary for offices, surveys, activities in the pilot villages (such as irrigation facilities) <p>3) Counterpart Training</p> <ul style="list-style-type: none"> • Training in other states of India • Training in Japan 	<p>1) Personnel Counterpart (C/P) personnel of related departments</p> <p>2) Equipment/facilities Office space at MID in Aizawl, Kolasib, Serchhip and Champhai</p> <p>3) Others Travel expenses and allowances for C/P personnel</p>	<ul style="list-style-type: none"> • Climate change does not affect agricultural production drastically. • Activities in the pilot villages are not restricted due to natural disaster • Farmers in pilot villages are willing to participate in the Project activities • Central and Mizoram government provide enough fund to implement activities in the second pilot villages.

Activities	Input		Important Assumptions
	Japan	Mizoram	
* Subjects comprise of i) land-use plan, ii) resource management plan, iii) village farming plan, iv) village irrigation plan, v) design, construction and operation & maintenance (O&M) of small-scale irrigation facilities, vi) establishment and strengthening of water users' associations, vii) dissemination technologies of food and cash crop production, viii) dissemination skills on farm management and marketing etc.			
<p><Capacity enhancement of the state government officials></p> <p>2.1 Assess the technical level of the counterpart (C/P) personnel and set up goals of capacity enhancement.</p> <p>2.2 Conduct study tours to learn domestic and foreign advanced practices.</p> <p>2.3 Conduct basic trainings to the state government field staff</p> <p>2.4 Conduct on the job training (OJT) through activities in the pilot villages.</p> <p>2.5 Verify the achievement of the goals set by C/P personnel.</p> <p>2.6 Organize seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the Project.</p>			
<p><Establishment of collaborative implementation framework among the state government departments></p> <p>3.1 Prepare a collaboration and cooperation framework (institutional and organizational structure, budget allocation, decision-making process etc.) among state departments relating to agriculture and irrigation development in Mizoram based on the activity 1 and 2.</p> <p>3.2 Elaborate an action plan to expand project outputs to all RD blocks in Mizoram.</p>			

Abbreviations: Block Agriculture and Irrigation Development Committee (BAIDC), Rural Development (RD), Technical Cooperation Project (TCP)

Attachment 2

WORK FLOW CHART



Note: : Activities for output 1 : Activities for output 2 : Activities for output 3 : Common activities

Attachment 3

PLAN OF OPERATION (PO)

Attachment 4

MM SCHEDULE OF JICA EXPERT TEAM

Phase-1 (July 2017~July 2018)

India

Name (Title)	Type	Trip (nos.)	2017							2018							Total Days	Total MM				
			Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul						
Shigeki YAMAOKA Chief Advisor/Rural Development Planning	Plan	5		(30)				(56)					(12)	(10)	(80)		187	6.23				
	Actual	5		7/12 (30)	8/10			10/1	(56)	12/13			2/6 (12)	2/17	3/4 (10)	3/13	4/19	(83)	7/10	191	6.37	
Takashi KURAUCHI Irrigation/O&M/Farmers' Organisation (1)	Plan	3				(161)							(76)		(35)		272	9.07				
	Actual	3		7/12			(161)			12/1	1/15		(75)		3/30	4/16	(48)	6/2		284	9.47	
Takuya SAISHO Food Crop Cultivation Technique/Farmers' Organisation (2)	Plan	3				(169)							(55)		(78)		302	10.07				
	Actual	3		7/12			(161)			12/1	1/15		(64)		3/19	4/9	(67)	6/14	6/28	(13)	7/10	305
Katsuyuki YAMAMOTO Cash Crop Cultivation Technique (1)	Plan	2				(84)								(45)			129	4.30				
	Actual	2			8/15		(84)			11/6						4/9	(60)	6/7			144	4.80
Mitsuharu TAKEMURA Cash Crop Cultivation Technique (2)	Plan	3		(42)				(42)						(30)			114	3.80				
	Actual	3		7/19 (42)			8/29		10/10 (42)	11/20			2/19	(30)	3/20						114	3.80
Yodai OKUYAMA Marketing	Plan	2						(42)									66	2.20				
	Actual	2		7/30 (24)	8/22			10/25 (42)	12/5												66	2.20
Ahamad AL-HAMBALI Land Use / Resources Management	Plan	2						(90)					(39)				129	4.30				
	Actual	1				9/25		(86)		12/19							86	2.87				
Miki MORIMITSU Environment and Social Consideration	Plan	2						(25)						(35)			60	2.00				
	Actual	2				10/4		(25)	10/28					4/9	(35)	5/13				60	2.00	
Junji KAWANO Design and Construction Management	Plan	2						(52)					(45)		(55)		107	3.57				
	Actual	2						10/29	(52)	12/1	1/15		(45)	2/28	4/9	(55)	6/2			107	3.57	
Hironori INOUE Project Coordinator / Training	Plan	1				(116)											116	3.87				
	Actual	1		7/12		(116)			11/4								116	3.87				
Remarks																						
<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: black; margin-right: 5px;"></div> Plan/Actual </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> Stay with Consultant Own Cost </div>															Sub Total in Mizoram		Plan	1482	49.40			
															Sub Total in Mizoram		Actual	1,473	49.12			

Japan

Name (Title)	Type	Trip (nos.)	2017							2018							Total Days	Total MM		
			6	7	8	9	10	11	12	1	2	3	4	5	6	7				
Shigeki YAMAOKA Chief Advisor/Rural Development Planning	Plan	0		(4)													4	0.20		
	Actual	0		7/7 (4)	7/11								4/9	(5)	4/13		9	0.45		
Takuya SAISHO Food Crop Cultivation Technique/Farmers' Organisation (2)	Plan	0		(4)													4	0.20		
	Actual	0		7/7 (4)													0	0.00		
Katsuyuki YAMAMOTO Cash Crop Cultivation Technique (1)	Plan	0		(4)													4	0.20		
	Actual	0		8/11 (4)	8/14												4	0.20		
Ahamad AL-HAMBALI Land Use / Resources Management	Plan	0				(14)											14	0.70		
	Actual	0				9/11 (14)	9/24										14	0.70		
Remarks																				
<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: black; margin-right: 5px;"></div> Plan/Actual </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> Stay with Consultant Own Cost </div>															Sub Total in Japan		Plan	26	1.30	
															Sub Total in Japan		Actual	27	1.35	

Plan	50.70
Actual	50.47

Phase-3 (October 2021~March 2023)

India

Name (Title)	Plan Actual	Trip	2021			2022												2023			
			10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
Shigeki YAMAOKA Chief Advisor/Rural Development Planning	Plan	5																			
	Actual	5																			
Kunita OKUWA Irrigation/O&M/Farmers' Organisation (1)	Plan	1																			
	Actual	0																			
Takuya SAISHO Food Crop Cultivation Technique/Farmers' Organisation (2)	Plan	4																			
	Actual	4																			
Katsuyuki YAMAMOTO Cash Crop Cultivation Technique (1)	Plan	2																			
	Actual	2																			
Mitsuharu TAKEMURA Cash Crop Cultivation Technique (2)	Plan	1																			
	Actual	1																			
Sub Total in Mizoram																		Plan			
Sub Total in Mizoram																		Actual			

Japan

Name (Title)	Plan Actual	Trip	2021			2022												2023			
			10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
Shigeki YAMAOKA Chief Advisor/Rural Development Planning	Plan	-																			
	Actual	-																			
Kunita OKUWA Irrigation/O&M/Farmers' Organisation (1)	Plan	-																			
	Actual	-																			
Takuya SAISHO Food Crop Cultivation Technique/Farmers' Organisation (2)	Plan	-																			
	Actual	-																			
Katsuyuki YAMAMOTO Cash Crop Cultivation Technique (1)	Plan	-																			
	Actual	-																			
Mitsuharu TAKEMURA Cash Crop Cultivation Technique (2)	Plan	-																			
	Actual	-																			
Sub Total in Japan																		Plan			
Sub Total in Japan																		Actual			

Name	Position	Major Tasks and Roles
YAMAOKA Shigeki	Chief Advisor/Rural Development Planning	<ul style="list-style-type: none"> • Prepare, discuss and submit work plans • Prepare TOR and manage output of baseline and endline survey • Prepare the concept of “methods” and finalize the “methods” • Prepare and manage the overall plans for 1st and 2nd pilot activities • Prepare the technologies transfer plan and supervise the activities • Support to decide the various progress monitoring meeting agenda and to prepare the material for them • Prepare, arrange and implement training in Japan • Decide the training components to C/P and prepare the materials and evaluate the achievement • Support for setting up the joint implementation frameworks for four departments • Prepare the roadmap for institutionalization of methods and support for implementation • Prepare action plan for expansion of JIFAS to all the state and support for implementation • Prepare and submit progress report and completion report • Manage public relation activities • Office management including national staff contractual matters • Discuss with JICA and submit necessary documents
KURAUCHI Takashi OKUWA Kunita	Irrigation/O&M/Farmers' Organisation (1)	<ul style="list-style-type: none"> • Prepare and discuss work plans (works in charge) • Support for preparation of officers’ manual (DPR preparation guideline · construction management · strengthening of WUA for O&M) • Support and training for preparation of DPR, construction management and strengthening of WUA for 1st · 2nd pilot activities • Prepare the technologies transfer plan and implement the plan • Give training to C/P though online and off line and confirm the achievements • Prepare and submit progress report and completion report (works in charge) • Manage and supervise national staff
SAISHO Takuya	Food Crop Cultivation Technique/Farmers' Organisation (2)	<ul style="list-style-type: none"> • Prepare and discuss work plans (works in charge) • Support for preparation of officers’ manual (agriculture extension) • Manage overall project implementation in agricultural activities

Name	Position	Major Tasks and Roles
		<ul style="list-style-type: none"> • Support and training for preparation of plan and implementation of activities related to food crop (WRC and Jhum) in the 1st · 2nd pilot • Prepare the technologies transfer plan and implement the plan • Prepare the technologies transfer plan in food crop cultivation and farmers' organization and implement the plan • Give training to C/P though online and off line and confirm the achievements • Support for setting up the joint implementation frameworks for four departments • Prepare the roadmap for institutionalization of methods and support for implementation • Prepare action plan for expansion of JIFAS to all the state and support for implementation • Prepare and submit progress report and completion report (works in charge) • Manage and supervise national staff
YAMAMOTO Katsuyuki	Cash Crop Cultivation Technique (1)	<ul style="list-style-type: none"> • Prepare and discuss work plans (works in charge) • Support for preparation of officers' manual (agriculture extension) • Support and training for preparation of plan and implementation of activities related to cash crop (horticulture crop and perennial crop) in the 1st and 2nd pilot • Prepare the technologies transfer plan in cash crop cultivation and implement the plan • Give training to C/P though online and off line and confirm the achievements • Prepare and submit progress report and completion report (works in charge)
TAKEMURA Mitsuharu	Cash Crop Cultivation Technique (2)	<ul style="list-style-type: none"> • Support for preparation of officers' manual (agriculture extension) • Support and training for preparation of plan and implementation of activities related to cash crop (horticulture crop and perennial crop) in the 1st and 2nd pilot • Prepare the technologies transfer plan in cash crop cultivation and implement the plan • Give training to C/P though online and off line and confirm the achievements • Prepare and submit progress report (works in charge) • Conduct COVID-19 affected area survey
OKUYAMA Yodai	Marketing	<ul style="list-style-type: none"> • Analyse baseline survey data • Support for preparation of officers' manual (agriculture extension)

Name	Position	Major Tasks and Roles
		<ul style="list-style-type: none"> • Support and training for preparation of plan and implementation of activities related to cash crop (horticulture crop and perennial crop) in the 1st and 2nd pilot • Prepare the technologies transfer plan in cash crop cultivation and implement the plan • Give training to C/P, especially marketing, though online and off line and confirm the achievements • Prepare and submit progress report (works in charge)
Ahmad Al-hambali	Land Use / Resources Management	<ul style="list-style-type: none"> • Collect and analyse the GIS information for the selection of 1st pilot villages • Support for preparation of village map for activity planning and resources management • Give training to C/P for preparation of village map and resources management • Support for preparation of all of village map in the State
MMORIMITSU Miki	Environment and Social Consideration	<ul style="list-style-type: none"> • Conduct environmental impact assessment and prepare environmental management plan (collection and analysis of regulations and guidelines about environment in India and Mizoram, support of implementation of environmental impact assessment based on formulated development plan, preparation of environmental management plan) • Identify the environmental items to be addressed during 1st pilot activities and transfer the knowledge for environmental management
KAWANO Junji	Design and Construction Management	<ul style="list-style-type: none"> • Support of preparation of officers' manual in relevant works in charge (design, construction supervision) • Data collection for selection of 1st pilot villages about relevant fields and discussion with persons in charge • Support for preparation of development plan in the 1st pilot villages and DPR about irrigation facilities improvement, consideration of construction methods, collection of information about contractors, consideration of procedure for procurement of contractors • Give training to C/P for design and construction management • Manage progress on relevant works, participate in periodical project progress monitoring meetings, prepare the progress report
INOUE Norihiro	Project Coordinator / Training	<ul style="list-style-type: none"> • Evaluate technical level of C/P and sent the targets • Support for implementation of training to C/P • Participate in progress meeting • Establish office, procure the materials, document control, vehicle control and national staff management • Support for office financial management

Attachment 5

RECORD OF TRAINING IN JAPAN

State Government of Mizoram

Irrigation and Water Resources Department,

Department of Agriculture,

Department of Horticulture,

Land Resources, Soil and Water Conservation Department

REPUBLIC OF INDIA

THE PROJECT FOR CAPACITY ENHANCEMENT FOR SUSTAINABLE AGRICULTURE AND IRRIGATION DEVELOPMENT IN MIZORAM (PHASE-2)

Overseas Training in Japan

Completion Report

October 2018

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.

REPUBLIC OF INDIA

THE PROJECT FOR CAPACITY ENHANCEMENT FOR SUSTAINABLE AGRICULTURE AND IRRIGATION DEVELOPMENT IN MIZORAM

Overseas Training in Japan Completion Report

Table of Contents

1. Outline of Training Course.....	1
1.1 Name, Period and Participants of Training	1
2. Contents of Training.....	1
2.1 Concept of Overseas Training	1
2.2 Schedule of Training	2
2.3 Training Curriculum.....	2
3. Observations on Training Contents	3
3.1 Lectures	3
3.2 Discussion, Practice, Exercise, and Presentation	5
3.3 Site Visit	5
3.4 Period, Arrangement and Contents of Training.....	6
3.5 Texts, Equipment and Facilities	7
4. Participants	7
4.1 Qualification Requirements.....	7
4.2 Willingness to Participate in Training and Attendance Attitude.....	7
5. Utilization of Training Outcomes.....	8
5.1 Outcomes Obtained in the Training	8
5.2 How to Use the Outcomes.....	9
6. Training Environment	10
7. Other Notices	10

Figure

Figure 2.1.1 Relationship between the Project and Training.....	2
---	---

Tables

Table 2.3.1 Training Curriculum	2
Table 5.1.1 Outcomes of Training	8

1. Outline of Training Course

1.1 Name, Period and Participants of Training

The first overseas training in Japan (Name: Capacity Enhancement Training on Agriculture Extension and Irrigation Development and Management in the Hilly Area) was carried out for a 12-day period from the 24th of September to 5th of October 2018.

Eight participants were selected from PMT or BAIDC Members belonging to DOA, IWRD, DOH and LRSWCD of the State Government of Mizoram, who have been involved in agriculture and irrigation development in the state and worked as a member of the Project Management Team (PMT) or Block Irrigation and Agriculture in pilot districts in the “Project for Capacity Development for Sustainable Agriculture and Irrigation Development in Mizoram” (hereinafter referred to as “the project”), or staff involved in the project as a member of the Block Irrigation and Agriculture Development Committee (BAIDC). The selection of these participants is described in 2.2.1 Qualification Requirements and the participants are shown in Attachment 2.

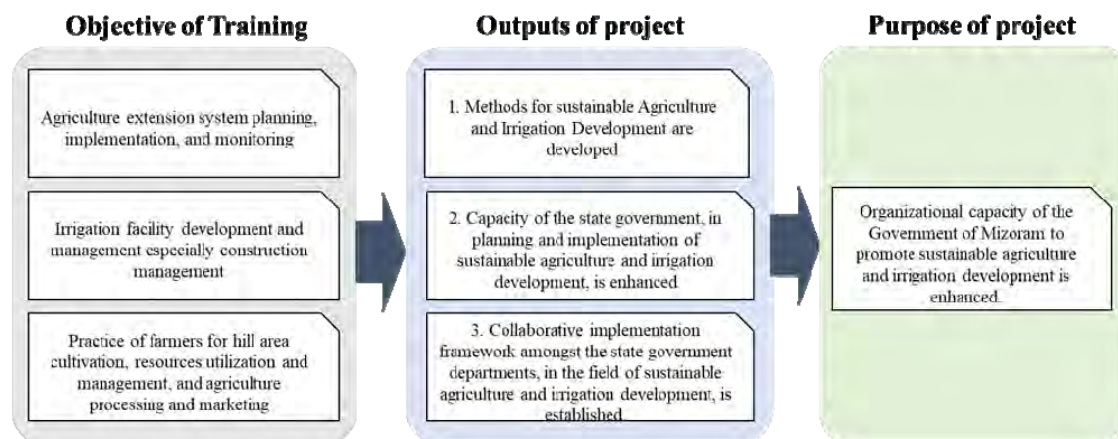
2. Contents of Training

2.1 Concept of Overseas Training

In Mizoram, 70% of the land is located in the hilly area with more than 35° slope, and a large farming population has traditionally been engaged in shifting cultivation (jhum), however the rapid increase in population has led to the decrease in productivity. The state government has been implementing the New Land Use Policy (NLUP) since 2009 to shift the farmer from jhum to settled agriculture, however the policy is not accompanied by the dissemination of the technology necessary for agricultural settlement, and the agricultural settlement has not taken root. In this context, this Project was launched in July 2017 for 5 years with the aim of building a state-specific agricultural extension system and irrigation management system to implement effective agricultural and irrigation development, strengthening the capacity of government officials, and building a cooperation mechanism for government officials.

This training was carried out as part of the project, and through the study of actual cases, site visits, and practical training, aiming at knowledge acquisition of; 1) Agricultural technology dissemination and farmer support system, planning, implementation and monitoring method for hilly areas in Japan, 2) Irrigation facility development and management in Japan, and 3) Farming practices in hilly areas and efforts of farmers and companies to utilize local resources and agricultural processing. Practice of farmers for hill area cultivation, resources utilization and management, and agriculture processing and marketing.

The relationship between the project and planned training is shown as below.



Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

Figure 2.1.1 Relationship between the Project and Training

2.2 Schedule of Training

As shown in the detailed training schedule (Attachment 1).

2.3 Training Curriculum

The training destinations and training contents are shown in the table below.

Table 2.3.1 Training Curriculum

Training Organization	Type	Main Contents
Agriculture, Forestry and Fisheries Policy Division, Agriculture, Forestry and Fisheries Department, Tokushima Prefecture	Lecture	Characteristics of Agriculture in the Prefecture and the Procedures and Implementation Methods of Basic Plans for Prefectural Food, Agriculture, Forestry and Fisheries and Rural Area
Rural Development Division and Infrastructure Development Division, Agriculture, Forestry and Fisheries Department, Tokushima Prefecture	Lecture	Irrigation and Land Improvement Districts in Tokushima Prefecture
Management Promotion Section, Agriculture, Forestry and Fisheries Comprehensive Technology Support Center, Agriculture, Forestry and Fisheries Department, Tokushima Prefecture	Lecture	Prefectural Agricultural Extension System and Budget, Changes in Agricultural and Rural Support Projects, and the Role of the Agriculture, Forestry and Fisheries Comprehensive Technical Support Center
Tokushima Prefectural Mima Agriculture Support Center	Lecture	Outline and role of the center, content of extension work, extension planning, monitoring, evaluation methods, collaboration with testing and research institutes
Fujikawa Grape Garden	Site Visit	Actual technology dissemination activities aimed at improving Shine Muscat cultivation techniques
Mr. Seizo Sakurama	Site Visit	Agricultural management for new farmers
Farming Department, Mima Agricultural Cooperative	Site Visit	Efforts of JA Mima and Cooperation between JA and Agricultural Support Center
Western Prefectural Citizens Division, Agriculture, Forestry and Fisheries Department, Tokushima Prefecture	Lecture	Status and management system of irrigation facilities in the Miyoshi area
Yoshino River North Bank Irrigation Land Improvement District	Site Visit	Irrigation facilities in the Yoshino River North Bank Irrigation Land Improvement District

Hiruma-Ashiro Land Improvement District	Site Visit	Irrigation Facilities in Hiruma-Ashiro Land Improvement District (Main Canal to terminal facilities, and beneficiary area)
Kochidani Land Improvement District	Site Visit	Mimura Irrigation Canal (Iwakado Intake, Mimura Irrigation Tunnel)
Commerce and Tourism Division, Tsurugi Town Hall	Lecture and Site Visit	Characteristics of slope farming around Mt. Tsurugi
Bamboo Chemical Institute Co., Ltd.	Lecture	Production of agricultural equipment using local resources
Kitomura Co., Ltd.	Lecture and Site Visit	Agricultural processing and added value
Specified non-profit organization Tokushima Organic Farming Support Center	Lecture	Fundamentals of organic farming and actual support for farmers
Awa-Nosan Co., Ltd.	Lecture and Site Visit	Farming cooperative agriculture, organic farming marketing, and actual practice of organic farming

Source: *The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)*

3. Observations on Training Contents

3.1 Lectures

Lecture

Lectures were held in the conference rooms of the Western Branch Office in Tokushima Prefecture Government. All the lectures were given in Japanese, which were interpreted by the training supervisor, except for the one at Kitomura Co., Ltd.

The contents of the lectures were concise and easy to understand. In addition, there was sufficient time for questions and answers, and the points that the participants were interested in were deepened through questions and answers.

At the Tokushima Prefectural Office in Tokushima City, lectures were given on (1) the characteristics of agriculture in the prefecture and policies for promoting agriculture, forestry and fisheries, (2) irrigation and land improvement districts in Tokushima Prefecture, and (3) the agricultural extension system of the prefecture. The characteristics of the agriculture and policies for the promotion of agriculture, forestry and fisheries and the current situation and issues in Tokushima Prefecture were explained, as well as the prefecture's efforts to address them, in order to correctly understand the content of the 12-day training. The department of Agriculture, Forestry and Fisheries focuses on agriculture as well as forestry and fisheries, and since the participants are employees of the agriculture-related departments, the lectures were focused on agricultural promotion. By attending these lectures, it was understood not only the outline of agriculture in Tokushima, but also the general outline of the structure of Japanese society and government organizations. In the Q&A session held in the latter half of the lecture, the participants showed an attitude of trying to understand the lecture contents correctly after clarifying the differences in preconditions, including the systems and government systems of Mizoram and India. The lecture in "(2) Irrigation and land improvement districts in Tokushima Prefecture" was mainly about the content of Japan's irrigation

projects and the land improvement district system. In particular, they seemed to be trying to deepen their understanding of the difference from the centrally subsidized projects in their own countries, and especially the contents of the land improvement law that stipulates the authority and roles of land improvement districts. Regarding "(3) extension system of the prefecture", efforts to strengthen the capacity of extension workers, which is considered to be a particular issue in Mizoram, were explained from the past to the present in Tokushima Prefecture. In particular, the functions that extension workers should have were arranged and explained in an easy-to-understand manner, which deepened the understanding of the participants.

As the "Action Plan for Extension Officers" that was explained in a lecture given at the Western Branch Office in Tokushima Prefectural Government was similar to the annual activity plan of BAIDC, which is currently being put into practice in the project, questions and discussions were held from the perspective of how to apply the action plan to the project. The contents of the action plan was easy to understand because it was clearly consistent with the prefecture's policy, and the implementing body of each activity and the goals to be achieved were quantified. In addition, regarding the third party's monitoring and evaluation system for dissemination activities and the viewpoint of evaluation, it was useful information that could be applied to the project.

The lecture on the status of irrigation facilities in the Miyoshi area and the management system used many photographs and was devised to be easy to understand. In addition, the contents of the lecture were deepened during the process of visiting the actual facility.

Mr. Oshima, Assistant Manager of Tsurugi Town Hall, gave a lecture on "Characteristics of slope farming in the Nishi-Awa area", in addition to the utilization of Japanese torreyia and soil conservation work using original farm equipment, comprehensively covered biodiversity, landscape, traditional culture, etc. The characteristics of the area were described from a variety of perspectives. The contents of the lecture were deepened at various places during subsequent visits to the villages.

Bamboo Chemical Institute Co., Ltd. explained the possibility of using bamboo powder as a soil conditioner, which grows naturally in Mizoram and is expected to be used for agriculture. Bamboo Chemical Institute Co., Ltd. has developed an automatic bamboo powder manufacturing machine, and there was an explanation of the machine and its economic advantages when used. The participants confirmed that bamboo powder can be used as a soil conditioner by fermenting lactic acid bacteria, and discussed with the lecturer the possibility of using bamboo in Mizoram.

At Kitoumura Co., Ltd., a lecture and explanation was given on the company's agricultural product processing efforts. The participants listened with interest to the explanation, in particular, such as the company manufactures dozens of products from Yuzu (Citron) and sells them to international markets, including the EU, adds value through the introduction of organic farming, and utilizes local human resources to greatly contribute to the creation of employment. In addition, in the actual field, they inspected the cultivation site of Yuzu and confirmed the growth status.

At the Tokushima Organic Farming Support Center, a specified non-profit corporation, there was a lecture on the role of the center that nurtures young organic farmers and the basics of organic farming.

Regarding the role of the center, there were explanations such as points that it invites local farmers as instructors and provides opportunities to learn the techniques that are being practiced in the field, and uses the national vocational training system to train them at a low cost, and the participants listened intently to the lecture. Also, regarding the basics of organic farming, there was a discussion mainly on ecologically harmonious farming theories. These theories were further deepened in the subsequent lecture by the President Hamada of Awa Nosan Co., Ltd. He gave a lecture on the reasons for aspiring to organic farming in the region and efforts for farming and livestock cooperation, and the participants enthusiastically asked questions.

3.2 Discussion, Practice, Exercise, and Presentation

Discussion

Though no special time was set for discussions, they were held during lectures and at the final outcomes presentation.

Practice and exercise

Practical training and exercises were not conducted in this training.

Presentation

On 4th October, the training outcomes were presented in Tokushima City. Mr. Kobayashi, director of the JICA Shikoku Center, and Mr. Ito, a staff member, attended the presentation. At the presentation, the participants presented the characteristics of agriculture in Mizoram, an overview of the training in Japan, the knowledge and skills obtained in the training, and an action plan for application in the State. Regarding the preparation of the presentation materials, though there was no special time, they were prepared through discussions among the participants during breaks such as lunch and at night.

3.3 Site Visit

Site visit

During the training period, they visited the production site of Shine Muscat at Fujikawa Grape Farm, the eggplant cultivation field of Mr. Sakurama, a new farmer, the cultivation site of "Harehime" (a mandarin orange variety), and the cultivated farmland in the greenhouse of Awa Nosan Co., Ltd. All were advanced initiatives, and many questions were asked by the participants at the site. Regarding the Shine Muscat, many questions were raised, since the grape is also grown in Mizoram. In addition, at Mr. Sakurama's farm, he practiced what he had actually received from the prefectural extension worker, making it a very informative visit.

At JA Mima and Sadamitsu Yuyu-kan in Tsurugi Town, they visited and received an explanation on the operation system of the direct sales store, where JA (Japan Agricultural Co-operatives) or the operating company provided the sales store, and the farmers brought in surplus agricultural products themselves and set prices at their own risk. As the Mizoram State is also engaged in small-lot, high-variety agriculture in hilly areas, and may face an aging population problem in the future, it was a meaningful visit for examining the application of these systems in the State.

Also, in Tsurugi Town, they observed slope farming efforts in three villages, Fuchimyo, Kiri, and Sarukai. In these villages, the participants experienced “Tsuchi-age”(soil lifting) and observed soil conservation techniques utilization of Japanese torrey and farm equipment traditionally used. As the settlement agriculture in Mizoram has just started in recent years, the efforts to take care of the soil in these village and the high level of awareness among farmers were a useful reference. In addition, they visited the farmer's restaurant in Sarukai Village, where agrotourism is practiced, and it was useful as a reference for efforts to expand the added value of agriculture and supporting industries.

They also visited the Yoshino River North Bank Land Improvement District, the Hiruma-Ashiro Land Improvement District, and the Kawachidani Land Improvement District, and observed the irrigation facilities. In the Yoshino River North Bank Land Improvement District, they observed the operation and management of the intake facility located upstream of the Ikeda Dam, and in the Hiruma-Ashiro Land Improvement District, they observed the intake structure of mountain torrent, a regulating reservoir, and sprinkler irrigation facilities. The participants confirmed the high degree of completeness and quality of the system, and commented that it is necessary to review the facility plan in Mizoram and improve the construction quality. In the Kawachidani Land Improvement District, they visited the Mimura Canal, and also inspected the intake facility and the tunnel which was constructed by farmers over 20 years. In Mizoram State, the construction of irrigation facilities by farmers is currently being trialled, so the efforts of Japanese farmers were a useful reference.

3.4 Period, Arrangement and Contents of Training

Training period

This training was conducted for 12 days. Some participants became unwell. Though the training schedule was not the direct cause, some participants expressed the opinion that it would be desirable to have a little more spare time in terms of physical condition management.

Training arrangement

In the training, it was planned to create a flow from lectures to field trips as much as possible, and to confirm the knowledge obtained through materials and explanations on site. As a whole, the procedure was to first acquire general knowledge at the Tokushima Prefectural Office, and then to confirm and learn the actual contents at the Western Branch Office in Tokushima Prefectural Government, which is a branch office. In addition, in the second half, the themes of a day or half a day were clarified as much as possible to avoid diverging the discussion. In terms of training arrangement, efforts were made to maintain the interest of the participants.

On the other hand, it was difficult for the participants to hold briefings in one place, even within the State. Therefore, more time should be allocated during the orientation on the first day to explain and discuss the specifics of the training and the aims of each unit. Considering the improvement in the process mentioned above, it would have been better to focus on the orientation on the first day.

Training contents

The contents of the training covered the necessary matters such as the agricultural policies of local

governments of the same size as Mizoram, the agricultural extension system, the methods and systems of irrigation management represented by land improvement districts, and the dissemination of the Western Branch Office in Tokushima Prefectural Government which has the same size as the BAIDC Offices in Mizoram, lectures on contents and systems, visits to farms to which they are disseminated, cooperation with JA and operation of direct sales shops, overview of irrigation facilities and visits to actual facilities, actual farming in the hilly area in the Nishi-Awa district, effective utilization of bamboo, which grows abundantly in Mizoram, agricultural processing and value addition, organic farming and farming and livestock cooperation.

On the other hand, some participants requested more lectures and observations on grain production, especially rice, and post-harvest processing. There were also requests for more opportunities for field trips and inspections.

3.5 Texts, Equipmnet, and Facilities

Text

The documents provided by the organizations visited covered all the necessary information and were very easy to read and understand. Materials were received in advance, translated before the training, and distributed during the orientation.

Equipmnet and Facilities

Regarding the training equipment and facilities, those of the training destination were used, and they were sufficient.

4. Participants

4.1 Qualification Requirements

A total of eight participants were selected from the Department of Agriculture, Irrigation and Water Resources Department, Department of Horticulture, and Land Resources, Soil and Water Conservation Department in Mizoram, who has jurisdiction in a central position of the Project to oversee planning agricultural and irrigation development for sustainable agriculture and implementing them in the field. As discussed with PMT members, the following three qualification requirements were decided.

- Persons who are willing to acquire knowledge, lead projects, and take necessary actions to disseminate knowledge acquired through the training to other counterparts.
- Technical staff engaged in agricultural and irrigation development in the State or districts and belonging to (1) Irrigation and Water Resources Department, (2) Department of Agriculture, (3) Department of Horticulture, (4) Land Resources, Soil and Water Conservation Department.
- Persons who are participating in the activities of the project and intending to participate in the activities until 2022 when the project ends.

The breakdown of the eight participants is two from the Irrigation and Water Resources Department (PMT:1, BAIDC:1), three from the Agriculture Department (PMT:1, BAIDC:2), two from the Horticulture Department (PMT:1, BAIDC:1), and one form the Land Resources, Soil and Water Conservation

Department (PMT:1). There was 1 person at the station (1 person with PMT). The participants were selected within the State and later approved by the central Ministry of Water Resources.

4.2 Willingness to Participate in Training and Attitude

The participants of the training were highly motivated and actively asked questions at each training. Respect was paid to the person in charge at the host institution and the lecturer, and the attendance attitude was sufficient.

5. Utilization of Training Outcomes

5.1 Outcomes Obtained in the Training

The training consisted mainly of lectures and site visits. Tokushima Prefecture, which is the almost same size as the state of Mizoram, was selected for the lectures. The lectures included about actual agricultural policy, agricultural extension system and irrigation management in Japanese local governments. And, they learned about the planning and implementation of agricultural extension plans and the actual practice of irrigation management at Tokushima Prefectural General Citizens Department, which is the same size as the BAIDC Offices. In addition, they inspected the site of established agriculture in hilly area, focusing on the slope agriculture in Nishi-Awa, which was registered with FAO's GIAHS in April 2018. And then a lecture was given on the possibility of using bamboo powder for agriculture, which grows naturally in Mizoram, and visited an agricultural processing, organic farming, and so on. The following table summarizes the main learning contents (outcomes) for each training theme that the participants gave their opinions on.

Table 5.1.1 Outcomes of the Training

Theme	Major Outcomes
Agriculture extension system planning, implementation, and monitoring on the hilly area.	<ul style="list-style-type: none"> • Importance of common master plan and policy between the Department of Agriculture that supervise operation related to agriculture, forestry and fisheries and related departments in the local government. • Importance of data collection management in master planning and policy making. • Importance of providing one-stop extension service represented by Mima Agricultural Support Centre. Necessity of establishing the centre. • Importance of collecting and aggregating information related to agriculture at the centre and using such information for planning. • Formulation of modulated policies such as support measures for commercial farmers and successor. • Importance of in-service training to enhance the two functions of extension officers (specialist and coordinator) and coordinator function. • Importance of an annual extension activity plan at the BAIDC office level. Consistency between extension plans and policies. Setting numerical goals. • Building the internal/external evaluation monitoring system. Operation of improvement cycle of plan as system. • Importance of extension officers working earnestly, making for smooth communication, and sharing information with farmers. • Utilization of SNS. • Marketing strategy for safe vegetables in small-lot and multi-item production areas like branding “Kaachan Yasai”.
Irrigation facility development and management especially construction management.	<ul style="list-style-type: none"> • Construction of canal tunnel by the efforts of farmers. • Irrigation facilities development by farmers. Sharing of expense by beneficiaries for implementation of construction. • Operation and maintenance system for irrigation facilities prescribed by law such as the Land Improvement Law. • Intake of irrigation water using intake structure of mountain torrent.

Theme	Major Outcomes
	<ul style="list-style-type: none"> • Construction of field irrigation system that effectively utilizes the regulating pond. Operation and maintenance of irrigation facilities by land improvement district (collection of dues and compulsory participation system). • Quality assurance of construction work. • Utilization of sprinkler irrigation.
Practice of farmers for hilly area cultivation, resources utilization and management, and agriculture processing and marketing.	<ul style="list-style-type: none"> • Efforts for making fertile soil. Utilization of Japanese torreyia on the hilly area. Measures against soil erosion by practicing soil lifting. • Securing new profits by promoting ecotourism and agrotourism. • Utilization of bamboo powder for soil improvement and cattle feed. Low-cost manufacturing of bamboo powder. • Commercialization of bamboo powder manufacturing. • Clarification of standards for organic crops. • Promotion of agricultural processing using local human resources. • Quality evaluation focused on nutritional value. • Establishment and operation of satellite shops in big cities. • Effective marketing using influencers. • Direct sales store where farmers can easily sell surplus products. • Establishment of agricultural cooperative and farmer interest group.

Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

5.2 How to Use the Outcomes

After returning to Japan at the end of October 2018, a debriefing session was held in Mizoram and the outcomes of the overseas training were shared with project stakeholders (PMT members and BAIDC members). In addition, the outcomes of the training was planned to compile and submit to the higher management as a written opinion on points that can be implemented in the state.

The following items were raised by the participants as items that should be introduced by the state.

- Review of master plan formulated in 2014 and agricultural policy
- Establishment of Agriculture Production Committee
- Establishment of BAIDC in each RD block
- Formulation of BAIDC annual plan to centralize agriculture and irrigation projects in RD blocks and establishment of evaluation monitoring system for operation and planning
- Collection and accumulation of data for each RD block, and use for planning
- Capacity building of extension workers focusing on two functions (specialist function, coordinator function), implementation of in-service training
- Appropriate management of water use organizations seen in the land improvement districts (contents of articles of incorporation, determination and collection system of levies, etc.) and legal development
- Introduction of beneficiary fees and concept of request principle in irrigation projects
- Improving construction quality by strengthening construction management capabilities
- Establishment of direct sales stores as a pilot project
- Pilot introduction of bamboo powder manufacturing machines

- Support for soil conservation efforts by the soil lifting and utilization of Japanese torreyia by pilot farmers

6. Training Environment

Three of the eight participants complained of poor physical conditions, two of whom sought medical attention at a medical institution. Therefore, neither of them could participate in the two-day training. This time, a lot of chartered buses were used as a means of transportation. It is desirable to actively use it in the next training because it was not only convenient but also had a great effect in reducing the fatigue of the participants.

7. Other Notices

The amount of daily allowance for the participants did not pose any problem as a minimum fund for food and daily necessities. In Tokushima City, they were unable to withdraw their daily allowance, but the participants did not complain.

On 30th September, a typhoon traversed Japan and an order was announced in the early morning to prepare for evacuation in Tokushima City. The participants procured food in advance and waited in the hotel, so there were no particular problems.

In addition, in this training, a great deal of support was received from Tokushima Prefectural Government, Tokushima Western General Prefectural Citizens Department, Tsurugi Town Hall, companies in Tokushima Prefecture, JICA Shikoku Center, Tokushima Desk, and JICA Kansai Office, taking this opportunity to thank them.

Attachment 1
Detailed Training Shedule

Training Schedule (Actual)

Date	Training contents	Visit
24th Sep.	Arrive in Japan from India	
25th Sep.	Briefing and Orientation	JICA Shikoku
	Planning and implementation method of prefectural agriculture, forestry and fisheries basic plan	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
26th Sep.	•Irrigation facility development in Tokushima prefecture	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
	•Land improvement district	
	•Agriculture extension system	Agriculture, Forestry and Fisheries Technical Support Center
	•Transition of budget and agricultural and rural support projects •Role of Agricultural Support Center	
27th Sep.	•Agriculture extension plan, monitoring and evaluation •Association with research institutes	Mima Agricultural Support Center
	Cultivation techniques of Shine Muscat	Farmers
	Agricultural management of new farmers	Farmers
	•Activities of JA Mima •Cooperation between JA and Mima agricultural support center	JA Mima
28th Sep.	Status and management system of irrigation facilities in Miyoshi 1. Maintenance by land improvement district 2. Story of Minura irrigation	Western Branch Office in Tokushima Prefecture
	3. Irrigation facility in Hirumaashio Land Improvement district	Western Branch Office in Tokushima Prefecture
	Irrigation facility in Hirumaashio Land Improvement district (Main canal, terminal equipment and beneficiary area)	Hirumaashio Land Improvement district office
	Irrigation facility in Minura (intake and irrigation tunnel)	Kawachidani Land Improvement district office
	Visit to Orange farmers	
29th Sep.	Japanese culture program	
	Experience of Japanese tea and Awa Odori. Visit to Mt. Bizan	
30th Sep.	Holiday (Tokushima Marche)	
1st Oct.	Characteristics of slope agriculture around Mt. Tsurugi	Tsurugi town office
	Visit to Yu yu kan.	Yu yu kan.
	Lunch in Farmer Restaurant "Fuwari"	Farmer Restaurant "Fuwari"
	Site visit at Anabuki huchiwa village	Anabuki huchiwa village
	Site visit at Sennu village	Sennu village
	Site visit at Sarukai village	Sarukai village
2nd Oct.	Production of agricultural materials and equipment using local resources	Bamboo Chemical Research Institute Co., Ltd.
	Agricultural processing and added value	Kitomura Co., Ltd.
3rd Oct.	Basics of organic farming and actual situation of farm support	Tokushima Organic Agriculture Support Center
	Marketing of Organic farming	Awa Nousan Co., Ltd.
4th Oct.	•Summary of training •Closing ceremony	JICA Shikoku
	Move (from Tokushima to Tokyo)	
5th Oct.	Meeting with the members of the survey team	
	Leave Japan for India	

Source: *The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)*

Attachment 2
List of Participants

List of Participants

Name	Present Post & Place of Employment	Position in the Project
Dr. Saipari Elizabeth	Director, Horticulture Department, State Government of Mizoram	Counterpart PMT Member
Mr. Azyu Beizawzi Tohei	Superintending Engineer (Works & Design), Irrigation & Water Resources Department, State Government of Mizoram	Counterpart PMT Member
Mr. Chhakchhuak Hualthanga	Joint Director, Land Resources, Soil & Water Conservation Department, State Government of Mizoram	Counterpart PMT Member
Mr. Lalthanzuala	Deputy Director of Agriculture (Agronomy), Agriculture Department, State Government of Mizoram	Counterpart PMT Member
Mr. Hranglungchhung Piangthanga	Sr. Executive Engineer, Aizawl Division, Irrigation & Water Resources Department, State Government of Mizoram	Counterpart BAIDC Member
Mr. Lalnunzira Renthlei	District Agriculture Officer, District Agricultural Officer's Office, Aizawl, Agriculture Department, State Government of Mizoram	Counterpart BAIDC Member
Mr. Laltluangkima Fanai	Agriculture Extension Officer, District Agricultural Officer's Office, Aizawl, Agriculture Department, State Government of Mizoram	Counterpart BAIDC Member
Ms. Zaithangpuii Lucy	Assistant Divisional Horticulture Officer, Divisional Horticulture Office, Serchhip, Horticulture Department, State Government of Mizoram	Counterpart BAIDC Member

Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

State Government of Mizoram

Irrigation and Water Resources Department,

Department of Agriculture,

Department of Horticulture,

Land Resources, Soil and Water Conservation Department

REPUBLIC OF INDIA

**THE PROJECT FOR CAPACITY
ENHANCEMENT FOR SUSTAINABLE
AGRICULTURE AND IRRIGATION
DEVELOPMENT IN MIZORAM
(PHASE-2)**

**Second Overseas Training in Japan
Completion Report**

October 2019

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.

REPUBLIC OF INDIA

**THE PROJECT FOR CAPACITY ENHANCEMENT FOR SUSTAINABLE
AGRICULTURE AND IRRIGATION DEVELOPMENT IN MIZORAM**

**Second Overseas Training in Japan
Completion Report**

Table of Contents

1. Outline of Training Course.....	1
1.1 Name, Period and Participants of Training	1
2. Contents of Training.....	1
2.1 Concept of Overseas Training.....	1
2.2 Schedule of Training	2
2.3 Training Curriculum.....	2
3. Observations on Training Contents	3
3.1 Lectures	3
3.2 Discussion, Practice, Exercise, and Presentation	5
3.3 Site Visit	6
3.4 Period, Arrangement and Contents of Training.....	7
3.5 Texts, Equipment and Facilities	7
4. Participants	8
4.1 Qualification Requirements.....	8
4.2 Willingness to Participate in Training and Attendance Attitude.....	8
5. Utilization of Training Outcomes.....	8
5.1 Outcomes Obtained in the Training	8
5.2 How to Use the Outcomes.....	9
6. Training Environment	10
7. Other Notices	10

Figure

Figure 2.1.1 Relationship between the Project and Training.....	2
---	---

Tables

Table 2.3.1 Training Curriculum.....	2
Table 5.1.1 Outcomes of Training.....	8

1. Outline of Training Course

1.1 Name, Period and Participants of Training

The second overseas training in Japan (Name: Capacity enhancement training on agriculture extension, irrigation development and management and food crop cultivation in hilly area) was carried out for a 15-day period from 1st of September to 15th of September 2019.

Ten participants were selected from PMT or BAIDC Members belonging to DOA, IWRD, DOH and LRSWCD of the State Government of Mizoram, who have been involved in agriculture and irrigation development in the state and worked as a member of the Project Management Team (PMT) or Block Irrigation and Agriculture in pilot districts in the “Project for Capacity Development for Sustainable Agriculture and Irrigation Development in Mizoram” (hereinafter referred to as “the project”), or staff involved in the project as a member of the Block Irrigation and Agriculture Development Committee (BAIDC). The selection of these participants is described in 2.2.1 Qualification Requirements and the participants are shown in Attachment 2. Regarding the selection of participants from the LRSWCD in this fiscal year it was skipped because it was not possible to secure suitable candidates at the same time.

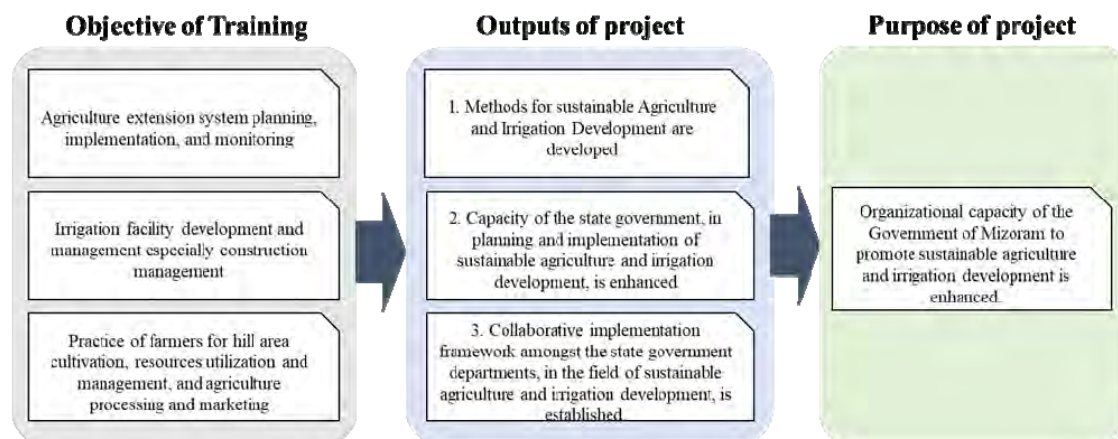
2. Contents of Training

2.1 Concept of Overseas Training

In Mizoram, 70% of the land is located in the hilly area with more than 35° slope, and a large farming population has traditionally been engaged in shifting cultivation (jhum), however the rapid increase in population has led to the decrease in productivity. The state government has been implementing the New Land Use Policy (NLUP) since 2009 to shift the farmer from jhum to settled agriculture, however the policy is not accompanied by the dissemination of the technology necessary for agricultural settlement, and the agricultural settlement has not taken root. In this context, this Project was launched in July 2017 for 5 years with the aim of building a state-specific agricultural extension system and irrigation management system to implement effective agricultural and irrigation development, strengthening the capacity of government officials, and building a cooperation mechanism for government officials.

This training was carried out as part of the project, and through the study of actual cases, site visits, and practical training, aiming at knowledge acquisition of; 1) Agricultural technology dissemination and farmer support system, planning, implementation and monitoring method for hilly areas in Japan, 2) Irrigation facility development and management in Japan, and 3) Farming practices in hilly areas and efforts of farmers and companies to utilize local resources and agricultural processing. Practice of farmers for hill area cultivation, resources utilization and management, and agriculture processing and marketing.

The relationship between the project and planned training is shown as below.



Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

Figure 2.1.1 Relationship between the Project and Training

2.2 Schedule of Training

As shown in the detailed training schedule (Attachment 1).

2.3 Training Curriculum

The training destinations and training contents are shown in the table below.

Table 2.3.1 Training Curriculum

Place	Type	Contents
Agriculture, Forestry and Fisheries Policy Division, Agriculture, Forestry and Fisheries Department, Tokushima Prefecture	Lecture	Characteristics of agriculture in Tokushima Prefecture and an overview of measures taken by the Department of Agriculture, Forestry and Fisheries
Rural Development Division and Infrastructure Development Division, Agriculture, Forestry and Fisheries Department, Tokushima Prefecture	Lecture	Irrigation and Land Improvement Districts in Tokushima Prefecture
Agriculture, Forestry and Fisheries Comprehensive Technology Support Center, Advanced Technology Support Division,	Lecture, Practice and Site Visit	Guidance on agricultural extension in Tokushima Prefecture
Natural Farm Mayukobe	Lecture and Site Visit	Production and sale of organic rice
Bamboo Chemical Institute Co., Ltd	Lecture	Efforts to improve soil with bamboo powder
Ogonomura Co., Ltd.	Lecture and Site Visit	Yuzu processing and added value
Tokushima Prefectural Mima Agriculture Support Center	Lecture	Outline of Agriculture in Mima Area and Action Plan for Extension Instructors
Fujikawa Grape Farm	Site Visit	Actual technology dissemination activities aimed at improving Shine Muscat cultivation techniques
Mr. Seizo Sakurama	Site Visit	Agricultural extension activities for new farmers
Farming Department, Mima Agricultural Cooperative	Site Visit	Efforts of JA Mima and Cooperation between JA and Agricultural Support Center
Tokushima Prefectural General Citizens Department, Agriculture, Forestry and	Lecture	Development policy of agricultural production infrastructure and development and maintenance of irrigation facilities in

Fisheries Division		the Mima jurisdiction
Mima South Bank Land Improvement District	Site Visit	Irrigation facility in the Mima South Bank Area
Iwakura Land Improvement District	Site Visit	Land consolidation project in the Iwakura District
Soedani Land Improvement District	Site Visit	Irrigation facilities related to Natsugo Dam in the Soedani District
Commerce and Tourism Division, Tsurugi Town Hall	Lecture and Site Visit	Characteristics of slope farming around Mt. Tsurugi
Rural Development Department, JICA	Lecture	Introduction of SHEP

Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

3. Observations on Training Contents

3.1 Lectures

Lecture

Lectures were held in the conference rooms of the Tokushima Prefectural Government Office, Western Branch Office in Tokushima Prefectural, Agriculture, Forestry and Fisheries Technical Support Center, Agriculture, Forestry and Fisheries Technical Support Center, and Tsurugi Town Hall. All the lectures were given in Japanese, which were interpreted by the training supervisor, except for the one at Natural Farm Mayukobe.

The contents of the lectures were concise and easy to understand. In addition, there was sufficient time for questions and answers, and the points that the participants were interested in were deepened through questions and answers.

At the Tokushima Prefectural Office in Tokushima City, lectures were given on (1) the characteristics of agriculture in the prefecture and policies for promoting agriculture, forestry and fisheries, (2) irrigation and land improvement districts in Tokushima Prefecture, and the agricultural extension system of the prefecture. The characteristics of the agriculture and policies for the promotion of agriculture, forestry and fisheries and the current situation and issues in Tokushima Prefecture were explained, as well as the prefecture's efforts to address them, in order to correctly understand the content of the 15-day training. In particular, it was explained that when formulating the prefecture's agricultural policy, it was necessary to hear the opinions of hundreds of farmers through extension workers, and to hear opinions widely from producers, private companies, distributors, universities, and the media, and that 25 experts each year evaluated the relevance and degree of achievement of policies for making necessary improvements. The department of Agriculture, Forestry and Fisheries focuses on agriculture as well as forestry and fisheries, and since the participants are employees of the agriculture-related departments, the lectures were focused on agricultural promotion. By attending these lectures, it was understood not only the outline of agriculture in Tokushima, but also the general outline of the structure of Japanese society and government organizations. In the Q&A session held in the latter half of the lecture, the participants showed an attitude of trying to understand the

lecture contents correctly after clarifying the differences in preconditions, including the systems and government systems of Mizoram and India. In addition, it was understood that the difference with the Mizoram government in terms of the prefecture's own policies and the stance of making good use of the central government's subsidized projects, though 60% of agriculture-related budget in Tokushima Prefecture is dependent on the central government. The lecture in "(2) Irrigation and land improvement districts in Tokushima Prefecture" was mainly about the content of Japan's irrigation projects and the land improvement district system. In particular, they seemed to be trying to deepen their understanding of the difference from the centrally subsidized projects in their own countries, and especially the contents of the land improvement law that stipulates the authority and roles of land improvement districts. In particular, with regard to the farmland development project, the lecturer and participants shared the reality that farmland in Mizoram is uneven like Japan in the past, and mechanization is not progressing easily, and the difficulty of replacing land was discussed.

In addition, at the Advanced Technology Support Division of the Agriculture, Forestry and Fisheries Comprehensive Technical Support Center, there was a lecture on rice breeding, technical guidance, and capacity building of extension workers, after explaining an overview of extension system in Tokushima Prefecture. Regarding the improvement of rice varieties, it was explained that the development of heat-resistant varieties has progressed due to the recent rise in temperature, and the development of varieties that have the same taste as the popular Koshihikari, which has sufficient yields even under recent climate conditions. Also explanation included how is the efforts to develop these varieties and how to being tested, researched and disseminated. On the other hand, with regard to technical guidance for extension workers, out of the two functions of extension workers (specialist function and coordinator function), the coordinator function was explained how to improve the abilities of young extension workers as an organization. In particular, the young agricultural extension workers who participated in this training seemed to have learned a lot, as they often followed the explanations.

As the "Action Plan for Extension Officers" that was explained in a lecture given at the Western Branch Office in Tokushima Prefectural was similar to the annual activity plan of BAIDC, which is currently being put into practice in the project, questions and discussions were held from the perspective of how to apply the action plan to the project. The contents of the action plan was easy to understand because it was clearly consistent with the prefecture's policy, and the implementing body of each activity and the goals to be achieved were quantified. In addition, regarding the third party's monitoring and evaluation system for dissemination activities and the viewpoint of evaluation, it was useful information that could be applied to the project.

The lecture on the status of irrigation facilities in the Mima area and the management system used many photographs and was devised to be easy to understand. In addition, the contents of the lecture were deepened during the process of visiting the actual facility.

Mr. Oshima, Assistant Manager of Tsurugi Town Hall, gave a lecture on "Characteristics of slope farming in the Nishi-Awa area", in addition to the utilization of Japanese torreyia and soil conservation work using original farm equipment, comprehensively covered biodiversity, landscape, traditional culture, etc.

The characteristics of the area were described from a variety of perspectives. The contents of the lecture were deepened at various places during subsequent visits to the villages.

Bamboo Chemical Institute Co., Ltd. explained the possibility of using bamboo powder as a soil conditioner, which grows naturally in Mizoram and is expected to be used for agriculture. Bamboo Chemical Institute Co., Ltd. has developed an automatic bamboo powder manufacturing machine, and there was an explanation of the machine and its economic advantages when used. Since the Mizoram side brought bamboo that grows naturally in the state, it was possible to have a more concrete discussion with the lecturer about the possibility of using the current automatic bamboo powder manufacturing machine. In Mizoram, discussions on the effective use of bamboo have become active after the change of government last December and the Mizo National Front taking power. Against the background of these discussions, more specific questions were asked than last year, which surprised the lecturer.

At Ogonomura Co., Ltd., there was a lecture and explanation about the company's yuzu processing and sales. In particular, it was explained that yuzu is decomposed into fruit juice, essential oil, floral water, and residue, each of which is commercialized or composted to add value, and that all of them are sold and used. Citrus production is also thriving in Mizoram, but it is mainly used for food or only for juice. Since there are many distillation-type oil presses in India, there was a lively exchange of opinions with the lecturer regarding the feasibility of implementing them in Mizoram.

At Natural Farm Mayukobe, Mr. Kawasaki, the owner of the farm, explained the rice varieties, production processes, yields, and sales methods practiced at the farm. In addition, after the explanation, the participants observed the rice growing conditions, equipment used, irrigation facilities, etc. By comparing rice cultivation in Mizoram, the participants obtained a more concrete understanding of the techniques and practices at the farm. In addition, the participants were impressed by Mr. Kawasaki, who was knowledgeable about cultivation techniques and natural farming methods despite being a young farmer. One participant expressed opinion that young farmers in Mizoram should also be like him.

Before leaving Japan, the participants attended a lecture on SHEP at the JICA headquarters. They understood the basic policy of SHEP, which systematically organizes agricultural development, and examples of initiatives, as well as the importance of market-oriented production.

3.2 Discussion, Practice, Exercise, and Presentation

Discussion

The program included the time for discussion on the 4th day after the start of the program, before presentation of the outcomes, and before leaving Japan. As for the discussion on the 4th day, they shared the knowledge that each participant had acquired in the previous lectures, and reminded them of the points of each unit explained in the orientation and the final goal of this training. Before presentation of the outcomes, the training outcomes and action plan were organized, and before leaving Japan, a forum for discussion was set up with JICA experts to discuss the application of the training outcomes.

Practice and exercise

In this training, the participants participated in the training on flower bud differentiation of strawberries

with young extension workers at the Agriculture, Forestry and Fisheries Technical Support Center. Though they could not acquire sufficient skills due to the short time, they were able to experience the actual guidance of extension workers.

Presentation

On 11th September, the outcomes of the training were presented in Tokushima City. Mr.Ito, staff member of the JICA Shikoku Center attended the presentation. At the presentation, the participants presented the characteristics of agriculture in Mizoram, an overview of the training in Japan, the knowledge and skills obtained in the training, and an action plan for application in the State.

3.3 Site Visit

Site visit

During the training period, they visited the production site of Shine Muscat at Fujikawa Grape Farm and the eggplant cultivation field of Mr. Sakurama, a new farmer. In addition to observing the advanced cultivation techniques of the farmers, there was an explanation from the extension staff about the content of the guidance and the building of a relationship of trust between the extension staff and the farmers, and many questions were asked by the trainees.

At JA Mima and Sadamitsu Yuyu-kan in Tsurugi Town, they visited and received an explanation on the operation system of the direct sales store, where JA (Japan Agricultural Co-operatives) or the operating company provided the sales store, and the farmers brought in surplus agricultural products themselves and set prices at their own risk. As the Mizoram State is also engaged in small-lot, high-variety agriculture in hilly areas, and may face an aging population problem in the future, it was a meaningful visit for examining the application of these systems in the State.

Also, in Tsurugi Town, they observed slope farming efforts in three villages, Kiri, Myodani and Sarukai. In these villages, the participants experienced “Tsuchi-age”(soil lifting) and observed soil conservation techniques utilization of Japanese torrey and farm equipment traditionally used. As the settlement agriculture in Mizoram has just started in recent years, the efforts to take care of the soil in these village and the high level of awareness among farmers were a useful reference. In addition, they visited the farmer's restaurant in Sarukai Village, where agrotourism is practiced, and it was useful as a reference for efforts to expand the added value of agriculture and supporting industries.

They also visited and observed irrigation facilities at the Mima South Land Improvement District, the Iwakura Land Improvement District, and the Soedani Land Improvement District. In the Mima South Land Improvement District, the participants observed intake structure of mountain torrent, irrigation canals, and terminal water supply facilities, confirmed the quality of the facilities, and received an explanation of the maintenance and management methods of the land improvement district. In the Iwakura Land Improvement District, they also observed the improved farm plots and automatic water valves, and the Natsugo Dam in the Soedani Land Improvement District.

3.4 Period, Arrangement and Contents of Training

Training period

This training was conducted for 15 days. As some participants became unwell last year, the schedule was not designed tight this time. Because of this, there were no participant who fell unwell during this training, and all of them were able to participate in the entire process. The participants evaluated that the schedule was appropriate.

Training arrangement

In the training, it was planned to create a flow from lectures to field trips as much as possible, and to confirm the knowledge obtained through materials and explanations on site. As a whole, the procedure was to first acquire general knowledge at the Tokushima Prefectural Office, and then to confirm and learn the actual contents at the Western Branch Office in Tokushima Prefecture. In addition, in the second half, the themes of a day or half a day were clarified as much as possible to avoid diverging the discussion. In terms of training arrangement, efforts were made to maintain the interest of the participants.

In order to promote the understanding of the participants, a technical training session was held in the State on 6th August before departure. In addition, at the orientation after arriving in Japan, the contents were explained in more detail. On the 4th day after the start of the program, the content of the orientation was reminded to ensure that the training outcomes were achieved.

Training contents

The contents of the training covered the necessary matters such as the agricultural policies of local governments of the same size as Mizoram, the agricultural extension system, the methods and systems of irrigation management represented by land improvement districts, and the dissemination of the Mima Agriculture Support Center which has the same size as the BAIDC Offices in Mizoram, lectures on contents and systems, visits to farms to which they are disseminated, cooperation with JA and operation of direct sales shops, overview of irrigation facilities and visits to actual facilities, actual farming in the hilly area in the Nishi-Awa district, effective utilization of bamboo, which grows abundantly in Mizoram, agricultural processing and value addition, organic farming and farming and livestock cooperation. In the last year's training, there was a request to enhance lectures and observations on grain production, mainly rice, and post-harvest processing, and hence the contents of lecture and site visit contents were enhanced this time, and improved the contents, such as efforts to build a relationship of trust between extension workers and farmers and improve the capacity of extension workers. As for Yuzu processing, a site visit was planned to a processor that specializes in the production of essential oils because it is promising in Mizoram.

3.5 Texts, Equipmnet, and Facilities

Text

The documents provided by the organizations visited covered all the necessary information and were very easy to read and understand. Materials were received in advance, translated before the training, and

distributed during the orientation.

Equipment and Facilities

Regarding the training equipment and facilities, those of the training destination were used, and they were sufficient. As for the Pana guide, the one borrowed from the JICA Shikoku office was initially used, but it broke down on the way, so ordered another separately.

4. Participants

4.1 Qualification Requirements

A total of ten participants were selected from the Department of Agriculture, Irrigation and Water Resources Department, and Department of Horticulture in Mizoram, who has jurisdiction in a central position of the Project to oversee planning agricultural and irrigation development for sustainable agriculture and implementing them in the field. As discussed with PMT members, the following three qualification requirements were decided.

- Persons who are willing to acquire knowledge, lead projects, and take necessary actions to disseminate knowledge acquired through the training to other counterparts.
- Technical staff engaged in agricultural and irrigation development in the State or districts and belonging to (1) Irrigation and Water Resources Department, (2) Department of Agriculture, (3) Department of Horticulture, (4) Land Resources, Soil and Water Conservation Department.
- Persons who are participating in the activities of the project and intending to participate in the activities until 2022 when the project ends.

The breakdown of the ten participants is two from the Irrigation and Water Resources Department (PMT:1, BAIDC:1), three from the Agriculture Department (PMT:1, BAIDC:2), two from the Horticulture Department (PMT:1, BAIDC:1), and one from the Land Resources, Soil and Water Conservation Department (PMT:1). There was 1 person at the station (1 person with PMT). The participants were selected within the State and later approved by the central Ministry of Water Resources.

4.2 Willingness to Participate in Training and Attitude

The participants of the training were highly motivated and actively asked questions at each training. Respect was paid to the person in charge at the host institution and the lecturer, and the attendance attitude was sufficient.

5. Utilization of Training Outcomes

5.1 Outcomes Obtained in the Training

The training consisted mainly of lectures and site visits. Tokushima Prefecture, which is almost the same size as the state of Mizoram, was selected for the lectures. The lectures included about actual agricultural policy, agricultural extension system and irrigation management in Japanese local governments. And, they learned about the planning and implementation of agricultural extension plans and the actual practice of irrigation management at Tokushima Prefectural General Citizens Department, which is the same size as

the BAIDC Offices. In addition, they inspected the site of established agriculture in hilly area, focusing on the slope agriculture in Nishi-Awa, which was registered with FAO's GIAHS in April 2018. And then a lecture was given on the possibility of using bamboo powder for agriculture, which grows naturally in Mizoram, and visited an agricultural processing, organic farming, and so on. The following table summarizes the main learning contents (outcomes) for each training theme that the participants gave their opinions on.

Table 5.1.1 Outcomes of the Training

Theme	Major Outcomes
Agriculture extension system planning, implementation, and monitoring on the hilly area.	<ul style="list-style-type: none"> • Importance of common master plan and policy between the Department of Agriculture that supervise operation related to agriculture, forestry and fisheries and related departments in the local government. Importance of promoting central government projects from the perspective of local governments. • Importance of data collection management in master planning and policy making. • Importance of policy making that integrates the intentions of farmers collected by extension officers, the issues, and the opinion of experts, including private companies and media. • Importance of regular evaluation of plans and policies and revision based on evaluation results. • Importance of providing one-stop extension service represented by Mima Agricultural Support Centre, and the necessity of establishing the centre. • Importance of collecting and aggregating information related to agriculture at the centre and using such information for planning. • Importance of in-service training to enhance the two functions of extension officers (specialist and coordinator) and coordinator function. • Importance of an annual extension activity plan at the BAIDC office level. Consistency between extension plans and policies. Setting numerical goals. Necessity of refining activities using PDCA cycle. • Importance of regular visits to farmers to observe farmland and detect issues early by extension officers. • Importance of extension officers working earnestly, making for smooth communication and sharing of information with farmers. • Necessity of support in formulating market-based production plans such as SHEP.
Irrigation facility development and management especially construction management.	<ul style="list-style-type: none"> • Irrigation facilities development by farmers. Sharing of expense by beneficiaries for implementation of construction. • Operation and maintenance system for irrigation facilities prescribed by law such as the Land Improvement Law. • Operation and maintenance of irrigation facilities by land improvement district (collection of dues and compulsory participation system). • Quality assurance of construction work.
Practice of farmers for hilly area cultivation, resources utilization and management, and agriculture processing and marketing.	<ul style="list-style-type: none"> • Efforts for making fertile soil. Utilization of Japanese torreyia on the hilly area. Measures against soil erosion by practicing soil lifting. • Securing new profits by promoting ecotourism and agrotourism. • Utilization of bamboo powder for soil improvement and cattle feed. Low-cost manufacturing of bamboo powder. Commercialization of bamboo powder manufacturing. • Practice of natural farming. • Processing of Hatokora, lemon, and orange. • Direct sales store where farmers can easily sell surplus products. • Establishment of agricultural cooperative and farmer interest group.

Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

5.2 How to Use the Outcomes

On 3rd October 2019, after returning to Japan a debriefing session was held in Mizoram and the outcomes of the overseas training were shared with project stakeholders (PMT members and BAIDC members). In addition, the outcomes of the training was planned to compile and submit to the higher

management as a written opinion on points that can be implemented in the state.

The following items were raised by the participants as items that should be introduced by the State.

- A one-stop service for farmers like the Mima Agricultural Support Center is necessary, and it matches the current BAIDC concept. In order to put the BAIDC concept into practice, organizational restructuring is desirable, and restructuring requires consultations among directors and secretaries. Similar discussions have been held in the past, but have been abandoned. At present, both the Director of Agriculture and the Department of Horticulture have submitted a proposal to the state government to reorganize circles on a block-by-block basis. In order to realize the BAIDC concept, the realization of the proposal is the first step, and it is necessary to discuss it at the JCC.
- On the other hand, there is also the idea of maintaining the current organization as proposed by JPT and only implementing some functions. Such measures are desirable if restructuring is expected to take time.
- The action plan of the extension workers implemented by the Mima Agricultural Support Center is formulated in a manner consistent with the policy (master plan) and the needs of the farmers. In the case of Mizoram, the master plan formulated in a JICA study in 2015 can be said to be the State's master plan, but it is necessary to promote it because the contents have not been permeated. Also, with the change of government, it is necessary to set new targets that are in line with the current administration.
- The bottom-up approach practiced in Tokushima is similar to what the Indian federal government now mandates in many central government projects. It should also be practiced in Mizoram.
- In order to spread a dissemination system like Tokushima, in addition to top-down institutionalization, it is necessary to promote understanding and motivation of practitioners.
- The management of irrigation facilities and the agricultural cooperatives based on the two laws of Japan's Land Improvement Law and Agricultural Cooperatives Law are good. The contents and concepts of these laws should be understood and disseminated in Mizoram State.
- Capacity building of extension workers should be practiced. It is necessary to set a longer training period for new graduate extension workers, to introduce the idea of OJT, and to strengthen their abilities in their regular work as an organization.

6. Training Environment

In this training, there were no participant who complained of poor physical condition. A lot of chartered buses are used as a means of transportation. It is desirable to actively use it in the next training because it was not only convenient but also had a great effect in reducing the fatigue of the trainees.

7. Other Notices

The amount of daily allowance for the participants did not pose any problem as a minimum fund for food and daily necessities. In Tokushima City, they were unable to withdraw their daily allowance, but the participants did not complain.

In addition, in this training, a great deal of support was received from Tokushima Prefectural Government, Tokushima Western General Prefectural Citizens Department, Tsurugi Town Hall, companies in Tokushima Prefecture, JICA Shikoku Center, Tokushima Desk, and JICA Kansai Office, taking this opportunity to thank them.

Attachment 1
Detailed Training Shedule

Training Schedule (Actual)

Date	Training contents	Visit
24th Sep.	Arrive in Japan from India	
25th Sep.	Briefing and Orientation	JICA Shikoku
	Planning and implementation method of prefectural agriculture, forestry and fisheries basic plan	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
26th Sep.	•Irrigation facility development in Tokushima prefecture	Agriculture, Forestry and Fisheries Department in Tokushima Prefecture
	•Land improvement district	
	•Agriculture extension system	Agriculture, Forestry and Fisheries Technical Support Center
	•Transition of budget and agricultural and rural support projects •Role of Agricultural Support Center	
27th Sep.	•Agriculture extension plan, monitoring and evaluation •Association with research institutes	Mima Agricultural Support Center
	Cultivation techniques of Shine Muscat	Farmers
	Agricultural management of new farmers	Farmers
	•Activities of JA Mima •Cooperation between JA and Mima agricultural support center	JA Mima
28th Sep.	Status and management system of irrigation facilities in Miyoshi	
	1. Maintenance by land improvement district	Western Branch Office in Tokushima Prefecture
	2. Story of Minura irrigation	
	3. Irrigation facility in Hirumaashio Land Improvement district	Western Branch Office in Tokushima Prefecture
	Irrigation facility in Hirumaashio Land Improvement district (Main canal, terminal equipment and beneficiary area)	Hirumaashio Land Improvement district office
Irrigation facility in Minura (intake and irrigation tunnel)	Kawachidani Land Improvement district office	
Visit to Orange farmers		
29th Sep.	Japanese culture program	
	Experience of Japanese tea and Awa Odori. Visit to Mt. Biran	
30th Sep.	Holiday (Tokushima Marche)	
1st Oct.	Characteristics of slope agriculture around Mt. Tsurugi	Tsurugi town office
	Visit to Yu yu kan.	Yu yu kan.
	Lunch in Farmer Restaurant "Fuwar"	Farmer Restaurant "Fuwar"
	Site visit at Anabuki Inchiwa village	Anabuki Inchiwa village
	Site visit at Senu village	Senu village
Site visit at Sanukai village	Sanukai village	
2nd Oct.	Production of agricultural materials and equipment using local resources	Bamboo Chemical Research Institute Co., Ltd.
	Agricultural processing and added value	Kinomura Co., Ltd.
3rd Oct.	Basics of organic farming and actual situation of farm support	Tokushima Organic Agriculture Support Center
	Marketing of Organic farming	Awa Nousan Co., Ltd.
4th Oct.	•Summary of training •Closing ceremony	JICA Shikoku
	Move (from Tokushima to Tokyo)	
5th Oct.	Meeting with the members of the survey team	
	Leave Japan for India	

Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

Attachment 2
List of Participants

List of Participants

No.	Photo	Name	Present Post & Place of Employment
1		Mr. Dr. H. Saithantluanga	Director, Agriculture Department (R&E), State Government of Mizoram
2		Mr. Rohmingthanga Colney	Director, Agriculture Department (CH), State Government of Mizoram
3		Mr. C. Lalremsiama	District Horticulture Officer, Office of the District Horticulture Officer, Kolasib District, Horticulture Department, State Government of Mizoram
4		Mr. Laldingliana Hrahsel	Executive Engineer, Office of the Executive Engineer, Champhai Division, Irrigation & Water Resources Department, Government of Mizoram
5		Ms. Lalnunpuii Parte	Subject Matter Specialist (PP), Office of the District Agricultural Officer, Aizawl District, Agriculture Department (CH), State Government of Mizoram
6		Ms. Ruatkimi Varte	Assistant Engineer, Office of the the Chief Engineer, Irrigation & Water Resources Department, Government of Mizoram
7		Mr. Lalzuitluanga	Sub-divisional Officer, Office of the Sub-Divisional Officer, Serchhip Sub-Division, Irrigation & Water Resources Department, Government of Mizoram
8		Mr. B. Lalzarzova	Horticulture Development Officer, Horticulture Department, State Government of Mizoram
9		Ms. Lalrindiki	Agriculture Extension Officer, Office of the District Agricultural Officer, Champhai District, Agriculture Department, State Government of Mizoram
10		Ms. H. Lalhmachhuani	Senior Horticulture Demonstrator, Office of the Sub-Divisional Horticulture Officer, Champhai Sub-Division, Horticulture Department, State Government of Mizoram

Source: The Project for Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram, Republic of India (Phase-2)

Attachment 6

LIST OF EQUIPMENT PROCURED

物品リスト (List of Equipment)

業務名称: ミゾラム州持続可能な農業・灌漑開発のための能力強化プロジェクト
Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram

対象国: インド国 (India)

物品名称 Name of Equipment	規格・品番 Specification	個数 No.	取得価格 (Purchase Price)			取得日 (Purchase date)	配置場所 (Present Location)	現況 (Status)	備考 Remarks	事業終了後の取扱い Handling after project completion
			取得価格 (Price)	通貨 (Currency)	日本円換算 取得価格 (Equivalent to JPY)					
Copying machine	Canon Image CLASS MF4720w	1	14,500	INR	25,218	14/Jul/17	in I&WRD Office	under operation		Transfer to GoM
Multifunction printer	Richo MP C2003	1	3,797	USD	429,763	11/Sep/17	in I&WRD Office	under operation		Transfer to GoM
Projector	PLAY PP004	1	294	USD	33,276	13/Oct/17	in I&WRD Office	under operation		Transfer to GoM
Video camera	Sony HXR-MC 2500P	1	1,401	USD	158,572	18/Oct/17	in I&WRD Office	under operation		Transfer to GoM
Desktop PC	HP 570-P0531N	5	3,917	USD	443,346	18/Oct/17	CE office I&WRD, BAIDC office in Aizawl, Kolasib, Serchhip, Champhai	under operation		Transfer to GoM
Multifunction printer	SHARP AR6031	4	9,346	USD	1,057,827	10/Nov/17	BAIDC office in Aizawl, Kolasib, Serchhip, Champhai	under operation		Transfer to GoM
Generator	Honda EX2400	4	310,000	INR	539,152	09/Nov/17	BAIDC office in Aizawl, Kolasib, Serchhip, Champhai	under operation		Transfer to GoM
Copying machine	Hp Offices Jet 7612	4	1830	USD	207,129	10/Nov/17	BAIDC office in Aizawl, Kolasib, Serchhip, Champhai	under operation		Transfer to GoM
Projector	EB-X05	2	37500	INR	60,975	25/Jun/19	in I&WRD Office	one is under operation one is broken		Transfer to GoM
Brush cutter	STIHL FS55	10	215000	INR	338,313	26/Jun/19	Areca nut farmers at Buhchangghai	under operation		Transfer to GoM
Desktop computer	Asus Core i5	4 9 7 5	782500	INR	1,167,185	15/Jul/21	in I&WRD office in DOA office in DOH office in LRSWCD office	under operation		Transfer to GoM
UPS	UPS 725	4 9 7 5	48750	INR	72,716	15/Jul/21	in I&WRD office in DOA office in DOH office in LRSWCD office	under operation		Transfer to GoM
USB Microphone	Logtech	4 9 7 5	287500	INR	428,838	15/Jul/21	in I&WRD office in DOA office in DOH office in LRSWCD office	under operation		Transfer to GoM
Webcam (Logitech C922 Pro)	Logitech C922 Pro	4 9 7 5	297950	INR	444,425	15/Jul/21	in I&WRD office in DOA office in DOH office in LRSWCD office	under operation		Transfer to GoM
TV (Haier)	LE42AG500AG	4 9 7 5	975000	INR	1,454,320	15/Jul/21	in I&WRD office in DOA office in DOH office in LRSWCD office	under operation		Transfer to GoM
Projector	Epson EB-E01	2	76000	INR	136,333	07/Nov/22	in I&WRD Office	under operation		Transfer to GoM
Projector	Zeb LP4000	1	29000	INR	52,022	07/Nov/22	in I&WRD Office	under operation		Transfer to GoM
Generator	Honda EX2400	1	99700	INR	178,847	11/Nov/22	in I&WRD Office	under operation		Transfer to GoM
Total					7,228,257					
【以下、JICAから貸与されている物品】										

Received in full
24/11/23
Chief Engineer,
Human Resource Department
Mizoram Aizawl

Handed over
24/11/2023
Irrigation & Water Resources Department
New South's/lot Complex,
Khalia, Opp. AT1,
Aizawl 786001, Mizoram

注1) 本「貸与物品リスト」には、契約書附属書1「共通仕様書」第22条の規定に基づき、発注者から貸与を受けている物品・機材を記載してください。具体的には、契約金額内訳に経費を計上し、受注者自ら調達を行って事業に使用している物品・機材は発注者の発注者名簿に記載する必要はありません。ただし、消耗品に分類される物品・機材及び供与機材は除外します。
注2) 受注者自ら調達を行った物品については、その取得価格及び取得日を記載してください。日本円換算に必要な為替レートは取得月のJICA統制レートを使用してください。
注3) 「現況」欄は、「稼働中」、「故障：修理中」、「故障中」、「停止」、「その他」の選択肢で記載し、「稼働中」以外の場合は、備考にその状況を説明してください。契約書附属書1「共通仕様書」第22条の規定に基づき、自己の故意または過失により貸与された物品を滅失又は破損したときは、代替品の返還、原状復帰、又は損害賠償を求められることがありますので、そのような事態が発生したときは、速やかに監督職員に相談してください。
注4) 契約を複数の契約履行期間に分割して契約書を締結している場合であって、既に先行する契約履行期間の積算において受注者が調達した物品の購入経費を積算している場合は、その旨「備考」に記載してください。
注5) 「事業終了後の取扱い」欄は、「実施機関に譲与」/「事務所・支所に返還」の選択肢で事業終了後の取扱いを記載するとともに、譲与/返還手続の完了日付を記載してください。これらの取扱いは、事業終了時点で発生するため、それまでは「事業終了後の取扱いに係る想定」として、「実施機関に譲与予定」/「事務所・支所に返還予定」/「未定」の選択肢で記載しておいてください。
注6) なお、事業終了後に実施機関に譲与した場合は、実施機関の長又はそれに準ずる者が署名した受領書を徴取し、その原本をJICA在外事務所へ提出、その写しを経費精算報告書に添付してください。事務所へ返還した場合は、事務所から受領書を取得し、経費精算報告書に添付してください。
注7) JICAから貸与されている物品については、JICAが貸与する際に、「物品名称」、「規格・品番」、「日本円換算取得価格」、「取得日」をお伝えするので、その情報を記載してください。
注8) 本リストを「コンサルタント業務従事月報」に添付して提出する際には、当該物品が配置場所に存在していることを確認（現品対査）してください。

Attachment 7

PROJECT ACTIVITY PHOTOGRAPH

Project activity photos (July 2017)



Kickoff Meeting

Kickoff Meeting was held with C/Ps in I&WRD, DOA, DOH and LRSWCD. (Shot on Jul. 17th 2017)



Meeting with Secretary of I&WRD

JICA Project Team explained about the Project to Secretary of I&WRD. (Shot on Jul. 18th 2017)



Meeting with Director of LRSWCD

JICA Project Team explained about the Project to Director of LRSWCD. (Shot on Jul. 20th 2017)



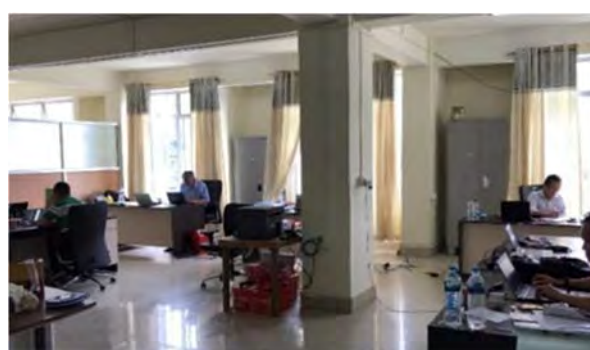
Meeting with Director of DOA

JICA Project Team explained about the Project to Director of DOA (CH and R&E). (Shot on Jul. 21st 2017)



Overview of I&WRD

The JICA Expert office is established in 2nd floor of I&WRD office building of New Chief Secretariat Complex. (Shot on Jul. 31st 2017)



Overview of the office for JICA Project Team

The project started the procurement of the necessary equipment and employment of local consultants (Shot on Jul. 31st 2017)

Source : JICA Project Team

Project activity photos (August 2017)



Meeting for Establishment of BAIDC in Kolasib District

The meeting for establishment of BAIDC was held with I&WRD, DOA, DOH and LRSWCD in Kolasib district. (Shot on Aug. 2nd 2017)



Hearing from Farmers in a Village of Bilkhawthir RD Block

JICA Project Team discussed with farmers in a village of Bilkhawthir RD Block. (Shot on Aug. 2nd 2017)



Meeting for Establishment of BAIDC in Serchhip District

The meeting for establishment of BAIDC was held with I&WRD, DOA, DOH and LRSWCD in Serchhip district. (Shot on Aug. 3rd 2017)



Hearing from Farmers in a Village of Serchhip RD Block

JICA Project Team discussed with farmers in a village of Serchhip RD Block. (Shot on Aug. 2nd 2017)



1st JCC

1st JCC was held with Secretaries of each department and representatives of JICA India office. (Shot on Aug. 7th 2017)



CUDBAS Workshop

JICA Project Team organized CUDBAS workshop for capacity enhancement of C/Ps. (Shot on Aug. 8th 2017)

Source : JICA Project Team

Project activity photos (September 2017)



Meeting with Contact Persons of Four Departments

The meeting for Contact Persons of four departments (I&WRD, DOA, DOH and LRSWCD) was held at DOH. (Shot on Sep. 6th 2017)



Monitoring for Pre-baseline Survey and Site Visit in Tachhip, Aibawk RD Block

JICA Project Team monitored the pre-baseline survey and visit one farmland in Tachhip, Aibak RD block. (Shot on Sep. 9th 2017)



Inauguration of I&WRD

The Inauguration of I&WRD was held. VIPs, including Chief Minister, Vice Chairman and Secretary, attended the ceremony. (Shot on Sep. 19th 2017)



Meeting with Contact Persons of Four Departments

The meeting for Contact Persons of four departments was held at LRSWCD. (Shot on Sep. 20th 2017)



Awareness about methods establishment against Project Management Member (PMT)

The meeting for PMT was held at I&WRD and awareness about Project activities was done (Shot on Sep. 25th 2017)



Meeting with C/P personnel of Four Departments

The meeting for Contact Persons, working group and facilitator for future workshops of four departments was held at DOH. (Shot on Sep. 28th 2017)

Source : JICA Project Team

Project activity photos (October 2017)



Meeting with BAIDC in Serchhip II

We visited Serchhip II with BAIDC members and confirmed farmland, water resources, and farming conditions. In addition, we confirmed the criteria for selecting villages and the procedures for future work (photographed on October 4, 2017).



Site visit to Neihloh village

The JICA project team visited Neihloh, a village in Serchhip RD block, and met with farmers. Farming conditions, farmers' motivation, etc. were confirmed and used as materials for selecting pilot villages (photographed on October 4, 2017)



Meeting with working group (FO)

The JICA project team had discussions with a working group that was formed to develop a manual for farmers on organizing farmers. The consultation consists of the Horticulture Department, the Irrigation and Water Resources Department, and the Agriculture Department (photographed on October 16, 2017)



PMT Meeting for Selection of 1st pilot villages

The JICA project team organized village information and discussed with the PMT on the selection of the first pilot village. After discussion, four villages were selected (photographed on October 17, 2017)



Meeting with working group (Crop Production)

The JICA project team held discussions with a working group organized to develop a manual for staff on crop production. Discussions are held once a week at the Horticulture Department or the Agriculture Department (photographed on October 16, 2017).



Follow-up CUDBAS workshop in Champhai district

A CUDBAS follow-up workshop was held for BAIDC members in Champhai. At the workshop, participants learned about their own work, evaluated their current technical levels, and created plans to improve their technical capabilities during project implementation (photographed on October 31, 2017)

Source : JICA Project Team

Project activity photos (November 2017)



Orientation Meeting with BAIDC

Basic training on participatory development planning was conducted for BAIDC members together with some PMT members. BAIDC members then facilitated discussions at the PRA workshop. (Taken on November 30, 2017)



Workshop with BAIDC in Sailam

Together with BAIDC members, we visited Sailam and held a workshop for local farmers. We were divided into four groups (WRC, Jhum, Orange, and Irrigation) and discussed the development plan. (Taken on November 20, 2017)



Working group discussion on irrigation

A working group consisting of officials from IWRD, DOA and LRSWCD continued to discuss the methodologies in the irrigation sector. (Taken on November 9, 2017)



Workshop with BAIDC in Hnahlan

Together with BAIDC members, we visited Hnahlan and held a workshop. Nearly 80 farmers gathered at the workshop, divided into WRC, Grape, and Jhum groups, to discuss development plans. (Taken on December 1, 2017)



Wrap up Meeting in Aizawl

The results of the development plan extracted at the Sailam/Serchip II workshop were shared with state government officials and BAIDC members. Furthermore, the plan was made concrete by considering the effectiveness of the development plan and financial resources. (Photographed on November 24, 2017).



Irrigation Scheme Survey in three villages

In order to formulate a development plan, we conducted a field survey of existing irrigation facilities in three villages (Sailam, Serchip II, and Hnahlan) and collected basic information (where, how large, and what kind of problems they have). (November 28, 2017)

Source : JICA Project Team

Project activity photos (December 2017)



Survey of the current state of irrigation facilities in Buhchangphai Village

In order to formulate a development plan for Buhchangphai Village, we conducted a survey of the current status of irrigation facilities with local farmers. Buhchangphai village irrigates the WRC in the village through a pipeline from the Tuikhur river. The pipeline was laid in 2005, but it is leaking and not supplying enough water. Also, although the Irrigation Department is repairing the pipeline, the situation is that it has not been completely repaired. (Left: Interview to understand the current situation, Right: Current situation survey taken on December 9, 2017)



Buhchangphai village workshop

We visited Buhchangphai village and held a workshop for local farmers. About 180 farmers participated in the workshop, and each group examined development plans under the moderation of a BAIDC member. (Left: Explanation of the project, Right: Consideration of the WRC Group's development plan, taken on December 11, 2017)



Wrap-up Meeting in Kolasib

Information was shared with the members of each department (Agriculture Department, Irrigation Department) of the Kolasib provincial staff on the development plan extracted at the workshop in Buhchangphai Village. (Taken on December 15, 2017)



PMT Meeting in DOA

Based on the monitoring sheet, we held talks with PMT members about the progress of the project, the issues we were facing, and the future outlook. (Taken on December 12, 2017)

Source : JICA Project Team

Project activity photos(January 2018)



Field survey for formulation of irrigation plan in Serchhip village Irrigation Scheme Survey with BAIDC Member in Serchhip

Based on the irrigation plan proposed by JPT in Serchhip village, field survey was conducted with BAIDC members. This allowed the BAIDC members to gain a first-hand experience of the irrigation plan and field conditions in Serchhip Village. At the same time, after the field survey, a meeting was held with about 20 farmers in Serchhip village to hear their opinions about the future of the village and reconfirm the importance of rehabilitation of irrigation facilities. (Left: Field survey, Right: Workshop for farmers, taken on January 30, 2018)



BAIDC Meeting for formulating an irrigation plan for Serchhip Village BAIDC Meeting in Serchhip

A meeting was held to formulate an irrigation plan based on the above field surveys and workshops for farmers. Each irrigation plan was examined from multiple perspectives, including the effectiveness and cost of the plan, WUA maintenance, land owner issues, and the capacity of construction supervisors. (Taken on January 30, 2018)



PMT Meeting in Committee Room, I&WRD

A meeting was held with PMT members to respond to the comments on the monitoring sheet. We discussed the progress of the project, the implementation system, the issues that the project faces, and the next JCC meeting. (Taken on January 25, 2018)

Source : JICA Project Team

Project activity photos(February 2018)



BAIDC meeting in Kolasib village

Irrigation Scheme Survey with BAIDC Member in Serchhip village

Concerning the irrigation development plan drawn up at the workshop in Buchangphai village held in December, a meeting was held with BAIDC members in Kolasib village to form a consensus. As a result, JPT, farmers, and BAIDC members were able to share a common understanding of the irrigation development plan (photographed on February 6, 2018)



Sailam village irrigation development plan formulation meeting and field survey

BAIDC Meeting and Irrigation Scheme Survey in Sailam village

In order to formulate an irrigation development plan for Sailam village, two plans were proposed and examined from the aspects of effectiveness of the plan, problems of land owners, and future maintenance. In addition, a field survey was actually conducted with BAIDC members. (Taken on February 8, 2018)



BAIDC Orientation held

BAIDC Orientation in ATI Auditorium

BAIDC Orientation was held for BAIDC members of each pilot village. Orientation explained the step-by-step activities of BAIDC to achieve sustainable agriculture and irrigation development based on the implementation guidelines prepared. The photo on the right shows the BAIDC member in charge of Sailam village making an annual activity plan, one of the stages of the implementation guideline. (Left: February 16, 2018, Right: February 27, 2018)

Source : JICA Project Team

Project activity photos(March 2018)



Conducting field surveys related to infrastructure development in four villages

A joint field survey was conducted with JPT, Irrigation Department, and farmers in four pilot villages. In Sailam village, we conducted river flow measurement, channel route survey, and soil survey related to two MIPs (left photo: taken on March 5, 2018). In addition, at Serchhip, we checked the condition of the existing weir and confirmed the scouring of the weir due to the flood (right photo: taken on March 12, 2018)



BAIDC (Aibawk Block) Consultation for annual planning

Based on the results of the PRA workshop with farmers, the BAIDC annual plan was formulated from the end of February to determine the activities to be implemented in the next fiscal year. The contents of the activities were arranged according to the main land use conditions (jhum area, sloping land settlement area, WRC area), and the implementing bodies and funding sources were clarified. Based on the available CSS information researched in advance, an annual plan was formulated using not only JICA funds but also CSS funds. (Photo left: Aizawl taken on March 5, 2018, Photo right: Kolasib taken on March 9, 2018)



Joint field survey and cultivation plan formulation for Hnahlan village irrigation project DPR formulation

As for Hnahlan Village, in a workshop with farmers, promotion of cash crops by mixed cropping with grapes was shown as one of the development directions. The Dilhnuai irrigation project is listed as an infrastructure development plan that supports the development plan, and the formulation of the DPR has started. Hnahlan confirmed with BAIDC members, the beneficiary area and water source, and considered changing from pump water supply to gravity system. (Photo left: taken on March 19, 2018). Based on these results, the project scope was determined and a cultivation plan was drafted. (Photo right: taken on March 22, 2018)

Source : JICA Project Team

Project activity photos(April 2018)



Visit to MiSALT Program (FAO) and discussion with stakeholders (1/2)

Observed the spread of soil conservation work in the MiSALT project implemented by FAO for two years from 2015. In particular, we were able to confirm the practice status of farmers near the national highway with good access (Thiak Village, taken on April 30, 2018).



Visit to MiSALT Program (FAO) and discussion with stakeholders (2/2)

Together with Mizoram University faculty members, we inspected the soil conservation method using bamboo and the effect of co-planting of useful crops that were practiced in MiSALT, and examined how to use it in the project (Thiak Village, April 30, 2018).



Discussion of BAIDC annual plan in Sailam Village

Regarding the BAIDC annual plan, which was formulated based on the results of the workshop held in November last year, we again discussed with the villagers the selection of target persons, target crops, and the implementation period. (Sailam taken April 24, 2018).



Inspection and preparation of pilot site in Sailam Village

Villagers, BAIDC members, and JPT jointly conducted the transfer of vegetable cultivation techniques on sloped land and the selection of pilot farmers for productivity improvement in Jhum (Sailam, April 24, 2018).



Discussion of BAIDC annual plan in Hnahlan Village

Hnahlan has 5 projects planned and expected to be implemented in 2018. The number of pilot farms, areas for implementation of activities, etc. was discussed with residents (Hnahlan taken on April 20, 2018).



Preparation of DPR for infrastructure projects by IWRD

Mainly EE and SDO prepared 6DPR for infrastructure candidate projects. As of the end of April, 4DPR is almost complete (Aizawl, taken on March 29, 2018).

Source : JICA Project Team

Project activity photos(May 2018)



Landscape of IEE and Environmental Monitoring WKSP

Morimitsu, an expert in charge of environmental and social considerations, held a workshop on IEE survey reports and environmental monitoring implementation for infrastructure construction candidate projects. Discussing the monitoring system, etc. (Aizawl photo taken on May 11, 2018).



Participation in National Level WKSP for HP State Crop Diversification

PMT member Agricultural Department Deputy Director, 2 BAIDC Horticulture Department members and 1 Japanese expert participated in HP State Crop Diversification WKSP to learn lessons from previous cases (Dharamshara, May 8, 2018).



Jhum Productivity Improvement Training in Hnahlan Village

Technical training on soil conservation measures was conducted for five selected Jhum pilot farmers together with BAIDC members (Hnahlan, May 21, 2018).



Vegetable cultivation training in Hnahlan Village

Together with BAIDC members, 6 pilot farmers received training on cucumber, maize, Chinese cabbage, and cabbage cultivation techniques (Hnahlan, May 22, 2018).



BAIDC progress meeting (Serchhip)

We discussed the implementation method and implementation process for the three projects planned to be implemented in 2018, and confirmed the content of the technical training (Serchhip, May 28, 2018).

Source : JICA Project Team



Farming and marketing training at Serchhip

Conducted farm management and marketing training for 28 farmers selected from 4 clusters of vegetable producer associations. We plan to formulate a cultivation plan that meets market needs and profit targets (Serchhip, May 29, 2018).

Project activity photos(June 2018)



Technical training for organic fertilizer production

In collaboration with BAIDC members, organic fertilizer (Bokashi) manufacturing training was conducted in Sailam and Buhchangphai. Verification of effectiveness and feasibility of continued manufacturing through pilot activities (Sailam, June 8, 2018).



Implementation of basic rice cultivation training by BAIDC and JPT

Conducted basic training on improving rice cultivation techniques jointly with BAIDC members. Training was given to pilot farmers on the optimization of farming based on the standard cultivation plan (Buhchangphai, June 14, 2018).



Continuation of pilot activities related to Jhum productivity improvement

Aiming to improve the productivity of Jhum, continued demonstrations of soil conservation measures and vegetable cultivation through pilot farmers. Cultivation of okra etc. is exhibited. (Sailam taken June 8, 2018).



Cultivation of Vetiver Grass

Purchased seedlings of Vetiver Grass, which is expected to be effective as a countermeasure against soil erosion, and started cultivation in Kolasib's Agriculture Bureau field. After growing, it is used in each village according to the BAIDC annual plan (Kolasib taken on June 14, 2018).



BAIDC monthly progress meeting (Champhai RD Block)

After observing the 1st pilot activity, BAIDC members sorted out the on-site findings and technical guidance items, and summarized the items to be addressed as a meeting memo (Photographed on June 26, 2018 in Champhai).

Source : JICA Project Team

Source : JICA Project Team



Continuation of pilot activities related to sloping vegetable cultivation

Vegetable cultivation activities of the selected 7 pilot farmers were continued, activity monitoring and technical guidance by BAIDC members (Hnahlan taken on June 26, 2018).

Project activity photos(July 2018)



PMT meeting related to progress management, creation of monitoring sheets, etc.

A PMT meeting was held to confirm the progress of the pilot projects in the four villages, and to sort out the matters to be discussed at the JCC. In addition, a monitoring sheet Ver.2 was created and submitted to JICA (Aizawl taken on June 29, 2018).



Site visit by Mr. Watanabe and Mr. Subroto of JICA

Mr. Watanabe of JICA and Mr. Subroto visited Sailam to confirm the content and progress of the pilot project with the villagers (Sailam, July 4, 2018).



2nd JCC held

The 2nd JCC was held chaired by Lalnunmawia Undersecretary of Finance. Discussions were held on issues of concern, such as fostering BAIDC's independence and efforts to improve construction quality. (Aizawl taken on July 5, 2018).



Meeting with Chief Minister

Mr. Tange, who is visiting to attend the JCC, had a meeting with Chief Minister Lalthanhawla. In addition to explaining the details of the discussions at the JCC, a wide range of discussions were held regarding JICA's cooperation with the provinces (Aizawl, July 5, 2018).



Technical training for improving rice productivity

In introducing GOMATI and NIROGI varieties, which are expected to increase yields, we conducted seedling training with BAIDC in the fields of pilot farmers (Buhchangphai, July 11, 2018).



Continuation of pilot activities related to vegetable cultivation on slopes

Vegetable cultivation activities of the selected pilot farmers were continued. In 2018, the first year, we will demonstrate vegetable cultivation that has been produced in the Jhum area, including data acquisition (Sailam, July 10, 2018).

Source : JICA Project Team

Project activity photos(September 2018)



PMT meeting for work plan and Training program in Japan

PMT meeting was held on (1) examination and approval of workplans, and (2) outline schedule of training program on Japan. (Aizawl, shot on September 14,2018)



Pilot Activities of slope cultivation

The vegetables cultivation activities of the pilot farmers were continuously monitored. The picture shows the harvest of sweet corn. (Sailam, shot on September 17,2018)



Holding a Working Group for infrastructure development projects

Working Group for infrastructure development projects was held at CE, EE and JPT. The bidding method and schedule (from the preparation of bidding documents to the start of construction) were examined. (Aizawl, shot on 19, 2018)



Pilot Activities to increase productivity of Areca palm

Production of Areca palm by pilot farmers. (Buchangphai, shot on September 24,2018)



Courtesy call on Tokushima prefectural office

Training Program in Japan started on September 24th in Tokushima Prefecture. The trainees received on agricultural policies, agricultural extension system and history, and maintenance by the irrigation facility and land improvement district system. The trainees also paid a courtesy to Mr. Fukui, Supervisor of Policy. (Tokushima city, shot on September 25, 2018)

Source : JICA Project Team



Lecture and site visit ***

The trainees visited Western Branch Office in Tokushima Prefecture to learn about the contents of the extension worker's action plan, activity monitoring, and evaluation methods. Then, the trainees visited the irrigation facility and heard from the officers of land improvement district about management methods. (Miyoshi, shot on September 28, 2018)

Project activity photos (October 2018)



Training Programmes in Tokushima

The trainees acquired knowledge on slope agriculture in the Awa area, effective use of bamboo, agricultural processing, and organic farming. At the results presentation held, and a certificate of completion was presented by Director Kobayashi of the JICA Shikoku Center. (Tokushima city, shot on October, 2018)



Consultation and Additional investigation for Community Construction Work

According to BAIDC Annual Plan, I&WRD and JPT conducted site reconnaissance on Sailam and Sechhip to identify the part of community construction work and collect additional information. (Serchhip, shot on October 26, 2018)



BAIDC Progress Meeting (Aibawk)

BAIDC progress meeting was held to reconfirm the work plan for phase-2, and then the progress of six projects at Sailam was confirmed. Contractor procurements and Implementation Guidelines for construction of Laului were also discussed. (Aizawl, shot on October 23, 2018)



Production of organic fertilizer for the dry season

Organic fertilizer (Bokashi) was produced at Sailam for the dry season. Organic fertilizer will be used for cultivation of pea and oil seed by pilot farmers on WRC and slopes. (Sailam, shot on October 20, 2018)



Conduct paddy cultivation training by BAIDC member

Paddy cultivation training was conducted by staff of DOA at Buhchangphai. In the training, the benefits of SRI methods were explained, and there was a discussion about a review of the benefit sharing system between landowners and tenant farmers from Assam. (Buhchangphai, shot on October 25, 2018)



Report on Japan training

The trainees shared the results of training in Japan with PMT and BAIDC members. Participants asked lively questions such as the role of the Mima Agricultural Support Center. (Aizawl, shot on October 26, 2018)

Source : JICA Project Team

Project activity photos(November 2018)



**Conduct paddy yield survey
of WRC Pilot Activities**

Yield survey was conducted with pilot farmers to confirm the results of pilot activities related to productivity improvement, and the conventional method and recommended method were compared. (Sailam, shot on November 26, 2018)



**BAIDC Progress Meeting
Discussion with Farmers**

BAIDC progress meeting was held to confirm the progress of BAIDC annual plan and identify the contents of community construction work in the irrigation project. After discussing, WUA agreed that the construction of small tanks for each farmer will be conducted by community construction works. (Hnalan, shot on October 31, 2018)



Final Survey for community contraction works

Final survey was conducted to create a bid book for the minor irrigation facility rehabilitation projects at Thuikhurlui. The water route and the position of the structure was reconfirmed, and the contents of the community construction works were examined. (Buhchangphai, shot on November 16, 2018)



Consultation and Training for oil seed cultivation

The staff of KVK from Kolasib conducted training for Oil seed cultivation and distributed seeds. In addition, ten pilot farmers discussed future activities for improvement of bloom grass productivity. (Buhchangphai, shot on November 16, 2018)



**Visit to an advanced farmer group to improve the
profitability of bloom grass**

Pilot farmers visited Saipum village as part of activities of improvement of bloom grass productivity and exchanged opinions with regarding harvesting and sales. (Saipum, November 23, 2018)



Nursery of Winter crops on pilot farms

Pilot farmers raised seedling of winter crops (tomatoes, cabbage, Chinese cabbage). Planting training will be conducted in December. (Serchhip, November 24, 2018)

Source : JICA Project Team

Project activity photos (December 2018)



Orange Pruning and Cultivation Training

BAIDC members conducted orange pruning and cultivation training, 39 farmers participated. And then, orange yield survey and interview survey with middlemen was conducted. (Sailam, December 7, 2018)



BAIDC Progress Meeting

BAIDC progress meeting was held to confirm the progress of five projects and to discuss future plans. Discussions with farmers on BAIDC annual plan 2019 will begin in January. (Champhai, December 10, 2018)



Monitoring of winter crops cultivation on pilot farmers

Pilot activities of winter crops (cabbage and broccoli) cultivation were continued at seven farmers, and necessary technical guidance was provided. One of seven farmers abandoned cultivation because they couldn't get labor in the family. (Hnalhan, shot on December 11, 2018)



Conduct planting training

Winter crops Planting training with BAIDC was conducted for 8 pilot farmers. (Serchhip, shot on December 10, 2018)



Paddy Yield Survey

Paddy yield survey in the harvest of dry season was conducted, and the data was collected from four tenant farmers of pilot farmers. (Buhchangphai, shot on December 14, 2018)



PMT meeting

A PMT meeting was held to confirm the progress of 20 projects at four pilot villages and discuss future schedules. A monitoring sheet ver3 was created and submitted to JICA India Office. In addition, the agenda of JCC in January 2019 were organized. (Aizawl, shot on December 17, 2018)

Source : JICA Project Team

Project activity photos (January 2019)



Follow-up of orange pruning and cultivation training

BAIDC members conducted a follow-up to orange pruning and cultivation training conducted in December last year. (Sailam, shot on January 25, 2019)



Bidding and evaluation of subcontracting work

In the presence of PMT and JPT, the bids for 4 irrigation facilities construction planned BAIDC Annual Plan 2018 were opened. A total of 17 companies bid for 4 works, and IWRD and compared the validity of the documents and the bid amount for each constructs item. Constructor will be selected in early February. (Aizawl, shot on January 23, 2019)



Conduct training on construction supervision (1/2)

Through irrigation works, the construction supervision manual will be refined and the capacity of BAIDC members will be enhanced. Prior to the implementation of irrigation works, construction supervision training was held for three days to promote understanding of the construction supervision manual and to learn the basics of construction quality control. (Aizawl, shot on January 23, 2019)



Conduct training on construction supervision (2/2)

In the training, on-the-job training was conducted to learn knowledge about selection of construction materials, the procedure and points of attention for concrete work, and quality control methods. In addition, the implementation of community construction works was explained based on the case of other countries. (Aizawl, shot on January 25, 2019)



BAIDC Meeting for Feedback meeting

Associate Prof. Nitea of Mizoram University (specializing in rural development) was invited to BAIDC meeting as a resource person, and discussions were held for the feedback meeting of BAIDC Annual Plan 2018. (Champhai, shot on January 28, 2019)



Feedback meeting in Hnalhan

BAIDC members from 4 departments participated and evaluated the activities in 2018 with the pilot farmers who were supported by Associate Prof. Nitea. Evaluation was conducted by groups for each program, and the contents of evaluation were shared with participants. (Hnalhan, shot on January 29, 2019)

Source : JICA Project Team

Project activity photos (February 2019)



Conclusion of local subcontracting construction work

Local Subcontracting Construction Work was concluded for the purpose of improving the capacity of construction supervision of the staff on IWRD. Contractors are Mizotech and Excell Consultancy Services. (Aizawl, shot on February 11, 2019)



Hold a feedback meeting in the three pilot villages

A feedback meeting was held to formulate BAIDC Annual Activity Plan 2019. BAIDC members from 4 departments participated, and evaluated the activities in 2018 and the pilot farmers of three villages with the support of Associate Prof. Nitea. (Buhchamphai, shot on February 5, 2019)



Site Visit by JICA Review Mission

JICA Review Mission, headed by a Nagayo expert, confirmed the progress of 1st pilot activities. During the stay, discussions were held with PMT and BAIDC 4 times to discuss future issues of the projects. (Sailam, shot on February 14, 2019)



3rd JCC

3rd JCC was held, chaired by CS. The progress report was carried out by Mr. Saipari, the director of DOH. At the meeting, eight recommendations were made by the JICA Review Mission. After the meeting, (Aizawl, shot on February 18, 2019)



Monitoring of cultivation situation in model farms

The growth of cabbage, Chinese cabbage, and tomatoes in the exhibition farms at Serchhip was confirmed. Farmers are highly evaluated for the use of mulching and insect screening nets. (Serchhip shot on February 2, 2019)



Implementation of accounting management training for BAIDC and WUA

Accounting management experts at Rural Bank conducted accounting management training for BAIDC members of IWRD and WUA. A total of 59 people participated in the two days, and practical training was conducted. (Aizawl shot on February 21, 2019)

Source : JICA Project Team

Project activity photos (March 2019)



**Consultation on formulation
of BAIDC annual plan**

Based on the results of the feedback meeting in 2018 held in February, a total of nine projects have been formulated and an implementation plan has been drawn up in the three villages of the 1st pilot excluding Serchhip II (Kolasib shot on March 4, 2019).



**Conclusion of contract for construction work
for residents**

IWRD concluded a contract for community construction work. Before the contract, IWRD explained the contents of the contract and reconfirmed the responsibilities of WUA. Due to the late registration of WUA, the construction work of the residents of Lumtui MIP has not been signed yet (Sailam shot on March 5, 2019)



Discussion on the 2019 BAIDC annual plan in Sailam

Ratification meeting on the drafted BAIDC annual plan 2019 was held in each village. In the village of Sailam, there was a lively discussion on the activities of this year toward the transition to settled farming. (Sailam, shot on March 7, 2019)



Discussion of 2019 BAIDC annual plan in Hnalhan

PMT members also participated to discuss the 2019 BAIDC annual plan in Hnalhan. BAIDC has selected pilot farmers and target crops for three pilot activities (Hnalhan shot on March 7, 2019)



PMT meeting

Each BAIDC representative explained the BAIDC annual plan that was formulated and agreed with by the villagers, and obtained approval from PMT. The PMT also discussed the necessary actions against eight recommendations issued by the JICA Mission (Aizawl, shot on March 12, 2019).



Site Reconnaissance by three Parties

Site surveys were conducted by IWRD, WUA, and contractor, and the canal routes and structure locations were confirmed. In addition, IWRD explained to the WUA members the details of construction plan (Buhchangphai, shot on March 13, 2019)

Source : JICA Project Team

Project activity photos (April 2019)



Monitoring of Community Construction Works

To enhance the capacity of construction supervision of the staff on IWRD, the four community construction works are going on. JE and SDO visited the site and monitored the progress of the works (Serchhip II, shot on April 16, 2019).



Conducted Training on Broom Grass Cultivation

In accordance with the planned 2019 BAIDC annual plan, under the guidance of JPT, LRSWCD will provide training on boom grass cultivation and collected data for yield survey (Buchnagphai shot on April 15, 2019).



Orange Cultivation Management Training

The staff of the DOH instructed the farmers on the orange grafting. In addition, in order to decide the appropriate fertilizer application, soil sampling test was conducted. Three samples were collected from one field, and those were sent to Indian Agricultural Research Center (ICAR). (Sailam shot on April 18, 2019).



Discussion on 2019 BAIDC Annual Plan

Sweet corn, bitter melon, tomato, and cabbage seeds were distributed to six pilot farmers, and BAIDC members from DOH led the lecture on farm management. BAIDC also gave the guidance in the field on the size of nursery beds, fertilizer application, seeding density, and so on (Hnlhan shot on April 22, 2019).



Conduct Market Research by BAIDC

BAIDC member conducted market survey at Champhai to understand the retailed price and supply chain of major vegetable and fruits (Champhai, taken April 23, 2019).



Holding a Monthly Progress Meeting for Pilot Construction Works

A monthly progress meeting was held in collaboration with WUA and contractor as specified under officers' manual on construction supervision. The meeting was held at the pilot site, and progress and current issues were discussed. After the meeting, site reconnaissance was conducted. (Sailam, shot on April 30, 2019).

Source : JICA Project Team

Project activity photos (May 2019)



Technical Guidance on Accounting Management of WUAs
BAIDC from IWRD reviewed the accounting book of WUA Dilnuai and provided necessary advice on financial management. (Hnalhan, shot on May 9, 2019).



Site Visit by Member Secretary of JCC
Eng. Valuanga, secretary of IWRD and LRSWCD as well as member secretary of JCC and PD have visited in the field to see the BAIDC activities and the progress of the project. (Serchhip shot on May 22, 2019).



Orange Terrace Construction Training
The staff of the DOH, a BAIDC member, explained to pilot farmers that the importance of controlling soil runoff and water retention for improving yield. A half moon terrace was constructed jointly with the farmers (Sailam shot on May 8, 2019).



Technical Guidance by BAIDC Members
The DOA's BAIDC members provided on-the-spot technical guidance on "SA-02: Support for transition from Jhum to settled farming" formulated in the 2019 BAIDC plan. BAIDC provided Armyworm on-site training with agrochemicals to pilot farmers (Sailam, shot on May 22, 2019).



PMT Meeting
PMT was held and representatives of each BAIDC explained the progress of ten pilot projects. Other than the progress, the way of capacity enhancement of core officers and the contents of the training in Japan were also discussed (Aizawl, shot on May 28, 2019).



Awareness on Effective Use of WRC Area
Under the "NH-04: Improvement of WRC area productivity", DOA BAIDC member conducted awareness meeting for ten pilot farmers (landowners and tenants). (Buhchangphai shot on May 14, 2019).

Source : JICA Project Team

Project activity photos (June 2019)



Conduct paddy cultivation training

According to the formulated BAIDC plan, DOA-affiliated BAIDC members (Mr. Zirsangzela) provided training on seedling production and transplantation to two pilot farmers on farmers' fields (Hnalhan shot on June 27, 2019).



GIS Training for Village Mapping

In preparation for the PRA workshop in the 2nd pilot village, GIS training was conducted to create topographic maps. The GIS will be implemented by JPT for four days. Ten participants were selected from each of the four departments (Aizawl, shot on June 26, 2019).



Discussion with core officers and launch of external expert group

Consultation with core officers was held on June 21 and 27 and an explanation was given on the future schedule and contents of the method and the direction of Mizoram agricultural development (Aizawl, shot on June 21, 2019).



Conclusion of Community Contract

The first phase of community contract on Dilnuai MIP has been progressing steadily and was completed on June 14, with final inspections by IWRD, WUA and JPT. After that, the second phase of the contract was signed (Hnalhan shot on June 18, 2019).



Confirmation of farmers' intentions in 2nd pilot candidate villages

Based on the criteria agreed at the PMT meeting in May, three BAIDC selected two candidate villages each. After that, BAIDC went the village to confirm the intention of the villagers to be a pilot village under the project (Meidum shot on June 28, 2019).



Capacity Improvement through Construction Supervision

Pilot work by the contractor has been delayed from the initial schedule, and IWRD reviewed the work schedule again and made necessary time extension not to disturb irrigation during July-October (Serchhip, shot on June 14, 2019).

Source : JICA Project Team

Project activity photos (July 2019)



Conduct Paddy Cultivation Training

JPT demonstrated weeding machine manufactured in cooperation with a craftsman in the city of Aizawl. Each pilot farmer confirmed the effectiveness of the equipment and the superiority of early weeding (Sailam, shot on July 27, 2019).



Provision of equipment to Areca nut pilot farmers

In accordance with the BAIDC plan, BAIDC & JPT provided a weeding machine to Areca nut pilot farmers. Due to the delay of the fund allocation from CSS, JICA fund was used for procurement. However, as with CSS, a 10% contribution was collected from beneficiaries (Buhchangphai shot on July 17, 2019).



Training of Core Officers

On July 19, JPT had the opportunity to consult with core officers and explained the contents of the master plan formulated and approved in 2015, which is the basis of Mizoram's agricultural development. (Aizawl, shot on July 19, 2019).



Monitoring activities by BAIDC / JPT

BAIDC and JPT mainly with DOH BAIDC members conducted monitoring activities regarding "HN-02 Promotion of Vegetable Cultivation in Grape Field" formulated in the BAIDC annual plan. BAIDC provided technical advice to pilot farmers on growing bitter melon, tomatoes and sweet corn (Hnalhan, shot on July 3, 2019).



Discussion on OM Training for MI

Regarding the officers' manuals drafted last year, the contents of the materials for the operation and maintenance of irrigation facilities were discussed among IWRD (Aizawl shot on July 26, 2019).



BAIDC Consultation for 2nd Pilot Village Selection

Each BAIDC selected candidate villages for the 2nd pilot based on the criteria agreed by the PMT. BAIDC also consulted with the candidate villagers and he finally narrowed down to one village. The selection process and results will be shared at the PMT meeting on August 2 and agreed (Champhai taken on July 9, 2019).

Source : JICA Project Team

Project activity photos (August 2019)



PMT meeting

Representatives of each BAIDC reported to PMT members the progress and challenges of the pilot activities. In addition, the selection process of the 2nd pilot village was also discussed and approved in the meeting (Aizawl shot on August 2, 2019)



Final inspection of Community Construction Work under Tuikhului MIP

In accordance with the BAIDC plan, the community construction work for the Tuikhului MIP has been completed. The members of IWRD, WUA, and JPT have jointly conducted a final inspection (Buhchangphai, shot on August 7, 2019).



Consultation with MIFMA at Saipum Village

JPT and BAIDC members of LRSWCD visited Saipum Village, a leading example, to form an association among the farmers' groups participating in the broomgrass productivity improvement activities in Buhchnagphai (Saipum, shot on August 26, 2019).



Pilot Activities for Settled Agriculture

Conducted monitoring activities mainly with DOA's BAIDC members regarding "SA-02 Support for Transition from Jhum to Settled farming" formulated in the BAIDC plan. They provided technical guidance on yield survey of maize cultivated as rainy season crops, transplanting cabbage seedlings, and producing neem seedlings (Aizawl shot on August 9, 2019).



Market Research by Core Officer

In order to gather basic information for core officer's capacity development, JPT with core officers conducted interview survey at the Central Market mainly on grain prices, production areas and value chains. (Aizawl, shot on August 8, 2019).



Implementation of financial management training for WUAs

With the cooperation of local NGOs, financial management and accounting management training with update of accounting book was conducted for Dilhnuai WUA and Thuikhului WUA (Aizawl, shot on August 1, 2019).

Source : JICA Project Team

Project activity photos(September 2019)



Training in Japan in Tokushima Prefecture

The trainees received an explanation from the Department of Agriculture, Forestry and Fisheries of Tokushima Prefecture on the contents of agricultural policies and planning methods, and then learned extension planning and guidance for extension officers with knowledge on organic farmers, effective use of bamboo flour, and citron processing (Tokushima Pref, shot on September 6, 2019).



Courtesy call from JICA headquarters

On the last day of the training in Japan, trainees visited the JICA headquarters in Tokyo and paid a courtesy call to Mr. Ito, Manager of the Rural Development Department. He also took a lecture on SHEP as an advanced case in the agricultural field from Ms. Takekoshi. Subsequently, discussions were held with JICA experts on the future utilization of the training results (Chiyoda-ku, Tokyo, shot on September 14, 2019).



Visit Makino School for future cooperation

Along with PMT member Lalthinzuala, Deputy Director-General of Agriculture, he visited Makino School, which operates at Samhiginbottom University of Agriculture and Technology in Playa Garaj, to observe the activities and to discuss future cooperation. (Prayāgrāj, shot on September 25, 2019).



Launch of broom grass association

JPT invited the head of a producer association in Saipum village, which has advanced initiatives in the production and sale of broom grass, to decide on an action policy and set up the union. Members first visited Bhaga Broom Traders in Assam to check the quality and timing of the market (Buhchangphai, shot on September 5, 2019).



Monitoring of 1st Pilot Activities

BAIDC belonging to DOA and DOH monitor the pilot activities, confirm the growth status of rice, maize and vegetables (tomato, sweet corn, bitter melon, cabbage) and investigate the yield. (Sailam shot on September 27, 2019).



Construction supervision Dilhnuai MIP

While many of the seven contracts currently in progress have been temporarily suspended due to the irrigation season, construction of the Dilhnuai MIP has progressed during the rainy season. (Hnalhan, shot on September 30, 2019).

Source : JICA Project Team

Project activity photos (October 2019)



Training for core officers

Awareness and training on STEP2 and STEP3 specified in the Implementation Guidelines were conducted for four core officers. Prof. Nitea of Mizoram University also participated and provided advice from an expert standpoint (Aizawl, shot on October 11, 2019).



Training for BAIDC to conduct workshops

The core officer provided pre-training to three BAIDC members to conduct workshop. (Kolasib, shot on October 16, 2019).



Conduct visioning workshop for 2nd pilot

After the training by core officers, BAIDC held workshops for in the selected three villages to discuss proper land use, the current state of farming, and the direction of development. BAIDC formulate an BAIDC plan based on the results of the workshop (Lamchhip, shot on October 15, 2019).



Paddy yield survey in the 1st pilot village

BAIDC and JPT conducted a paddy yield survey in the 1st pilot village and confirmed the results of technology extension activities based on the BAIDC annual plan. In some cases, yields have exceeded 6 tons / ha, and some pilot farmers have achieved yields nearly three times that of last year (Hnalhan, shot on October 23, 2019).



Monitoring of 1st Pilot Activities

Community construction work in Hnalhan, which continued during the rainy season, progressed till 90%. Water supply by a simple pipe to the constructed tank will start next month (Hnalhan shot on October 24, 2019).



Report on Japan training at the PMT meeting

PMT meeting was held to share the results of the training in Japan. In the PMT the agenda of the 4th JCC and the progress of pilot activities were also discussed (Aizawl, shot on October 3, 2019).

Source : JICA Project Team

Project activity photos(November 2019)



Joint site reconnaissance in 2nd pilot village

Prior to the formulation of the BAIDC Annual Plan 2020 in the 2nd pilot village, a joint site reconnaissance was conducted by BAIDC members. (Tlamsam, shot on November 1, 2019)



Formulation of BAIDC annual plan for 2nd pilot

BAIDC formulated the BAIDC Annual Plan 2020 based on the results of consultations with farmers and joint site reconnaissance. Although the activities of each department were based on the existing CSS, some of high potential activities were formulated on the premise of using funds such as state SEDPs. (Kolasib, shot November 15, 2019).



Consultation of each department for method and BAIDC system institutionalization

The IWRD, DOA, and DOH conducted internal discussion on roadmap for institutionalization of the BAIDC system and method to be approved by the JCC (Aizawl, shot on November 20, 2019).



4th JCC and courtesy call to PM

With the attendance of Mr. Matsumoto, Chief Representative of JICA India Office, the 4th JCC was held with chairmanship of Chief Secretary. The roadmap for institutionalizing project outcomes and 2nd pilot budget was approved in the JCC. (Aizawl, shot on November 22, 2019).



Monitoring of 1st Pilot Activities

Prior to winter crops, BAIDC distributed materials and conducted training according to the BAIDC plan. In Sailam, radish, beet, spinach, capsicum and tomato seeds were distributed with training of nursery production (Sailam shot on November 21, 2019).



Production of Bamboo Powder

Kings Industries, a local company, is producing and fermenting bamboo powder as a soil improve agent (total of 320 kg). A pilot project from Rabi will be used in three pilot villages (Aizawl shot on November 27, 2019).

Source : JICA Project Team

Project activity photos(December 2019)



Consultation for revision of ODA loan proposal

Secretary of IWRD called for discussions on amending the contents of the Yen loan project submitted in May 2015. Stakeholders agreed to revise it by including the components of bamboo powder, which is currently under verification (Aizawl, shot on December 16, 2019).



Revise BAIDC Annual Plan in 2nd Pilot Villages

Following PMT comments and discussions at the JCC, each BAIDC revised its 2nd pilot annual plan. The revised version was translated into Mizo for consultation with farmers. (Aizawl shot on December 6, 2019).



Application of Bamboo Powder for Field Test

Based on the learning at Bamboo Chemical Institute, which we visited during training in Japan, field verification on effectiveness of bamboo powder (fermented and unfermented) and started at 1st pilot villages (Hnalhan, shot on December 2, 2019).



Explanation of BAIDC Plan in 2nd Pilot Villages

BAIDC annual plan stipulated in STEP 6 of the Implementation Guidelines were explained in three villages of the 2nd pilot for approval of villagers. (Tlamsam, shot on December 13, 2019).



PMT Meeting

A PMT meeting was held to finalize the agreed BAIDC annual plan. BAIDC will prepare a monitoring sheet for each activity and make detailed budget estimates (Aizawl shot on December 16, 2019).



Monitoring of 1st Pilot Activities

All the pilot works that had been stopped during the irrigation period were restarted and progressed. (Sailam, shot on December 6, 2019).

Source : JICA Project Team

Project activity photos (January 2020)



Arrangement of Educational Visit of PIM

In order to arrange educational tour, PMT and JPT visited the Water Resources Department in Nagaland in Kohima. During the stay, they visited three cases of construction work and exchanged opinions with staff of WUAs. (Kohima District, shot on January 22, 2020).



Preparation of Monitoring Sheet for 2nd Pilot

Based on the BAIDC annual plan formulated for the 2nd pilot activity, each BAIDC member prepared a monitoring sheet and estimated the required activity costs. (Aizawl, shot on January 17, 2020).



Capacity Enhancement of Construction Management

Regarding the community construction work, three out of five contracts were completed, and the remaining two progressed more than 90% (Buhchangphai, shot on January 28, 2020).



Training of Orange Cultivation

According to the BAIDC annual plan, JPT, Jacob (HEO) and Faka (CHO) reviewed orange production records at four pilot farmers and provided technical guidance on fertilizer application and effective pruning methods (Sailam shot on January 29, 2020).



Meeting for Official Approval of 2nd Pilot

Directors reviewed the activities in the monitoring sheet and the budget estimation for 2nd pilot. (Aizawl shot on January 31, 2020).



Distribution of 2020 Calendar

A 2020 calendar was prepared for publicity and distributed to government officials, public institutions, and the 1st and 2nd pilot villages (Shot on January 15, 2020).

Source : JICA Project Team

Project activity photos (February 2020)



Conduct training for core officers

Discussions were held with the core officer on the implementation method of the feedback meeting in the first pilot village based on the implementation guidelines. (Aizawl, shot on February 3, 2020)



Hold a feedback meeting in the 1st pilot village

A feedback meeting was held in the three pilot villages to review the first pilot activities by the farmers. BAIDC conducted a self-evaluation in advance, then attended a feedback meeting (Sailam, shot on February 4, 2020).



Participation in international workshops in HP

BAIDC and JPT participated in the international workshop "Impact of Crop Diversification on Farmers' Income and Food Security" held in Himachal Pradesh, and gathered information on the contents and effects of the preceding JICA projects widely (Dharamshara, shot on February 10, 2020)



Monitoring Mission Workshop

Workshops were held on February 17 and 18 for PMT and BAIDC to discuss the benefits and challenges of new methods and refining roadmap for method institutionalization of method (Aizawl, shot on February 18, 2020)



Discussion with Minister DOA and IWRD

Members of the monitoring mission visited the Minister of DOA and IWRD and reported the results of the workshop, and held extensive discussion on agricultural development in Mizoram (Aizawl, shot on February 19, 2020).



PMT meeting for acquire 2nd pilot budget

PMT meeting was held to discuss the contents of the workshop, budgeting for the second pilot project (Aizawl shot on February 13, 2020).

Source : JICA Project Team

Project activity photos (March 2020)



Follow-up of the 1st pilot activities

As a follow-up to the 1st pilot site, a monitoring of pilot farmers activities was regularly conducted with BAIDC members. Activities related to improving broom grass productivity and producing and selling areca nut saplings were confirmed at Buhchangphai. (Buhchangphai, shot on March 5, 2020)



Conduct terrace construction training to improve productivity (Tlangsam)

Champhai BAIDC members of LRSWCD conducted terrace construction on slopes training for five pilot farmers based on the BAIDC Annual Plan in the 2nd pilot village. (Tlangsam, shot on March 18, 2020)



Conduct terrace construction training to improve productivity (Lamchip)

BAIDC members of LRSWCD conducted terrace construction of Chayote training based on the BAIDC Annual Plan in the 2nd pilot village. Based on the guidance provided in the training, pilot farmers plan to construct their own terraces before the rainy season. (Lamchip, shot on March 11, 2020)



Pilot Construction

Pilot work by nine contracts (four contractors, five communities) has progressed, leaving only three contractors. Intermediate measurements and final measurements are conducted jointly with the staff on IWRD, and technical guidance is continued as appropriate. (Buhchangphai, shot on March 5, 2020)



Coordination meeting for selecting the 2nd pilot farmers

BAIDC members of Aibawk have agreed to increase the number of pilot farmers for the rainy season from the initial plan for the implementation of 2nd pilot activities. All four departments members attended the meeting. (Aizawl, shot on March 16, 2020)



Joint field survey for selecting the 2nd pilot farmers

Field surveys by BAIDC members were conducted again on March 2 and 19 to select pilot farmers to improve the productivity of WRC and slope area cultivation. (Tlangsam, shot on March 19, 2020)

Source : JICA Project Team

Project activity photos (April 2020)



Preparation for slope vegetable cultivation of pilot farmers

Pilot farmers have begun preparations for cultivation of the rainy season based on the BAIDC Annual Plan. Beans, French Mustard, Cowpea, Okura, Cluster Bean, Bitter gourd, Cucumber, Chilli, Longyard Bean and Cabbage are planned to be cultivated in this rainy season. Cultivation training is scheduled to be held in the 2nd week of May. (Tlamsam, shot on April 17, 2020)



Follow-up of terrace construction training

Mr. K. Lalrochhara, a member of Aibawk BAIDC, confirmed the construction status of pilot farmers at Lamchhip as a follow-up to the terrace construction training conducted last month based on the BAIDC Annual Plan. In addition, the cultivation status of vegetables grown in the rainy season was shared with the members of DOH, and the future training process was formulated. (Lamchip, shot on April 30, 2020)



Preparation of Monitoring Sheet for 2nd Pilot

Lockdown was partially eased from April 20, and government official's work was limited but resumed. BAIDC members updated the 2nd pilot activity monitoring sheet created in February, reconfirmed the planned activity and made necessary revision. (Champhai, shot on May 6, 2020)



Conduct paddy cultivation training and variety selection

Ms.V Lalhriatpuui, a member of BAIDC, and JPT conducted paddy cultivation and selection of appropriate varieties training on Mr. K. Lalsangpuia, pilot farmers. The main contents of training are Land Preparation, Line Transplanting, Weeding, Water Management. In consultation with pilot farmers, it was agreed to carry out trial cultivation of RCM-13 in this rainy season. (Tlamsam, shot on May 6, 2020)

Source : JICA Project Team

Project activity photos (May 2020)



PMT Meeting

A PMT meeting was held to discuss how to continue planned activities due to the spread of COVID-19 infection. The wrap-up of the 1st pilot, the follow-up plan of the 1st pilot, and the Sensitization meeting for the institutionalization of the new method were discussed. (Aizawl, shot on May 21, 2020)



Conduct paddy cultivation training

As a follow-up activity for the 1st pilot, DoA G.S, a members of BAIDC, and JPT provided seeds (Burmabu) to pilot farmers and provided practical training on seed treatment. 5 kg of seeds were distributed to each farmer according to the follow-up plan. (Hnahlan, shot on May 28, 2020)



Conduct INN and IPM training for rainy season

Prior to training, the HEO of DOH and Circle Officer checked the condition of plants with pilot farmers and identified current diseases and pests. In the training, farmers learned how to make PPC and how to protect crops from pests. Farmers were provided with a planting calendar so that they could write down when to apply fertilizer and PPC. (Lamchhip, shot on May 15, 2020)



Description of follow-up activities and process

Mr. F.Hrangmuana, a member of BAIDC, and JPT visited Buhchanphai and explained activities of the rainy season and cultivars to pilot farmers. (Buhchangphai, shot on May 29, 2020)



Conduct paddy cultivation training

BAIDC members of DOA and ATMA conducted paddy cultivation training such as selection of seeds with salt water, treatment of seeds with fungicides, and proper nursery management of paddy fields according to BAIDC Annual Plan at Lamchhip, the 2nd pilot village. (Lamchhip, shot on May 8, 2020)



Follow-up Activities on Sailam

DOA and JPT visited Sailam's pilot farmers and held a briefing for follow-up activities 20-21 to explain the activities and implementation procedures. In discussions with farmers, the use of nursery trays and MAT nursery types that was transferred last year were confirmed. (Sailam, shot on May 8, 2020)

Source : JICA Project Team

Project activity photos (June 2020)



Follow-up of the 1st pilot activities

BAIDC members of DOH and LRSWCD and JPT consulted with target farmers on cultivation planning and necessary input provision at DILhnuai MIP. (Hnalhan, shot on June 11, 2020)



Conduct paddy cultivation training(1)

Mr. F. Hrangmuana, a member of BAIDC, and the national staff of JPT provided technical training for seedling production using nursery mats to pilot farmers in the Paddy area of Chemphai. (Chemphai, shot on June 16, 2020)



Conduct yield survey on 2nd pilot site

Mr. Ramhluna Kawilam (DHC, DoH) conducted a maize yield survey with JPT to collect baseline data. (Chemphai, shot on June 5, 2020)



Description of follow-up activities and process

Mr. F.Hrangmuana (AEO, DoA), a member of BAIDC, conducted training of seed selection using salt water with JPT in the 1st pilot village of Buhchangphai, and confirmed the cultivation schedule of pilot farmers. (Buhchangphai, shot on June 12, 2020)



Conduct paddy cultivation training(2)

Mr. F.Hrangmuana (AEO, DoA) and JPT conducted training on transplanting paddy seedlings, exhibited a row planting in pilot farms. (Lamchhip, shot on June 23, 2020)



Online PMT meeting

The four departments and JPT held an online PMT meeting to discuss the problem of 2nd pilot projects, and prepared a monitoring sheet Ver.6. Additional support plans for COVID-19 damage were also discussed. (Aizawl, shot on June 23, 2020)

Source : JICA Project Team

Project activity photos (July 2020)



Conduct training on promoting the use of improved nursery beds

Mr. Lalnupuii (AEO, DoA), a member of BAIDC, and JPT conducted training on promoting the use of improved mat-shaped nursery beds. The mat-shaped nursery beds produced was used in a newly introduced manual rice transplanter. (Chemphai, shot on July 30, 2020)



Conduct paddy cultivation training

Mr. Lalnupuii Parte of DOA, a member of BAIDC, interviewed a WRC pilot farmer with JPT as part of the follow-up activities of the 1st pilot and conducted paddy cultivation training. (Sailam, shot on July 8, 2020)



Monitoring of vegetable cultivation in Hnalhan

Mr. H.Lalmachhuani of DOH, a member of BAIDC, and JPT visited the status of the Japanese Pepper (mizotogarashi), which started cultivation in June under the MIDH scheme, and used GPS to mark each area. A yield survey of rainy season crops was conducted at Tlamsam. (Hnalhan, shot on July 16, 2020)



Online meeting on pilot works

An online meeting was held with the IWRD director's office online and to exchange opinions on issues related to infrastructure construction, the usage status of manuals for staff, the contents of online tests. (Tokyo, Aizawl, shot on July 20, 2020)



Monitoring after Conduct paddy cultivation training

Mr. F.Hrangmuana (AEO, DoA) and JPT monitored a paddy cultivation training conducted for pilot farmers. The functional status and water usage status of irrigation facilities repaired were confirmed. (Buhchangphai, shot on July 30, 2020)



Implementation of Soil conservation measures using vetiver grass

Mr. Lalringgheta of LRSWCD, a member of BAIDC, conducted vetiver grass cultivation training for pilot farmers. Pilot farmers knew that vetiver grass would help stabilize the soil and prevent erosion, and expressed their intention to actively use it and increase it. (Tlamsam, shot on July 31, 2020)

Source : JICA Project Team

Project activity photos (August 2020)



Consultations on COVID-19 support components

The contents of the eight proposals submitted by C/P regarding the support of COVID-19 were closely examined according to the consultation with JICA conducted on August 18. (Tokyo, shot on August 26, 2020)



Conduct yield survey in Tlamsam

Ms. Laltlunpuii (AEO, DOA), a member of BAIDC, conducted a second yield survey of vegetables at Tlamsam according to BAIDC Annual Plan and shared information with pilot farmers. (Tlamsam, shot on August 20, 2020)



Monitoring of Chayote cultivation situation in Lamchhip

Mr. Jacob Lalmalsawma of DAIDC (HEO, DoH) visited the chayote field with JPT and confirmed current situation. Pilot farmers were provided cultivation advice. (Lamchhip, shot on August 6, 2020)

Source : JICA Project Team



Monitoring of pilot activities

Ms. Laltlunpuii (AEO, DOA), a member of BAIDC, and JPT visited the plots of five pilot farmers and discussed the condition of their paddy fields, including tenant farmers. (Buhchangphai, shot on August 29, 2020)



Monitoring of WRC productivity improvement activities

Ms. Laltlunpuii (SMS, DOA), a member of BAIDC, and JPT visited WRC area at Sailam and confirmed the condition of rice in the field. After that, pilot farmers were provided pesticides and received technical guidance. (Sailam, shot on August 7, 2020)



Conduct O&M of irrigation scheme training

An online training on O&M of the minor irrigation scheme was held by Mr. Okuwa. In the training, O&M in lowland paddy fields and slopes were explained, and lively exchanges of opinions took place. (Tokyo, shot on September 3, 2020)

Project activity photos(September 2020)



A working committee meeting

A working committee meeting was held for the institutionalization of the new method and discussed TOR of BAIDC. (Aizawl, shot on September 25, 2020)



Monitoring of Pilot Activities

on Paddy Cultivation

Mr. V.Lalhraitpuii (AEO, DoA) and JPT visited paddy fields of five pilot farmers to see cultivation situation. Stem rot was confirmed in one field, so a germicide was sprayed. The paddy fields of other farmers were in good condition. (Tlansam, shot on September 3, 2020)



Construction works of the minor irrigation facilities

DOA and IWRD formulated a plan for the construction of a small tank to be implemented under the DOA scheme. Dhirmuai WUA shared experience and provided guidance. (Tlansam, shot on September 8, 2020)



Utilization of vetiver grass on terrace

The vetiver grass, which was cultivated on the farm of the DOA of Kolasib Province, was transplanted to the slope area of the pilot farmers. Soil conservation effect will be expected after growth. (Tlansam, shot on September 4, 2020)



Orientation meeting for winter crops

BAIDC and JPT held an orientation meeting on winter crops (Rabi) cultivation in the 2nd pilot village, Bilkhawthlir North, and conducted cultivation training including farm maintenance for the second crops of carrot and watermelon selected at the previous meeting. (Bilkhawthlir North, shot on September 30, 2020)

Source : JICA Project Team



Conduct Blue test

BAIDC and JPT monitored paddy cultivation training in the 1st and 2nd pilot sites. A Blue test was conducted to identify the prevalent tungro virus. Some measures will be taken based on the results of test. (Sailam, shot on September 29, 2020)

Project activity photos (October 2020)



Site Visit by PMT member

Mr. Lalthanzuala, a member of PMT, visited the 2nd pilot village of Tlangsam and accompanied the yield survey. Mr. Lalthanzuala confirmed the pilot farmers whose yields increased due to correct technology extension activities, and provided technical guidance to BAIDC members. (Tlangsam, shot on October 8, 2020)



Monitoring of Half moon terrace effect

Mr. Lalrindika Khiangtea (SCR) and two staff from LRS & WCD visited the half moon terrace of pilot farmers and confirmed effects in preventing soil erosion. (Lamchhip, shot on October 14, 2020)



Monitoring of areca nuts cultivation

Mr. Ramhluna Kawilam and JPT staff visited the 2nd pilot village to see nursery beds of areca nuts and banana cultivation, and pilot farmers was provided necessary advice. (Buhchangpahi, shot on October 14, 2020)



Conduct yield survey of rice

Mr. Lalremmwawia Colney (DOA) and JPT conducted a paddy yield survey in the fields of two pilot farmers. Mr. Zuiliana's total yield was 3721 kg / ha, and Mr. Vanlaltura's total yield was 4206 kg / ha. (Hnahlan, shot on October 14, 2020)



Monitoring of Rabi Cultivation

Mr. H Lalhmachhuani (Sr.HD, DoH) and JPT monitored of Rabi and confirmed the growth of vegetables, and farmers was provided necessary advice. The farmers also started harvesting leaf mustard and recorded the yield. (Tlangsam, shot on October 19, 2020)

Source : JICA Project Team



Technical Guidance on Paddy Cultivation

Mr. Lalnunpuii Parte (SMS, DoA) and JPT visited the farm damaged by the tungro virus, confirmed the condition of the paddy fields and the maturity of rice, and prepared for the yield survey. (Sailam, shot on October 15, 2020)

Project activity photos(November 2020)



Preparation and cultivation training of winter crops

According to "SA-04 Improvement of WRC productivity", preparations and cultivation training for Rapeseed and Cow-pea were conducted BAIDC and JPT. (Sailam, shot on November 15, 2020)



Conduct paddy yield survey

A paddy yield survey of pilot farmers, which is planned as part of "LC-02 Enhance paddy production", was conducted. According to the survey results, the average yield of six pilot farmers was 4.5 ton / ha, which was much higher than the average yield of the state. The survey results were reported to PMT as proper technology extension. (Lamchhip, shot on November 16, 2020)



Conduct rajima cultivation training

The farmer consulted with BAIDC members and decided to grow Rajima as a winter crop. According to the farmers' decisions, BAIDC procured seeds and provided the necessary technical training before cultivation. (Buhchangpahi, shot on November 11, 2020)



Conduct Monitoring survey

According to the monitoring plan, BAIDC members of DOA conducted a survey of rice growth and a survey of pilot farmers for winter cultivation. (Buhchangpahi, shot on November 18, 2020)



Inspection of Tank constructed in the 1st pilot project

The functional status of four Main Reservoir and 14 Tanky constructed by the Dilnuai MIP project were confirmed. Pilot farmers were interviewed about their winter cultivation plans. (Hnalhan, shot on November 14, 2020)



Construction of irrigation facilities on 2nd Pilot site

Since the irrigation work planned at Tlangsam could not be carried out with the IWRD budget, the construction of a water storage tank using the funds of PMKSY is in progress. The construction is carried out by beneficiary farmers, and IWRD and DOA provide technical guidance. (Tlangsam, shot on November 14, 2020)

Source : JICA Project Team

Project activity photos(December 2020)



Monitoring of Rajima cultivation

Ms. Laltuanpui (AEO, DOA Kolasib) and JPT members monitored the growth of Rajima cultivated in winter in paddy fields of the Chemphai area at Bilkhawthlir North. (Bilkhawthlir North, shot on December 9, 2020)



Guidance and monitoring on Orange cultivation

Mr. Jacob Larmar Soma (HEO) monitored the orange cultivation of pilot farmers with JPT. The quality of fruit was observed to be lower and smaller than the previous year. HEO commented on the need for fertilization and replanting tree. (Sailam, shot on December 4, 2020)



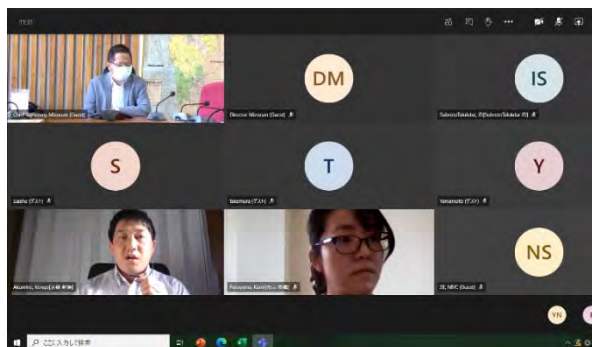
Confirmation of water tank under construction

Ms. V. Lalhriatpui (AEO) and Mr. Lalmalsawma (J.E., DOA) confirmed the progress of tank construction with JPT. All pilot farmers were confirmed the cultivation status of winter crops. (Tlansam, shot on December 2, 2020)



Monitoring of field pea cultivation

Mr. Lalremmawia Colney (SMS) and JPT members monitored the cultivation status of Field Pea, which was introduced as second crop in paddy field, and recorded the contents of activities. (Hnalhan, shot on December 2, 2020)



5th JCC

The 5th JCC was held online with chairmanship of the Deputy Secretary of State for Mizoram. The progress of the 1st and 2nd pilot activities and capacity building through the activities was confirmed, and the progress according to the roadmap for institutionalization of the method was reported. JCC members approved those activities. (Aizawl, shot on December 15, 2020)

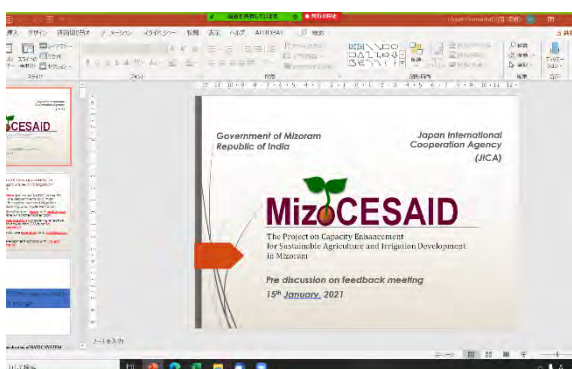
Source : JICA Project Team



Conduct winter crops cultivation training

Mr. Ramhluna Kawilam (DHC, DoH Kolasib) and JPT conducted on-site training on the cultivation of winter crops. Pilot farmers were also distributed watermelon and carrot seeds in the WRC area of Chemphai. (Bilkhawthlir North, shot on December 14, 2020)

Project activity photos (January 2021)



Online training for core officers for feedback meetings

An online training was conducted for core officers on methods of conducting feedback meetings and facilitation techniques. Three core officers attended the training. (Tokyo, shot on January 15, 2021)



Monitoring of winter crops cultivation

Ms.H.Lalmachhuani (Sr HD) and JPT conducted the second yield survey of winter crops. Some farmers had not yet finished harvesting, but yield data was generally collected. Farmers didn't report any major problems with cultivation and sales. (Tlamsam, shot on January 21, 2021)



Confirmation of water tank under construction

Mr. Lalremmawia Colney (SMS) and Mr. Lalmalsawma (JE) monitored the filed pea cultivation and water tank construction at Tlamsam with JPT. Construction of four water tanks has been completed. (Tlamsam, shot on December 2, 2020)



Conduct yield survey of rice

Mr. F.Hrangmuana (AEO, Kolasib) with JPT conducted a paddy yield survey. The status of Rajma bean cultivation was observed and documented in the paddy areas of Buhchangphai. (Buhchangphai, shot on January 6, 2021)



Training on cultivation and processing, and sales of

Broom Grass

Mr. Vanlawma (DO, LRSWCD, Kolasib) and Mr. PC Lalthlamuana (RO Bilkhawthlir range, LRSWCD, Kolasib) and JPT training on cultivation management, harvesting techniques and processing of broom grass at Buhchangphai. (Buhchangphai, shot on January 29, 2021).



Instruction from core officers on feedback meetings

Ms.Rami, DOA core officer, instructed the member of ChaphaiBAIDC on how to conduct feedback meetings and self-evaluation of BAIDC (Champhai, shot on February 4, 2021).

Source : JICA Project Team

Project activity photos (February 2021)



Self-evaluation of annual activities by BAIDC

A review of the BAIDC annual activities for 2020/21 was conducted in accordance with the Implementation Guideline. First, three self-evaluations were conducted by BAIDC and a score was given for each activity element. Furthermore, improvement for next year's activities were discussed. Facilitation of the meeting was conducted by core officer. (Aizawl, shot on February 17, 2021)



Activity of improvement of broom grass productivity

BAIDC and JPT conducted a yield survey of Broom grass and monitored the sales of the farmers in Buhchangphai. Farmers formed producers' associations and eliminated some intermediaries, resulting in higher yard sale prices of Rs.40-45 (Wet) and Rs.110-115 (Dry). (Buhchangphai, shot on February 25, 2021)



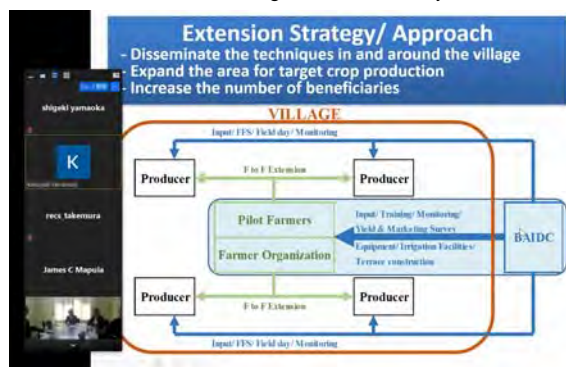
Monitoring of winter crops cultivation (1)

Mrs.H.Lalmachhuani (Sr.HD, DoH) conducted a yield survey and sales status check of the winter crop at the farms of the pilot farmers. After the second yield survey, it was confirmed that three of five pilot farmers were able to earn income from sales. (Tlamsam, shot on February 24, 2021)



Feedback meeting

Feedback meetings were held in the 1st and 2nd pilot villages to discuss the achievements, evaluations and reasons for the current year and future improvements. The result of the discussion will be reflected in the plan for next year. (Buhchangphai, shot on February 10, 2021)



Online training on the establishment of BAIDC annual activity plan 2021/22

JPT conducted an online training for core officers on BAIDC annual activity plan. The training focused on how to apply the lessons learned from the current year to the next year and how to facilitate discussions within BAIDC. (Tokyo/Aizawl, shot on February 26, 2021)



Monitoring of winter crops cultivation (2)

Mr.Lalkima (AEO, DoA) and JPT conducted monitoring of pea cultivation at Tlamsam. Growth of pea is very good. (Tlamsam, shot on February 25, 2021)

Source : JICA Project Team

Project activity photos (March 2021)



Share the results of the feedback meeting and discuss/approve the 2021/22 annual activity plan

PMT meeting was held to review the BAIDC and farmers' feedback meetings, approve the BAAP, discuss the appointment of Core Officers and knowledge transfer between old and new BAIDC members, and consultations with JICA. The total number of participants was 8 from IWRD, DOA, DOH, LRSWCD and JPT also participated online. (Aizawl, shot on March 23, 2021)



Formulation of BAIDC Annual Activity Plan

Based on the BAIDC and farmer feedback meetings, BAIDC Annual Action Plan 2021/22 was formulated for 1st and 2nd pilot villages, totaling 6 villages. IWRD, DOA, DOH and LRSWCD participated in the formulation. (Aizawl, shot on March 16,2021)



Explanation of BAIDC Annual Action Plan 2021/22 in 1st and 2nd Pilot Village

BAIDC explained the contents of the annual plan to the farmers in the 1st and 2nd pilot villages and obtained their approval regarding the contents of the activities, timing of implementation, and target farmers. (Tlangsam, shot on March 25,2021)

Source : JICA Project Team



Implementation of Irrigation facility O&M training for WUAs

O&M training on irrigation facilities was provided for Dilhnuai WUA(WUAs). IWRD provided training to WUAs on equitable distribution of water among members and also transferred authority over constructed irrigation facilities such as tanks and pipelines. WUAs will be responsible for the O&M of the facilities in the future. (Hnalhan, shot on March 26,2021)



Formulation of monitoring sheets and detailed plan

Monitoring sheets for the 1st and 2nd pilot villages based on the BAIDC annual activity plan were prepared by BAIDC members. Estimation of the required cost for all BAIDC annual plan activities was conducted. (Kolasib, shot on March 12,2021)



Yield survey of Rajma

BAIDC members conducted a yield survey of Rajma beans, which they were instructed to cultivate as a winter crop. The yield was higher than the Indian national average because of the systematic fertilizer application to the farmers and proper technical guidance and monitoring. (Buhchangphai & Bilkhawthlir 'N', shot on March 3,2021)

Project activity photos (April 2021)



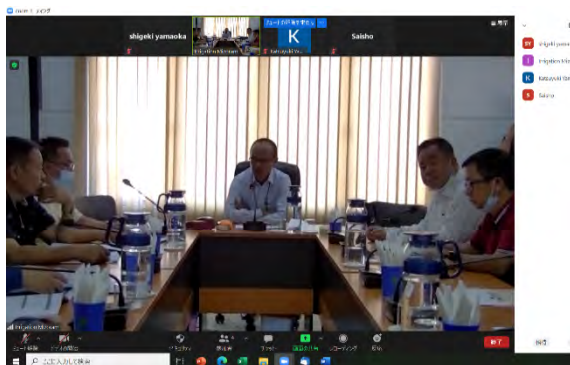
Explanation of BAIDC Annual Action Plan in 1st Pilot Village

BAIDC explained BAIDC Annual Action Plan 2021/22 to the pilot farmers of the first pilot village and it was approved. (Buhchangphai, shot on April 8, 2021)



Training on Cabbage Cultivation in 1st and 2nd Pilot Village

BAIDC conducted training on cabbage cultivation in 1st and 2nd pilot villages. BAIDC provided the pilot farmers with cabbage seeds and training materials (including a record book on cabbage cultivation). (Hnahlan & Tlansam, shot on April 21-22, 2021)



PMT Meeting (JICA and PMT)

Following the lifting of the movement restrictions in February, the implementation process was reviewed again and exit strategies were discussed with PMT and JICA. JICA-PMT meeting was attended by the vice-ministers of IWRD and DOA, and they confirmed Mizoram's response in the future. However, since April 20, the lockdown has been in effect again, restricting activities. (Aizawl, shot on April 14 and 20, 2021)



Harvest and yield survey of pea

The area under pea cultivation were measured and cultivation data were collected in the first and second pilot villages. (Hnahlan & Tlansam, shot on April 16, 2021).



Harvest and yield surveys for winter crops

Watermelons were harvested in Bilkhawthlir North and the yield was confirmed by BAIDC. DOH assisted the farmers in selling their harvest as it was difficult for them to sell their produce due to the movement restrictions caused by the lockdown that started on April 20. (Bilkhawthlir N, shot on April 8, 2021)

Source : JICA Project Team



Harvest oilseed crop and extract edible oil

Oil was extracted from rapeseed by pilot farmers. Farmers grew rapeseed in winter season and extracted oil from it for self consumption. (Sailam, shot on April 16, 2021)

Project activity photos (August 2021)



Discussion of Action Plan

Discussions were held with PD and PMT on action plans and post-lockdown activities to spread the BAIDC system and new methods throughout the state. The action plan is considering a process to spread to 26 RDBs from 2022 for 6 years (Aizawl, Tokyo, shot in August 2021)



Monitoring of Vegetable Cultivation under 2nd pilot

BAIDC provided technical guidance and marketing support for okra cultivation as Kharif crop according to BAAP. DOH monitored activities to the extent possible (Bilkhawthlir N, shot in August 2021)



Monitoring of WRC productivity improvement (1)

BAIDC has resumed monitoring of paddy cultivation. As for Sailam village, entry into the village is restricted, but access is possible for the WRC area (Sailam shot on 19th August, 2021).



Monitoring of WRC productivity improvement (2)

As a follow-up activity for the 1st pilot, BAIDC conducted paddy cultivation training with water management technology. According to the monitoring plan, the situation is regularly grasped and advice is given to the farmers (Buhchangphai, shot on 12th August, 2021).



Monitoring of WRC productivity improvement (3)

Bilkhawthlir North is piloting mechanized agriculture in collaboration with NFSM to promote agricultural mechanization. A paddy transplanter is operated using the improved nursery that was instructed in the project (Bilkhawthlir N, shot on 12th August, 2021).

Source : JICA Project Team



Provision of Agriculture Inputs

The growth of paddy in each pilot farmer is generally good, and it seems that the effects of variety selection, technological improvement, and timely provision of materials and equipment have been achieved (Tlamsam, taken on 30th July, 2021).

Project activity photos (September 2021)



Provision of fertilizer and insecticide

Under the activities formulated in the BAIDC Annual Activity Plan “BU-03 & BN-01 Improvement of WRC Area Productivity”, BAIDC provided fertilizers (Urea and MOP) and insecticide (Chlorpyrifos) at 1st and 2nd Pilot villages. (Buhchangphai & Bilkhawthlir N, shot on September 2nd 2021)



Monitoring of chow chow cultivation

BAIDC monitored the growth and health conditions of chow chow cultivation at 2nd Pilot village, as an activity under BAIDC Annual Activity Plan “LC-01 Achieve sustainable vegetable cultivation”. (Lamchhip, shot on September 7th 2021)



Monitoring and yield survey of kharif crop cultivation

BAIDC conducted monitoring and yield survey of okra cultivation at Chempnai WRC area regarding “BN-02 Improvement of vegetable cultivation” under the BAIDC Annual Activity Plan. (Bilkhawthlir N, shot on September 9th 2021)



Monitoring at Hnahlan

As formulated in the BAIDC Annual Activity Plan “HN-02 Promotion of vegetable cultivation in grape fields” and “HN-03 Improvement of WRC area productivity”, BAIDC conducted monitoring of cabbage and paddy cultivation at 1st Pilot village. (Hnahlan, shot on September 15th and 16th 2021)



Monitoring at Tlamsam

BAIDC monitored the health and growth conditions of paddy cultivation at 2nd Pilot village regarding “TL-03 Improvement of WRC area productivity” formulated in the BAIDC Annual Activity Plan. Blast and potash deficiency was observed and the concerned BAIDC member will provide systemic fungicide as a control measure. (Tlamsam, shot on September 17th 2021).

Source : JICA Project Team



PMT Meeting

Meeting of Project Management Team was held at Department of Horticulture to review the JICA action plan & BAIDC TOR, and ODA Loan Project Proposal. (Aizawl, shot on September 27th 2021)

Project activity photos (October 2021)



Monitoring of paddy cultivation

Under the activities formulated in the BAIDC Annual Activity Plan “Implementation of activities based on the 1st pilot follow-up activity plan, monitoring of activities, and technical guidance”, BAIDC and JPT conducted discussions on Operation & Maintenance of Irrigation facilities with Dilhnuai Famers Society. (Champhai, shot on October 26th 2021)



Monitoring of paddy cultivation

BAIDC monitored the growth and health conditions of paddy cultivation at 1st Pilot village, as an activity under BAIDC Annual Activity Plan “SA-04 Improvement of WRC area productivity”. (Sailam, shot on October 8th 2021)



PMT Meeting

Meeting of Project Management Team was held at IWRD Committee Room to review BAIDC TOR, Action Plan for BAIDC System, and the Progress Report of TCP. (Aizawl, shot on October 20th 2021)



Training on Rabi crop cultivation

As formulated in the BAIDC Annual Activity Plan “HN-02 Promotion of vegetable cultivation in grape fields” and “HN-03 Improvement of WRC area productivity”, BAIDC conducted conducted training on tomato cultivation and field pea cultivation for rabi crop . (Hnahlan, shot on October 20th 2021)



Yield survey of Okra

BAIDC conducted yield survey of okra cultivation at 2nd Pilot village regarding “BN-02 Improvement of vegetable productivity” formulated in the BAIDC Annual Activity Plan. (Tlansam, shot on October 20th 2021)



Training on Rabi crop cultivation

As formulated in the BAIDC Annual Activity Plan “TL-02 Promotion of vegetables cultivation in Rabi” and “TL-04 Introduction of Rabi crops”, BAIDC conducted training on cabbage cultivation and field pea cultivation for rabi crop . (Tlansam, shot on October 21st 2021)

Source : JICA Project Team

Project activity photos(November 2021)



Paddy Yield Survey

As part of the activities formulated in BAIDC's annual activity plan "HN-03 WRC Area Productivity Improvement", BAIDC and JPT conducted a paddy rice yield survey. (Hnahlan, shot on 2nd November, 2021)



Training on O&M of Irrigation Facilities

Lalbiakkima SDO provided maintenance training for the irrigation facility Lumtui MIP at Sirchip Subdivision Office, IWRD. (Serchhip, shot on 2nd November, 2021)



Training on Rabi Cultivation

As part of the activities formulated in BAIDC's annual activity plan "BN-01 Improvement of Paddy Field Production and Productivity in WRC Area", JPT conducted training on red bean for rabbi. (Chemphai, shot on 3rd November, 2021)



Paddy Yield Survey

Based on BAIDC's annual activity plan "HLC-02 Strengthening Paddy Field Production", BAIDC and JPT conducted pot cutting (yield survey) for pilot farmers in the paddy field area. (Lamchhip, shot on 10th November, 2021)



Paddy Yield Survey

A paddy field yield survey was conducted in the 2nd pilot village based on "improvement of paddy field production and productivity in the BN-01 WRC area" formulated in the BAIDC Annual Activity Plan. (Tlangsam shot on 11th November, 2021)



Training on Rabi Cultivation

In line with BAIDC's annual activity plan, "BN-01 Improvement of Paddy Production and Productivity in the WRC Area," pilot farmers prepared nurseries for peppers, cabbage, and tomatoes. JPT provided guidance on the importance of transplantation time, line transplantation, weeding, soil gathering, nutrient management, pest management, etc. (Chemphai, shot on 18th November, 2021)

Source : JICA Project Team

Project activity photos(December 2021)



Kick off meeting on End Line Survey

PMT meeting was held to review action plans, prepare for the JCC meeting, and discuss kick-offs for end-line investigations. The end-line survey was conducted by Associate Professor James Tanga of Mizoram University (Aizawl, shot on 1st December, 2021).



Discussion with Directors

JPT discussed with the Director of DOH and LRSWCD who could not participate in the PMT/JCC the discussion result and agreed items at JCC (Aizawl, shot on 8th December 2021)



6th JCC

The 6th Joint Coordination Committee (JCC) was held on December 6th, (1). Project progress and results (submission of PR-2), (2) approval of BAIDC system implementation procedure (Operational Guideline), (3). Approval of action plan and budget for establishment of BAIDC system, (4) Implementation of end-line survey was discussed (Aizawl, shot on 6th December, 2021).



Training on Core Training Officers

Japanese experts have an urgent need to improve the capabilities of core training officers in advancing the action plan, so they formulated a training program from December to February and conducted the first training (Aizawl). Taken on 7th December, 2021)



Monitoring of Cultivation of Rajima

BAIDC monitor the Rajima cultivation in the 1st and 2nd pilot villages implemented under " BU-03 Improvement of WRC productivity" and " BN-01 Improvement of productivity of WRC area" (Chemphai, shot on 15th December, 2021)



Conduct Endline Survey

JPT accompanied the end-line survey conducted by the Faculty of Economics, Mizoram University, which is the subcontractor of the end-line survey, confirmed the information gathering status, and provided necessary advice on site. Interview survey with farmers was completed as of the end of December (Sailam, shot on 3rd December, 2021)

Source : JICA Project Team

Project activity photos (January 2022)



1st Sensitization Programme

The 1st Sensitization Programme on BAIDC system was conducted at ATI auditorium. The programme was chaired by Mr.J.Hmingthanmawia (IAS) Secretary, IWRD and Mr.C.Lalrinsanga, Hon'ble Minister of IWRD and DoA was the Chief Guest and inaugurated the programme. Prof.Lalnilawma, Dept of Extension Education and Rural Development, MZU was the facilitator. BAIDC members from 6 RD Blocks participated in the programme. (Aizawl, Shot on January 7th 2022)



Monitoring at Hnahlan

On 12th Jan., JPT conducted monitoring of field pea cultivation areas. The field pea condition was found to be good and no diseases was observed. On 13th Jan., Mr. Lalmangaihzuala (HD, DoH) along with JPT conducted monitoring of tomato cultivation areas. (Hnahlan, shot on January 12th and 13th 2021)



Paddy Yield Survey and Monitoring of Rabi Crop

Under the activities formulated in the BAIDC Annual Activity Pan "BU-03 Improvement of WRC area productivity", Mr.Malsawmdawngkima (BAO, Bilkhawthlir) and Mr. Lahruaitluanga (Field staff, DoA, Bilkhawthlir) along with JPT conducted paddy yield survey. (Buhchangphai, shot on January 12th 2022)



Paddy Yield Survey and Monitoring of Rabi Crop

Under the activities formulated in the BAIDC Annual Activity Pan "BN-01 Increase production of paddy and productivity of WRC area", Mr.Malsawmdawngkima (BAO, Bilkhawthlir) and Mr. Lahruaitluanga (Field staff, DoA, Bilkhawthlir) along with JPT conducted paddy yield survey. (Chemphai, shot on January 13th 2022)



Monitoring of rabi crop cultivation

As formulated in the BAIDC Annual Activity Plan "TL-02 Promotion of vegetables cultivation in Rabi", Mr. Lalmangaihzuala (HD, DoH) along with JPT conducted monitoring of cabbage cultivation areas. The field condition was found to be good. Alternaria leaf spot was observed in some of the cabbages, and BAIDC suggested to remove all dead plant material in order to prevent the outbreak and avoid overhead irrigation where possible. (Tlamsam, shot on January 14th 2022)

Source : JICA Project Team



Training on Construction Management for 2nd Pilot MIP

JICA Expert conducted the online training with IWRD personnel for construction management of 2nd pilot MIPs. (Shot on January 17th 2022)

Project activity photos (February 2022)



Spot verification at Tlamsam

BAIDC members along with JPT conducted spot verification of Thliarpui MIP (2nd Pilot Project) for preparation of work breakup.(Tlamsam, shot on February 9th 2022)



Monitoring of Watermelon Cultivation

Under the activities formulated in the BAIDC Annual Activity Pan “BN-02 Improvement of vegetable productivity”, Mr.Ramhluna Kawilam (DHC, DoH) along with JPT conducted watermelon cultivation. It was observed that there was fungal infection due to rain in the past week, and the BAIDC member suggested the use of fungicide. (Chemphai, shot on February 10th 2022)



Field inspection of irrigation facilities at Hnahlan

JPT conducted field inspection of irrigation facilities at Dilhnuai MIP (1st Pilot Project). It was observed that the road construction from Hnahlan to Hmunhlui had damaged the irrigation facilities. (Hnahlan, shot on February 11th 2022)



PMT Meeting

Meeting of the Project Management Team was held for discussion of the following:

1. Work Plan for Commencement of BAIDC System.
2. Progress on institutionalization of BAIDC System.
3. Progress of End-line Survey.
4. Training of trainers for CTO.
5. Progress on 2nd pilot activities. (Aizawl, shot on February 14th 2022)



Transfer of Technology to Core Training Officers

JPT conducted training of the CTOs on the Basics of Operating the BAIDC System through video conferencing. (Aizawl, shot on 22nd February 2022)



Yield Survey

Under the activities formulated in the BAIDC Annual Activity Pan “BU-03 Improvement of WRC productivity” and “BN-01 Increase production of paddy and productivity of WRC area”, Mr.Lalhrualtuanga (Field staff) along with JPT conducted yield survey of rajma cultivation. (Buhchangphai, shot on February 23rd 2022)

Source : JICA Project Team

Project activity photos (March 2022)



BAIDC Feedback Meeting

The feedback meeting and self-evaluation of BAIDC activities 2021/22 for 1st and 2nd pilot villages was conducted by BAIDC before having feedback meeting with farmers. (Aizawl, Kolasib, Champhai shot on March 8th & 11th 2022)

Farmers Feedback Meeting at 1st Pilot Villages

BAIDC members conducted feedback meeting at 1st Pilot villages to improve activities, discuss and share opinions and plan for next activities. (Sailam, Buhchangphai, Hnahlan, shot on March 9th & 10th 2022)



Farmers Feedback Meeting at 2nd Pilot Villages

BAIDC members conducted feedback meeting at 2nd Pilot villages to discuss the achieved outcomes, rating of achievements, reasons and future improvement. (Lamchhip, Bilkhawthlir N, Tlamsam, shot on March 9th & 10th 2022)

PMT Meeting

Meeting of the Project Management Team was held for discussion of the following:

Sharing of Endline Survey Result.

Institutionalization of BAIDC System (Progress Report)

(Aizawl, shot on March 11th 2022)



PMT Meeting

Meeting of the Project Management Team was held to discuss details regarding the extended duration of the JICA TCP and additional inputs required. (Aizawl, shot on March 16th 2022)

Meeting at Saipum village

The Bloom Production Association in Saipum village has developed new markets and sales methods for bloom products. The first pilot village, Buchanpai, decided in a feedback meeting to start marketing bloom products with this association from 2023. (Photo taken 17 Mar 2022, Korasib, Saiphum Village)

Source : JICA Project Team

Project activity photos (April 2022)



PMT Meeting

Key members of the JPT and PMT discussed the institutionalisation of a more feasible JIFAS concerning the results of the endline survey. The study results were compiled as Draft B for institutionalisation and debated at the PMT meeting; the PMT's opinion was to recommend Draft A, but a final decision was to be made after first consulting with the Secretary and Minister. (shot on 8th April 2022, Aizawl)



Consultations with the DOA and IWRD Secretary

PMT and JPT members held consultations with the DOA and IWRD Secretary and reaffirmed the JIFAS institutionalisation process; the PMT and JPT requested and received approval to hold talks with the DOA & IWRD Minister and Chief Minister for the publication of the Official Gazette as soon as possible. (shot on 20th April 2022, Aizawl)



Preparation of a video (1st draft) for the dissemination of JIFAS

The JPT produced the first draft of the JIFAS dissemination video and reviewed the content with the PMT. After receiving comments from the PM on the content, the JPT began work on the second draft. (shot on 25th April 2022, Aizawl)



Consultation with SAMETI

The JPT discussed with the Director of SAMETI the training content to be provided to BAIDC members in cooperation with SAMETI; the Director of SAMETI said that they were ready to respond and would start the activities in May. (shot on 12th April 2022, Aizawl)



IDC Meeting

The first Inter Departmental Committee meeting was held on 28 April to discuss the schedule for implementing the 1st batch of JIFAS, the Gazette publication and the extension of the project duration. (shot on 27th April 2022, Aizawl)



Follow-up on pilot activities

BAIDC members and JPT visited the broom production association to summarise and record broom grass's production and sales situation in the current season. In Buhchangphai village, both production and sales amount increased significantly compared to last year, with production at 118 t (dry) and 100 t (non-dry) and sales price at Rs. 110-155/kg (dry) and Rs. 45-55/kg (non-dry). (shot on 21st April 2022, Buhchangphai)

Source : JICA Project Team

Project activity photos (May 2022)



7th JCC

The 7th JCC was held on May 24, chaired by the Chief Secretary. It was decided to extend the project until March 2023, and it was decided that a sub-committee chaired by Secretary of the Planning will be set up to make the final decision on the activities during the extension period and the final JIFAS implementation system. (shot on 24th May 2022, Aizawl)



Field Visit by JICA Officials

Mr. Akamine and other officials from JICA India Office visited Mizoram to observe the general situation of the rural area of Mizoram in the pilot village and exchanged opinions with the beneficiaries in the pilot village. (shot on 24th May 2022, Sailam)



Preparation of BAIDC Plan in Batch-1

Based on the JIFAS expansion plan (Action Plan), the target villages for 2022/23 were selected and the BAIDC plan was formulated in Batch-1. 25 villages were selected in the 6RD block, and plans were formulated (shot on 11th May 2022, Aizawl).



Discussion with Farmers on BAIDC Plan

The formulated BAIDC plan was disclosed and discussed in 25 villages. JIFAS, which will start this year, was explained to farmers using a promotion video (shot on 13th May 2022, Tarchhip).



Field Visit by Secretary Planning

The Secretary of Planning visited the 1st pilot village to hear from the farmers about the effectiveness of JIFAS. (Shot on 28th May 2022, Sailam)



Discussion on Institutionalization of JIFAS in Planning Dept.

Prior to the sub-committee meeting, PMT has explained the contents of JIFAS in Planning Department. H. Rammawi (Vice Chairman of State Planning Board) also attended in the meeting. The discussions were held on the necessity and content of MIS, and the content and scale of the ODA loan project (shot on 31st May 2022, Aizawl).

Source : JICA Project Team

Project activity photos (June 2022)



Inspection of WUA activity status (1)

Inspection of the condition of irrigation facilities along with IWRD was conducted, and interviewed WUA and the operation and maintenance activities of the irrigation facilities. Clearing of the waterway will be completed within June. (Shot on June 11, Serchhip).



Inspection of WUA activity status (2)

We visited Lailui MIP in Sailam along with IWRD and inspected the maintenance status of the waterway. Repair was needed for some canals and discussions with the Water User Association regarding future restoration work were scheduled. (Shot on June 6, 2022, Sailam)



Discussion of JIFAS training content at SAMETI

The director of SAMETI, faculty, and JPT discussed the content (contents, process, lecturer, cost) of the JIFAS awareness training, and finalized the content. It was agreed that the Batch-2 schedule would be implemented from mid-July to early August (Shot on June 1, Aizawl).



Implementation of SAMETI training rehearsal and refinement of contents

JPT rehearsed the SAMETI training with the cooperation of four departments. Understanding and tuning of group work facilitation procedures was carried out (shot on June 20, 2022, Aizawl).



Sub-committee meeting for the institutionalization of JIFAS

The sub-committee meeting decided by JCC was held. At the meeting, the planning department arranged the agenda in advance, where the Nodal Department should be, whether it should start with Plan-B, and the involvement of departments other than the four allied departments. Discussions were held on the role of District Commissioner (shot on June 23, 2022, Aizawl)

Source : JICA Project Team



IDC meeting

The IDC meeting chaired by Secretary of IWRD and DOA was held to discuss extension period activities, JIFAS operation monitoring system, PR activities, and monitoring sheet Ver10 (shot on June 29, 2022). Aizawl)

Project activity photos (July 2022)



Farm School in INM of Paddy

JPT along with Agricultural Technology Management Agency (ATMA) conducted on-site training on preparation of 'Bokashi' (Organic manure) for WRC farmers. (Shot on July 5, Lamchhip).



Awareness Training on BAIDC System/JIFAS (19th & 20th July 2022)

BAIDC members from DoA, DoH, LRSWCD and IWRD (Ngopa and Tlangnuam RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute (SAMETI) in collaboration with JICA Project Team. The training was inaugurated by Mr.J.Hmingthanmawia, Secretary IWRD and DoA. (Shot on July 19, 2022, Aizawl)



MIS-JIFAS Training (1)

PT conducted MIS-JIFAS Training at DAO Office Champhai. BAIDC members from IWRD, DoA, DoH, and LRSWCD participated in the training. The MIS-JIFAS will be utilized for monitoring BAIDC Annual Activities by stakeholders as well as farmers. (Shot on July 26, Champhai).



Awareness Training on BAIDC System/JIFAS (26th & 27th July 2022)

BAIDC members from DoA, DoH, LRSWCD and IWRD (Lungsen, E Lungdar, and Thingdawl RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute (SAMETI) in collaboration with JICA Project Team. (shot on July 27, 2022, Aizawl).



MIS-JIFAS Training (2)

JPT conducted MIS-JIFAS Training at IWRD Office Khawzawl. BAIDC members from IWRD, DoA, DoH, and LRSWCD participated in the training. The MIS-JIFAS will be utilized for monitoring BAIDC Annual Activities by stakeholders as well as farmers. (shot on July 28, 2022, Khawzawl)



Awareness Training on BAIDC System/JIFAS (28th & 29th July 2022)

BAIDC members from DoA, DoH, LRSWCD and IWRD (Zawlnuam and West Phaileng RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute (SAMETI) in collaboration with JICA Project Team. (shot on July 29, 2022, Aizawl).

Source : JICA Project Team

Project activity photos (August 2022)



MIS-JIFAS Training (3)

JPT conducted MIS-JIFAS Training at IWRD Office Lunglei. BAIDC members from IWRD, DoA, DoH, and LRSWCD participated in the training. The MIS-JIFAS will be utilized for monitoring BAIDC Annual Activities by stakeholders as well as farmers. (Shot on August 1, Lunglei).



Awareness Training on BAIDC System/JIFAS (2nd & 3rd August 2022)

BAIDC members from DoA, DoH, LRSWCD, and IWRD (Tipa, Bungtlang South, and Chawngte RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute (SAMETI) in collaboration with JICA Project Team. (Shot on August 3, 2022, Aizawl)



MIS-JIFAS Training (4)

JPT conducted MIS-JIFAS Training at IWRD Office Serchhip. BAIDC members from IWRD, DoA, DoH, and LRSWCD participated in the training. The MIS-JIFAS will be utilized for monitoring BAIDC Annual Activities by stakeholders as well as farmers. (Shot on August 3, Serchhip).



MIS-JIFAS Training (4)

JPT conducted MIS-JIFAS Training at IWRD Office Aizawl (Aibawk RD Block). BAIDC members from IWRD, DoA, DoH, and LRSWCD participated in the training. The MIS-JIFAS will be utilized for monitoring BAIDC Annual Activities by stakeholders as well as farmers. (shot on August 4, 2022, Aizawl).



MIS-JIFAS Training (5)

JPT conducted MIS-JIFAS Training at IWRD Office Kolasib (Bilkhawthlir RD Block). BAIDC members from IWRD, DoA, DoH, and LRSWCD participated in the training. The MIS-JIFAS will be utilized for monitoring BAIDC Annual Activities by stakeholders as well as farmers. (shot on August 5, 2022, Kolasib)



PMT Meeting

Meeting of the Project Management Team was conducted to discuss the following points:

1. Progress review of Batch-1 for 6 RDB
2. Progress review of Batch-2 for 10 RDB
3. Recommendation of sub-committee regarding Plan A & B
4. Role of PMT in MIS operation
5. Nomination of MIS operator from PMT members and TOR (shot on August 26, 2022, Aizawl).

Source : JICA Project Team

Project activity photos(September 2022)



**Awareness Training on
BAIDC SYSTEM / JICA SUSTAINABLE FARMING SYSTEM (JIFAS)**
Venue : SAMETI Conference Hall, Aizawl
Date : 6th - 7th September, 2022
Organised by State Agricultural Management & Extension Training Institute (SAMETI), Mizora
In collaboration with JICA

Awareness Training on BAIDC System/JIFAS (6th & 7th Sept.,2022)

BAIDC members from DoA, DoH, LRSWCD, and IWRD (Lawngtlai, Sangau, Reiek, Kawrthawveng RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute in collaboration with JICA Project Team.(Shot on September 7, 2022 Aizawl).



**Awareness Training on
BAIDC SYSTEM / JICA SUSTAINABLE FARMING SYSTEM (JIFAS)**
Venue : SAMETI Conference Hall, Aizawl
Date : 8th - 9th September, 2022
Organised by State Agricultural Management & Extension Training Institute (SAMETI), Mizor
In collaboration with JICA

Awareness Training on BAIDC System/JIFAS (8th & 9th Sept.,2022)

BAIDC members from DoA, DoH, LRSWCD, and IWRD (Hnahtial, Siaha, West Bunchmun, Tlabung RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute in collaboration with JICA Project Team.(Shot on September 9, 2022, Aizawl)



**Awareness Training on
BAIDC SYSTEM / JICA SUSTAINABLE FARMING SYSTEM (JIFAS)**
Venue : SAMETI Conference Hall, Aizawl
Date : 13th - 14th September, 2022
Organised by State Agricultural Management & Extension Training Institute (SAMETI), Mizo
In collaboration with JICA

Awareness Training on BAIDC System/JIFAS (13th & 14th Sept.,2022)

BAIDC members from DoA, DoH, LRSWCD, and IWRD (Khawbung, Thingsulthliah, Darlawn, Phullen RD Blocks) participated in the training organized by State Agricultural Management and Extension Training Institute in collaboration with JICA Project Team.(Shot on September 14, Aizawl).



8th JCC Meeting

Meeting of the 8th Joint Coordination Committee was conducted to discuss the following:

Recommendation of Sub-Committee for institutionalization of BAIDC System, further actions to be taken, and activity Progress Report on Batch 1 & 2(shot on September 21, 2022, Aizawl).



MIS-JIFAS Training (5)

Meeting of the Project Management Team was conducted to discuss the following: Progress review of Batch 1, Tentative schedule for preparation of BAAP 2023-24 Batch 2, Result of Sub-Committee of JCC recommendation and further necessary action, Review of BAAP format, Cost sharing of Management Information System (MIS) operation, Terminal evaluation of TCP, ODA loan, Small-Holder Horticulture Empowerment and Promotion (SHEP) review mission(shot on September 28, 2022, Aizawl)

Source : JICA Project Team



SHEP Programme

JICA mission members, Dr.(Ms.)Shuto Kumiko, Consultant (IMG Inc.) and Ms.Onishi Yumiko, Consultant (IC Net.Ltd), along with JPT visited Lamchhip village and conducted seminar on Small-Holder Horticulture Empowerment and Promotion (SHEP).(shot on September 29 & 30, 2022, Lamchhip & Aizawl).

Project activity photos (September 2018)



BAIDC Progress Meeting – Champhai RD Block

A meeting was held at the Champhai District Irrigation Department office to confirm the progress of activities and issues in Champhai RD block. At the meeting, discussions were held based on the plans and schedules formulated by the BAIDC members. (Taken on October 14, 2022, Champhai).



BAIDC Progress Meeting – Aibawk RD Block

A meeting was held at the Aizawl Irrigation Office to discuss the progress and issues of the Aibawk RD Block. At the meeting, discussions were held based on the plans and schedules formulated by the BAIDC members (Taken on October 12, 2022, Aizawl)



BAIDC Progress Meeting – Lunglei RD Block

A meeting was held at the Lunglei District Irrigation Office to confirm the progress of activities and issues of Lunglei RD Block. At the meeting, discussions were carried out based on the plan and schedule formulated by BAIDC. (Taken on October 20, 2022, Lunglei).



Preparation of the BAIDC Annual Activity Plan (2023/24)

BAIDC members selected priority villages from the West Phaileng RD block in Maramit District and formulated an action plan based on the available CSS and SSS. (Taken on October 14, 2022, Maramit).



Preparation of BAIDC Annual Activity Plan (2023/24)

BAIDC members selected priority villages for project implementation from the Tlangnuam RD Block in Aizawl District and formulated an action plan for the priority villages based on the available CSS and SSS. (Taken October 18, 2022, Aizawl)

Source : JICA Project Team



Preparation of the BAIDC Annual Activity Plan (2023/24)

BAIDC members selected priority villages for project implementation from Lawngtlai RD Block, and prepared activity plans for the two priority villages based on the available CSS and SSS. (Taken on October 25, 2022, Lawngtlai)

Project activity photos(November 2022)



Spot Verification of Lamchhip MIP

IWRD along with JPT, WUA and contractor conducted spot verification of Lamchhip MIP.. (Shot on November 9, 2022 Lamchhip).



Training for IWRD

Training on O&M and construction management for BAIDC members from IWRD Lunglei (Shot on November 21 2022, Lunglei)



BAIDC Meeting

BAIDC meeting was conducted for Lungsen RD Block for ratification meeting with farmers. (Shot on November 22, 2022 Lunglei).



Ratification meeting

BAAP 23-24 was explained to village leaders and farmers by BAIDC. (shot on November 23, 2022, Phairuangkai, Zawlpuoi, Putlungasih).



Training for IWRD

Training on O&M and construction management for BAIDC members from IWRD Serchhip. (Shot on November 23 2022, Serchhip)



Training for IWRD

Training on O&M and construction management for BAIDC members from IWRD Aizawl & Kolasib. (Shot on November 25 2022, Aizawl)

Source : JICA Project Team

Project activity photos (December 2022)



Ratification Meeting

BAAP 2023-24 was explained to village leaders and farmers from Lungdai village (Thingdawl RD Block) by BAIDC. (Shot on December 1, 2022 Lungdai).



Ratification Meeting

BAAP 2023-24 was explained to village leaders and farmers from Zawlnuam and West Phaileng villages (Zawlnuam RD Block) by BAIDC. (Shot on December 1, 2022 Zawlnuam and West Phaileng).



Ratification Meeting

BAAP 2023-24 was explained to village leaders and farmers from North Lungleng and Samtlang villages (Tlangnuam RD Block) by BAIDC. (Shot on December 9, 2022 North Lungleng and Samtlang).



On-the-job Training

On-the-job training on maintenance of irrigation facilities for WUA was conducted at Lailui MIP. (shot on December 12, 2022, Lailui).



On-the-job Training

On-the-job training on maintenance of irrigation facilities for WUA was conducted at Lumtui MIP. (shot on December 19, 2022, Lumtui).



PMT Meeting

Meeting of Project Management Team was conducted to discuss the following:

1. Notification of constitution of IDC, SLCC & BAIDC
 2. Batch 1 & 2 progress
 3. Terminal evaluation (schedule & evaluators)
 4. Seminar on 20th Jan 2023
 5. Printing of officers' manual & guidelines
 6. Monitoring sheet Ver.11
- (Shot on December 19 2022, Aizawl)

Source : JICA Project Team

Project activity photos (January 2023)



Conduct JIFAS Seminar

A JIFAS seminar was held for the purpose of enlightenment and dissemination of JIFAS. IDC and JPT gave presentations on the background of JIFAS institutionalization and the results of TCP. Professor Nitea of the Department of Rural Development, University of Mizoram also participated in the panel discussion, and a active discussion took place (shot on January 31, 2023, Aizawl City)



Binding and distribution of guidelines and manuals

JIFAS implementation guidelines and officers' manuals were bound and distributed at the seminar. (shot on January 31, 2023, Aizawl City)



Training on MIS to MIS operator

Training was conducted for four persons who were appointed as MIS operators to support IDC. Since Batch-1 activities are in progress, we confirmed the data currently being input and discussed how to deal with data delays (shot on January 20, 2023, Aizawl City).



Support for Feedback Meeting at Batch-1 (1)

Under the activities formulated in the BAIDC Annual Work Plan in Aibawk RD Block, BAIDC and JPT held a farmers feedback meeting to discuss the achievements, evaluation of achievements, reasons and improvements for next year. discussed and evaluated. (Shot on January 25, 2022 at Lumchhip Village)



Support for Feedback Meeting at Batch-1 (2)

Under the activities formulated in the BAIDC Annual Work Plan in Serchhip RD Block, BAIDC and JPT held a farmers feedback meeting to discuss the achievements, evaluation of achievements, reasons and improvements for next year. Discussed and evaluated. (shot on January 25, 2022 at Bungtlang)



Conduct O&M training of MIP

Training on maintenance and management of irrigation facilities constructed in the 1st pilot was conducted again. After one rainy season after COVID-19, there were some places that needed repairs. IWRD organize the OJT in the field (shot on January 28, 2023, in Buhchangphai Village)

Source : JICA Project Team

Project activity photos (February 2023)



9th JCC

The 9th JCC was held, and the terminal evaluation team explained the evaluation results and recommendation to sustain the outcomes. After the discussion, Chief secretary and Ms. Sadamoto signed the MM. (Shot on February 15, 2023, at Aizawl City)



Terminal Evaluation

A terminal evaluation team headed by Ms. Sadamoto of JICA HQ arrived in Mizoram and conducted a joint terminal evaluation with the Mizoram side from January 30th. Team visited five villages and conducted interview survey (Shot on February 16, 2023, in Aizawl City)



Handing Over Ceremony of Laului MIP

With the attendance of Minister of DOA & IWRD and Mr. Saito of Chief Representative of JICA India Office, a handover ceremony of the Laului MIP project to WUA which was constructed under a pilot project in Sailam village (shot on February 11, 2023, Sailam).



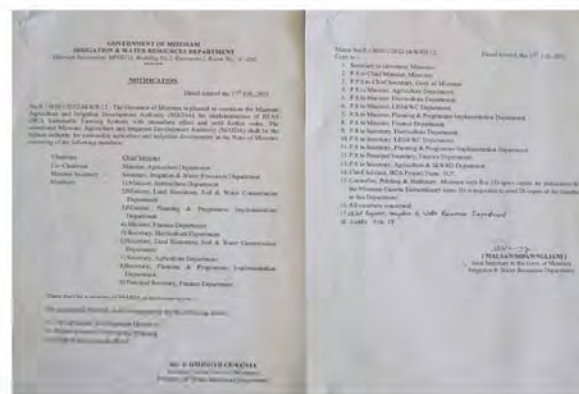
Courtesy call to Chief Minister

Mr. Saito, Chief Representative of JICA India Office, paid a courtesy call to the Chief Minister, thanked him for the implementation of the project, and held discussions for the expansion and establishment of the project results in the state (shot on February 10, 2023, in Aizawl City)



Support for Feedback Meeting of Batch-1

JPT assisted in conducting a feedback meeting at Champhai RDB in Batch-1. Although the planned NFSM was not implemented, farmers gave high marks to the Area Expansion Scheme implemented for 22 farmers by DOA (Shot on February 23, 2022 at Ngur)



Establishing MAIDA

PMT has received approval from the Chief Minister to implement JIFAS. On February 17, MAIDA (Mizoram Agriculture & Irrigation Development Agency) chaired by the State Chief Minister was established, and it was decided to monitor and expansion of JIFAS at the ministerial level in the future. (shot on February 17, 2023 in Aizawl City)

Source : JICA Project Team

Attachment 8

LIST OF TRAINING AND WORKSHOP

Summary of Basic Training and Workshop

Name of Training	Objectives	Date
Curriculum Development Based on Vocational Ability Structure (CUDBAS)	To identify the present skill level and setting the target	8 th August 2017 31 st October. 2017
Technical training for Facilitator	To understand the facilitation to extract the need and information from the village member	1 st – 2 nd November. 2017
Participatory Development Planning	To understand the procedure, pros and cons of PDP and important points for PDP	11 th December 2017 16 th November. 2017 20 th November. 2017 30 th November. 2017
GIS Training	To understand the GIS operation for analysis	31 st October. – 1 st November. 2017
Water balance study on irrigation planning	To understand the calculation of crop water requirement and hydrological analysis	30 th October. 2017
Awareness and seminar for village development and extension	To understand village structure by analyzing results of baseline survey and how to read and use PDM for BAIDC	6 th February 2018 8 th February 2018
Orientation and awareness programme for planning method	To understand how to prepare BAIDC activity plan	27 th February 2018 5 th March 2018 8 th March 2018 12 th March 2018
Participate to national workshop for Himachal Pradesh Crop Diversification	To understand the advanced practice of crop diversification and project funded by JICA	7 th - 8 th May 2018
Workshop on IEE and environmental monitoring (EM) for construction works	To understand how to implement IEE and EM	11 th May 2018
Technical training on WRC and basic farm input for slope agriculture	To understand present farmers' rice cultivation method and necessary improvement points and vetiver cultivation method	1 st June 2018
Technical training for WRC and Vegetable cultivation	To understand rice seed production, vegetable cultivation, marketing and farm management	22 nd – 24 th May 2018 28 th – 29 th May 2018
Technical training on soil erosion control	Provision of Changkham to present soil erosion	22 nd – 24 th May 2018
Technical training for WRC and agricultural activities	To understand basic important techniques for WRC and how to prepare organic fertilizer by using available resources	8 th June 2018 14 th June 2018
Capacity enhancement training on agriculture extension and irrigation development and management in hilly area	Deepening the knowledge of (1) agriculture extension system planning, implementation and monitoring (2) irrigation facility development and management (3) practice of farmer for hill area cultivation, resources utilization and management and agriculture processing and marketing	24 th September. to 5 th October. 2018
Study tour for strengthening the organization	To study the society structure and function of Reiek Block Turmeric Society	10 th October 2018
Paddy cultivation training	To understand the basic cultivation technologies on paddy cultivation and advantage of SRI cultivation	25 th October 2018
Wrap up meeting on Training in Japan (1 st Batch)	Sharing the experience in training in Japan	26 th October 2018

Name of Training	Objectives	Date
Technical training on Rabi vegetable cultivation	To understand the characteristic and cultivation environment, nursery preparation and transplanting for tomato, cabbage, Chinese cabbage, broccoli and knol khol	10 th October 2018 13 th November 2018 10 th December 2018
Technical training on rapeseed cultivation	To understand the cultivation management for rapeseed	27 th October 2018 13 th November 2018 16 th November 2018
Study tour for advanced cultivation and marketing of broom grass	To see the advanced practice on the broom grass cultivation	23 rd November 2018
Pruning and basic cultivation training on orange cultivation	To understand the pruning technologies and basic cultivation skills	14 th December 2018
Construction Management Training	To understand the contents of officers' manual, the basics for construction material selection, quality control, time management, safety control on the construction works, community contract and environmental management during construction	23 rd to 25 th January 2019
Technical training on capacity development of financial management on WUA	Had training regarding financial management for WUA as well as BAIDC members(Irrigation and water resource Department officers). We had 2 days training on book keeping, accounting and importance of forming society. Resource persons from OPEN DOORS (NGO)	21 st to 22 nd February 2019
Technical training on conduct feedback meeting	Hnahlan: To improve our activities we had review meeting, Group discussion and presentation. Sharing opinion regarding the activities and planning for next activity. Buhchangphai: had a fruitful feedback meeting with pilot farmers. All the farmers want to continue for next year activity as a pilot farmer. Serchhip: During the feedback meeting farmers emphasised more on inputs like chemical fertilizers, power tiller to increase their productivity, also BAIDC members suggested that to the farmers to maintain quality products for better marketing. Sailam: Had a slide show review of one year activities, after that pilot farmers were divided into 3 groups (Jhum, Orange, WRC & Winter crop) to review past one year activities and make plan for next year.	29 th Jan.,2019 5 th Feb.,2019 7 th Feb.,2019 12 th Feb.,2019
Technical training on preparation of annual activity plan 2019/20	Aibawk: At DAO Office, Aizawl we had a meeting on selection of techniques to be introduced in 2019 in Jhum area. Triangle method of maize, cowpea, soyabean cultivation had been selected and changkham to be constructed for soil erosion control. Buhchangphai: JPT went to each department concerned places to make a plan. All the line departments had prepared new plan for 2019/20. Hnahlan: Had a meeting with BAIDC members to make plan for 2019/20, what activities to be carried out?	18 th & 19 th Mar.,2019 4 th Mar.,2019 23 rd & 25 th Mar.,2019
Technical training on detailed	We had a meeting in each Districts to	25. March. 2019

Name of Training	Objectives	Date
planning and budgeting for agriculture extension	prepared Annual Detail Plan	19. March. 2019 14.March.2019
Conduct trainings for pilot farmers (inter cropping, nursery raising, soil conservation measures, weed control, etc.)	To acquire basic knowledge on arecanut cultivation BAIDC gave training to pilot farmers	6.April.2019
Field Demonstration of Site Preparation, Propagation & Planting Technology. Facilitation of on-side training on upkeeping of plantation including weeding, application of fertilizer etc.	Broom 7 pilot farmers participated in the training. Things we learnt were:- 1. Application of chemical fertilizer 2. Importance of weeding 3. Importance of spacing 4. Importance of inter cropping	15.4.2019
Facilitation of classroom training	We had orientation meeting with WRC pilot farmers and selection of paddy variety. Training on paddy cultivation has been done.	14.May.2019
Facilitation of on-site training on nursery preparation	On-site training was conducted regarding soil preparation by using pp chemicals and seed treatment.	16.May.2019
Facilitation of on-site training	20/20meter square measured for monitoring and established changkham at 5 Jhum pilot farmers farm	2,3,4.10 April.2019
Provision of input and technical guidance	Provision of input (maize seeds) and technical guidance was given during the training for 2 nd year Jhum pilot farmers	25.March.2019
Provide training for introducing INM, IPM and IDM for 30 farmers	Provided training on IDM, IPM, to 31 Sailam orange farmers and IPM, IDM inputs had been distributed to 4 pilot farmers.	29.April.2019
Construction of half-moon terrace by Pilot Farmers	4 pilot farmers participated training on half-moon terrace at the cultivation area	8.May 2019
Facilitation of on-site training on Nursery preparation,IPM and INM	On-site training on paddy nursery preparation by using salt water seeds were selected, top soil collected from forest and mixed with bokashi and ash and put into plastic tray. Line transplanting training was done at the same date.	13.June.2019
Technical training on market survey	Had a market survey at champhai vegetables markets with BAIDC and JPT. Also provided marketing training at Hnahlan for our pilot farmers.	23-25, April.2019
Select pilot farmers (Select cluster having good access >> instruct them to practice changkham) by VCP	Discussed about 2 nd year jhum for next year or not? But cannot finalized yet, we need to consider with VCP and farmers 5 farmers selected for jhum, training on Changkham was done	26.March.2019
Facilitation of training on planning	On that training crops variety had been selected with the farmers. They have selected Tomato, sweet corn, bitter gourd and cabbage for kharif season.	8.May.2019
Facilitation of training for Kharif crops	Class room training on kharif vegetables crops had been done for pilot farmers regarding spacing, nursery, transplant	22.April.2019
Facilitation of training on line transplanting, water management, use of organic matters and land leveling	Training on line transplanting and land leveling, spacing and water management was done for 2 pilot farmers.	20.June.2019

Name of Training	Objectives	Date
Technical training on quality control of concrete works	Conduct of cube test and slump test to check the quality of cement works	24th May 2019
Technical training on construction supervision	To understand the needs and necessity of proper supervision during stages of construction	24th June 2019
Technical training on evaluation on time extension	To acquaint the contractors about the conditions of time extension and to identify work items which will be constructed within time extension period considering cultivation season of farmers in the 1st pilot villages	25th June 2019
GIS training for 2nd pilot	To have basic skills for various operations in GIS which are necessary for preparation of contour map, land use map, layout map etc. required for better understanding of landforms, meaningful planning of activities and preparation of DPR	26 th to 1st July 2019
Core Trainers orientation & induction meeting	JPT explained the purpose/task of core trainers to understand and refine the content of project of implementation guideline, farm management for sustainable agriculture, strengthening Farmer's organization, construction management of MIP, strengthening of WUA for O&M for MIP and gave reading materials regarding present issues of Agriculture and development	21 st June 2019
Meeting on Final Summary Report	Had discussion on "the study on development and management of land and water resources for sustainable agriculture in Mizoram". Also, Dr. Lalnilawma, Mizoram University and Ms. Lalrokimi, Open Doors (NGO) were participated in the meeting.	27 th June 2019
Training on importance of Farmers Organization	To gain and understand the advantages of community works about Farmer's organization slide show of Sri Lanka Farmers organization and WUA contract works was presented. Also, had discussion about how to improve the farmers condition by forming farmers organization	19 th July 2019
Facilitation of training for orange cultivation	Training on Orange cultivation had been done for pilot farmers regarding Insect pest management (IPM)	26 th July 2019
Onsite training for technical guidance of manual weeder	Onsite training for technical guidance for the operation of manual weeder had been done to the pilot farmers and providing 3 different type of manual weeder to the pilot farmers	20 th Aug 2019
Market Survey at Bara Bazar	Market survey was conducted in Bara Bazar, to understand the actual price, supply and value chain of cereals, oil seeds to acquire the basic knowledge of Mizo agriculture marketing	8 th August 2019
Review meeting on Market Survey	Had review meeting regarding market survey and also discussed and checked implementation guideline for sustainable agriculture and irrigation development	14 th August 2019
Study/discussion on Implementation Guidelines for Sustainable agriculture and irrigation development	Study continued of implementation guidelines for sustainable agriculture and irrigation development	27 th August 2019

Name of Training	Objectives	Date
Meeting on Farm Management Manual for Sustainable Agriculture Version 2.2	Study continued and check Farm Management Manual for Sustainable Agriculture Version 2.2	13 th Sept 2019
Training on Implementation guideline for 2 nd Pilot Village	Core trainers had training on Implementation Guidelines for 2 nd pilot village for the smooth functioning of BAIDC Activity	11 st Oct 2019
Conduct Workshop on Need Assessment for 2 nd pilot village	Need Assessment workshop have been conducted in 2 nd pilot villages to understand village conditions.	15 th Oct 2019 17 th Oct 2019 22 nd Oct 2019
Facilitation of training for agriculture Rabi crops	Class room training on agriculture Rabi crops had been done for pilot farmers and the villager regarding cultivation method of the crops and providing of the seeds (Rape-seed, cowpea and Field pea)	11 th Nov 2019 14 th Nov 2019 29 th Nov 2019
Onsite training for Horticulture Rabi crops	Onsite training on Rabi crops had been done for the pilot farmers regarding INM, IPM, nursery, transplanting and spacing of the crops and providing of the seeds (Spinach, Beet-root, Radish, Tomato and Green chili)	21 st Nov 2019
Technical training on preparation of BAIDC annual activity plan 2020/21	Champhai: BAIDC members prepared Annual Activity Plan for Tlangsam Village, 2 nd Pilot village Kolasib: BAIDC members prepared Annual Activity Plan for Bilkhawthlir "N" Village, 2 nd Pilot village Aizawl: BAIDC members prepared Annual Activity Plan for Lamchhip Village, 2 nd Pilot village	4 th Nov 2019 15 th Nov 2019 19 th Nov 2019
Training on Ratification for the 2 nd Pilot Village	For the smooth function of BAIDC activity core trainer and BAIDC member were trained regarding how to conduct ratification meeting in 2 nd Pilot villages	9 th Dec 2019
Conducted Ratification at 2 nd pilot villages	BAIDC conducted Ratification meeting at 2 nd pilot villages and explained BAIDC Annual Activity Plan for their villages	11 th Dec 2019 12 th Dec 2019 12 th Dec 2019
Preparation of Monitoring sheet for 2 nd Pilot villages	Aizawl: Each department BAIDC member prepared monitoring sheet/detailed plan for 2 nd pilot village Kolasib: Each department BAIDC member prepared monitoring sheet/detailed plan for 2 nd pilot village Champhai: Each department BAIDC member prepared monitoring sheet/detailed plan for 2 nd pilot village	15,16,22 Jan 2020 20,21 Jan 2020 23,24 Jan 2020
Study tour to Nagaland to discuss educational tour for IWRD staff.	The pre mission (IWRD + JPT) visited Water Resources Department in Kohima, Nagaland to seek for the possibility of educational visit for IWRD staff. The mission visited Jakhama village after discussion at WRD. They inspected canal constructed through beneficiary system and had interactions with WUA members	22 nd – 23 rd Jan 2020
Technical training on conduct feedback meeting for BAIDC member	Training on facilitation of feedback meeting and Self evaluation of BAIDC was done for Aibawk RD Block, Bilkhawthlir RD Block, Champhai RD Block, BAIDC members	3 rd Feb 2020 6 th Feb 2020 10 th Feb 2020
International workshop on	JICA Project Team along with Mr.Jonathan	10 th – 12 th Feb 2020

Name of Training	Objectives	Date
"Impact of Crop Diversification on Farmers income and Food Security"	Lalchhanmawia, RO, LRSWCD attended the International workshop on "Impact of Crop Diversification on Farmers income and Food Security" in Dharamshala, Distt. Kangra, HP, India	
Technical training on conduct feedback meeting for 1 st pilot villages	Hnahlan: Had feedback meeting with pilot farmers to improve our activities. Group discussion and presentation. Sharing opinion regarding the activities and planning for next activity. Buhchangphai: Had feedback meeting with pilot farmers. Activities are reviewed and made plan for coming year. Serchhip: Terminated Sailam: Had review of on e year activities and made plan for coming year	4 th Feb 2020 7 th Feb 2020 11 th Feb.2020
Training on Broom marketing and cultivation	Had training on broom marketing and cultivation for broom farmers. Prominent broom farmer Mr. Lalthlamuanga from Saipum village was Resource Person	11 th Feb 2020
Monitoring Mission Workshop	Two days workshop was conducted to create a common understanding of new approach and refining of roadmap for institutionalization of the new approach. A total of 65 officials participated in the discussions in the workshop with facilitation from Dr.Lalnilawma, Mizoram University	17 th & 18 th Feb 2020
Conduct training for Kharif crop cultivation including land preparation	Implemented on-site training on kharif crop cultivation (pumpkin & sweet corn) for 2 nd pilot farmers	24 th Feb 2020
Technical training on development and construction of terraces	On-site training on development and construction of terraces has been done at 2 nd pilot farmers plot	18 th March 2020
Technical training on construction of Half-moon terraces	Implemented on-site training on half-moon terrace construction	11 th March 2020
Online interview with Pilot farmers	Conducted online (phone call) interview with pilot farmers regarding Current situation survey on Farmer's livelihood amid Covid-19	April-May 2020 June-August 2020 September- November 2020
Transfer of technology (TOT) on Khariff crop cultivation	Implemented class room training Transfer of technology (TOT) on Kharif crop cultivation	8 th May 2020
Training on Paddy cultivation (WRC) 2 nd pilot villages	Implemented Class room and on-site training for WRC 2 nd pilot farmers	8 th May 2020 15 th May 2020
Facilitation of on-site training on INM&IPM	Class room and on-site training on INM and IPM had done for 2 nd pilot farmers	15 th May 2020
Training on WRC 1 st pilot village	On-site training on seed treatment and nursery preparation was done	28 th May 2020
Training on vegetables cultivation at 1 st pilot village	On-site training on vegetables cultivation was conducted for pilot farmers	11 th June 2020
Training on WRC 1 st pilot villages	On-site training on seed selection using salt water, seed treatment, nursery preparation, line transplanting, uses of fertilizers and pp chemicals was done	12 th June 2020 15 th June 2020 26 th June 2020 8 th July 2020 8 th July 2020 15 th July 2020 2 nd September 2020
Training on Paddy cultivation (WRC) 2 nd pilot villages	Implemented on-site training on seed selection using salt water, seed treatment,	2 nd June 2020 10 th June 2020

Name of Training	Objectives	Date
	nursery preparation, line transplanting, uses of fertilizers and pp chemicals for WRC pilot farmers	16 th June 2020 23 rd June 2020 1 st July 2020 4 th September 2020
Online test for Manual for Improving Agricultural Extension	Conducted online test for understanding of Manual for Improving Agricultural Extension	June 2020
Online test for Officers Manual for Construction Management and Operation and Management Manual	Conducted online test for Officers Manual for Construction Management and Operation and Management Manual	July 2020
Training on Rabi Crop cultivation, 2 nd pilot village	Implemented training on Rabi crop cultivation (Bean, Pumpkin, Mustard and carrot)	20 th August 2020
Technical training on after-care of Arecanut nursery and Banana cultivation, 1 st pilot village	Implemented on-site training on after-care of Arecanut nursery and Banana cultivation	3 rd September 2020
Training O&M for Irrigation Department	Japanese expert gave online training on O&M for Irrigation Department	3 rd September 2020
Training on water tank construction under DoA, 2 nd pilot village	Conducted training on water tank construction (water harvesting structure) under PMKSY (DoA) scheme	8 th September 2020
Training on Rabi crop cultivation, 2 nd pilot village	Implemented class-room training on Rabi crop cultivation (carrot and water melon)	30 th September 2020
Training on Planting of vetiver Grass, 2 nd pilot village	Implemented on-site training on planting of vetiver grass	1 st October 2020
Training on O&M for Lau Lui WUA, 1 st Pilot village	Conducted O&M training to WUA	20 th October 2020
Technical training on Rajma cultivation (Rabi crop), 1 st and 2 nd pilot village	Conducted training on Rajma cultivation (importance of line transplanting, weeding earthingup, uses of pp chemicals, fertilizers and timing of harvesting)	22 nd October 2020 11 th November 2020
Training on Rabi crop cultivation, 1 st Pilot village	Conducted class-room and on-site training on Rabi crop cultivation (rape seed and cowpea)	11 November 2020
Training on Rabi Crop cultivation 2 nd Pilot village	Implemented training on Rabi crop cultivation (Rape seed and cowpea)	16 th November 2020
Facilitation of on-site training on Integrated Pest Management (IPM) and Integrated Nutrient Management (INP), 2 nd pilot village	Class-room and on-site training on IPM and IPM for WRC pilot farmers (Rabi)	16 th November 2020
Training on Rabi crop cultivation, 1 st and 2 nd pilot village	Implemented class-room training on Rabi crop cultivation (field pea)	18 th November 2020 23 rd November 2020
Training on Rabi crop cultivation 2 nd pilot village	Implemented on-site training on Rabi crop cultivation (Carrot and water melon)	4 th December 2020
Core Trainers Training for preparation of BAIDC & Farmer's Feedback Meeting, 1 st & 2 nd Pilot Villages	Core Trainers are given technical guidance for the BAIDC and Farmer's feedback meeting in 1 st and 2 nd pilot villages	15 th January 2021
Training on Broom Grass	Conducted training on broom grass cultivation management, harvesting technique and processing	29 th January 2021
Conduct Technical training on BAIDC feedback meeting, 1 st & 2 nd Pilot Activities	Champhai, Bilkhawthlir 'N' and Aibawk RD Blocks, Core Trainer facilitated BAIDC feedback meeting to discuss achieved outcome, ratings of achievements, reasons and improvements for next year	3 rd February 2021 9 th February 2021 17 th February 2021

Name of Training	Objectives	Date
Conduct Technical training on farmers' feedback meeting, 1 st & 2 nd Pilot Activities	BAIDC members conducted feedback meeting with farmers to discuss and evaluate achieved outcome, ratings of achievements, reasons and improvements for year at 1 st and 2 nd Pilot villages, Champhai , Bikhawthlir 'N' and Aibawk RD Blocks	4 th February 2021 5 th February 2021 10 th February 2021 11 th February 2021 18 th February 2021 19 th February 2021
Technical Training on O&M for Water Users Association	Implemented Operation and Maintenance training to WUA. (Buhchangphai, Tuikhurlui)	5 th February 2021
Online meeting/training for Preparation of BAIDC Annual Activity Plan 2021/22	Implemented Online meeting/training for Preparation of BAIDC Annual Activity Plan 2021/22 to the core trainers.	26 th February 2021
Preparation of BAIDC Annual Activity Plan 2021/22 for 1 st and 2 nd Pilot village	Prepared BAIDC Annual Activity plan 2021/22 for 1 st and 2 nd village based on BAIDC & Farmers' feedback meeting	8 th March 2021 11 th March 2021 16 th March 2021
Preparation of Monitoring sheet/Details Plan	Implemented preparation of Monitoring Sheet for 1 st & 2 nd Pilot Village	9 th March 2021 12 th March 2021 17 th March 2021
Explanation of BAAP to the pilot farmers for Approval at 1 st & 2 nd Pilot villages	Conducted explanation of BAAP to the pilot farmers for Approval at 1 st & 2 nd Pilot villages	25 th & 26 th March 2021 26 th & 8 th March 2021 9 th March 2021
Technical Training on O&M for Water Users Association	Implemented Operation and Maintenance training to WUA. (Dilhnuai)	21 st April 2021
Training on Kharif crop cultivation at 1 st & 2 nd pilot village	Implemented on-site training on kharif crop cultivation (cabbage) for 1 st & 2 nd village	21 st April 2021 22 nd April 2021
Training on Paddy cultivation 1 st & 2 nd pilot village	Implemented on-site training on paddy cultivation for 1 st & 2 nd village. Seed selection, seed treatment, preparation of modified mat nursery, line transplanting and water management.	23 rd & 24 th June 2021
Training on after care of banana cultivation	Implemented training on aftercare of banana cultivation. Time of sucking and transplanting was taught to the farmers.	07 th July 2021
Training on Tomato and field pea for Rabi crop cultivation	Conducted training on Tomato and field pea cultivation for 1 st pilot village. Soil preparation, nursery management and use of fertilizers were taught to the farmers.	20 th Oct 2021
Training on Rabi crop cultivation	Implemented training on cabbage and field pea cultivation for Rabi crop at 2 nd pilot village	21 st Oct 2021
Training on Rajma cultivation	Implemented training on Rajma cultivation for Rabi crop at 1 st & 2 nd pilot village	28 th Oct 2021 03 rd Nov 2021
Training on Water-melon cultivation for Winter crop cultivation	Implemented training on water-melon cultivation at 2 nd pilot village	10 th Nov 2021
Technical Training on O&M for Water Users Association	Implemented Operation and Maintenance training to WUA. (Serchhip, Lumtui MIP)	2 nd Nov 2021
Training on Chili, cabbage and tomato cultivation for Winter crop cultivation	Implemented training on chili, cabbage and tomato cultivation at 2 nd pilot village	18 th Nov 2021
Technical training to Core Training Officers to conduct New System	Conducted training on Importance of statistics and information related to agriculture, such as Village Based Basic Data, and use of existing data : Information needed to clarify how the Priority village was selected Sustainable Land Use & Resources Management: Land use methods and	22 nd Dec 2021

Name of Training	Objectives	Date
	valuable resources on slopes in neighbouring countries and Mizoram	
1 st sensitization training program on BAIDC system	Conducted training on 1 st sensitization to the 6 RC Block BAIDC members. Expert from MZU gave Ppt to the participants	7 th Jan 2022
Transfer of Technology to Core Training Officers	Implemented training on Village Agriculture Development Vision to the CTO	12 th Jan 2022
Training on construction management 2 nd pilot project villages for IWRD staff	Implemented Transfer of Technology for IWRD staff regarding construction management 2 nd pilot project villages for IWRD staff	17 th Jan 2022
Transfer of Technology to Core Training Officers	Conducted TOT to core training officers on preparation of BAAP	18 th Jan 2022
	Irrigation works: DPR preparation/ establishment of WUA and O&M activities	25 th Jan 2022
	Basic information and approach required to implement the manual for Improving Agricultural extension	01 st Feb 2022
	Introduction of various CBO activities and agro-processing: example of models that can be replicated in Mizoram	08 th Feb 2022
	Basic information and approach required to implement the manual for Improving Agricultural Extension (2 nd session)	15 th Feb 2022
	Review and any Topics from CTO	22 nd Feb 2022
Conduct Technical training on BAIDC feedback meeting, 1 st & 2 nd Pilot Activities	Champhai , Bilkhawthlir 'N' and Aibawk RD Blocks, JPT facilitated BAIDC feedback meeting to discuss achieved outcome, ratings of achievements, reasons and improvements for next year	08 th March 2022 08 th March 2022 11 th March 2022
Conduct Technical training on farmers' feedback meeting, 1 st & 2 nd Pilot Activities	BAIDC members conducted feedback meeting with farmers to discuss and evaluate achieved outcome, ratings of achievements, reasons and improvements for year at 1 st and 2 nd Pilot villages, Champhai , Bilkhawthlir 'N' and Aibawk RD Blocks	09 th March 2022 10 th March 2022
Conduct Awareness meeting, BAIDC Annual Plan Preparation, inform BAIDC Annual Plan to the farmers in Six (6) RD Block	BAIDC conducted awareness meeting of JIFAS, preparation of BAIDC Annual Activity Plan for 25 villages in 6 RD block and informed BAAP to the farmers.	10 th -20 th May 2022
Conduct Awareness training on BAIDC System/JIFAS, organized by SAMETI in collaboration with JICA Project Team	For the expansion of BAIDC system/JIFAS in all over the state, 10 RD Block BAIDC members 2 nd batch are trained.	19 th & 20 th July 2022 26 th & 27 th July 2022 28 th & 29 th July 2022 2 nd & 3 rd August 2022
Conduct MIS-JIFAS training for the batch-1, 6 RD Block BAIDC members	MIS-JIFAS trainings were conducted for 6 RD Block BAIDC members for information sharing and monitoring of JIFAS activities.	26 th July 2022 28 th July 2022 1 st – 5 th August 2022
Conduct Awareness training on BAIDC System/JIFAS, organized by SAMETI in collaboration with JICA Project Team at SAMETI training hall.	Another 12 RD Block BAIDC members 3 rd batch are trained for the expansion of BAIDC system/JIFAS in all over the state.	6 th & 7 th September 2022 8 th & 9 th September 2022 13 th & 14 th September 2022
Conduct Progress Review Meeting for Batch-1, 6 RD block.	JPT facilitated Progress Review Meeting for Batch-1at the District office. The BAIDC members from each department shared their progress based on the prepared Plan.	11 th October 2022 12 th October 2022 14 th October 2022 17 th October 2022 20 th October 2022

Name of Training	Objectives	Date
Conduct BAIDC Annual Activity Plan 2023-24 for Batch-2, 10 RD Block	BAIDC members prepared BAIDC Annual Activity Plan for priority villages within their respective RD Block based on availability of CSS & SSS.	11 th to 28 th October 2022
Explanation of BAAP to the farmers for Approval of Batch-2, 10 RD Blocks.	BAIDC members conducted explanation of BAAP to the farmers for Approval of Batch-2, 10 RD Blocks.	22 nd November to 16 th December 2022

Attachment 9

DATA SHEET FOR PILOT ACTIVITY

Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Kolasib
	RD Block	Bikhawthlir
	Village	Buhchangphai
Development Zone Under Master Plan	Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.	
Project Name	BU-01: Improvement of areca nut productivity/ Increasing farmer's income	
Project Duration	4 years: 2018 April – 2022 March (follow up: 2020 April – 2022 March)	
Expected Outcome	(1) Improve growth rate of young areca nut plant. (2) Improve income level by selling the areca seedlings and inter crops.	
Goal for March 2022	Increase 10 pilot farmers' income by 20%.	
Approach	1) Introduce inter-cropping with suitable crops for areca nut young plant. 2) Establish nursery in the village with technical guidance. 3) Introduce technique of weed management. 4) Introduce measures of soil erosion control and soil amendment.	
Responsible Dept.	Department of Horticulture, Department of Agriculture.	
Number of Target Beneficiaries	2018/19	10
	2019/20	10
	2020/21	10
	2021/22	10
Expenditure (INR)	2018/19	DOH, KVK and JICA: INR 41,000
	2019/20	DOH and JICA: INR 282,500
	2020/21	DOH: INR 38,000
	2021/22	DOH: INR 36,000
Result of Feedback Meeting	2018/19	Farmers and BAIDC agreed to continue the project.
	2019/20	Evaluation by BAIDC: Good/ by Farmers: Good Comments: - Only 60 % of areca nut seed were germinated but the seedlings showed good performance. - Brush cutters for weeding were efficiently utilized in the farm of areca nut, banana and pigeon pea. - Monitoring by BAIDC was regularly done. - Training was good and useful for farmers.
	2020/21	Evaluation by BAIDC: Above Average/ by Farmers: Above Average Comments: - Weeding was done properly and timely by using brush cutter - Technical guidance on soil conservation measures was given to farmers, but farmers did not have enough money to construct terraces. - Monitoring, training and supervision were timely conducted.
	2021/22	Evaluation by BAIDC: Above Average/ by Farmers: Above Average Comments: - Seedlings of areca nut were timely transplanted. - Weeding was timely done.

		- Training and monitoring was good.
Achieved Outputs	Overall	<p>Nursery management of seedlings:</p> <ul style="list-style-type: none"> - To improve the growth rate of young areca nut plants farmers were provided areca nut seeds to be grown by them but the germination rate was low (50 %). The seedlings were raised in the nursery for nearly 2 years with healthy condition and transplanted in the field without selling the seedlings. - Provided necessary inputs (seeds, poly pot, shade nets, plastic crate) and trainings on package of practices. <p>Inter-cropping for additional income:</p> <ul style="list-style-type: none"> - The growth of banana inter-cropped with areca nut was not good at slope area and only two farmers could harvest banana in flat area and have additional income. <p>The most critical task for areca nut cultivation is weeding which is usually carried out for 3 to 4 times in a year. So, Brush cutters were provided to pilot farmers to compensate the high cost of labour for weeding.</p>

Schedule & Activities

2018/ 19

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location/ scale of pilot cultivation plot for each farmer												
4	Procure equipment/ inputs (planting material of pineapple)												
5	Conduct cultivation training to pilot farmers												
6	Monitor and collect data on cultivation												
7	Conduct field day training at pilot farmers' field												
8	Select group nursery plot												
9	Establish nursery												
10	Select pilot famers for the nursery management												
11	Provide improved seeds & equipment												
12	Provide training												
13	Produce seedling and monitoring												
14	Prepare and distribute of Package of Practice (POP)												
15													
16													

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers (same farmers)												
2	Hold awareness meeting with pilot farmers												
3	Conduct trainings to pilot farmers (inter cropping, nursery raising, soil conservation measures, weed control, etc.)												
4	Procure equipment / inputs (banana sucker, pigeon pea seeds, slaked lime and brush cutter)												
5	Monitoring and collect data												
6	Evaluation/ reporting												
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

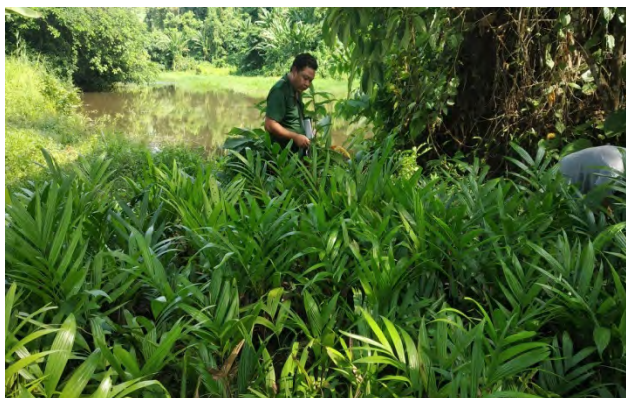
2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Select pilot farmers (same farmers)												
2	After care of banana												
3	Nursery management of Arecanut seedling												
4	Monitor and collect data on cultivation												
5	Evaluation												
6	Reporting												
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	After care of banana												
2	Monitor and collect data on cultivation												
3	Evaluation												
4	Reporting												
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph



Monitoring of the growth and health conditions of areca nut seedlings at the nursery site. The seedlings will be in the nursery site for 2 years before transplanting to save labour for weeding.



On-site training on after care of banana
The BAIDC promoted the mix cropping with Banana to compensate the income till growing up the areca nuts



Provision of brush cutters to the 10 pilot farmers for weeding of areca nut, banana and pigeon pea farm
Weeding was one of the biggest challenges of areca nuts cultivation in the pilot farmers



Harvesting of banana inter-cropped with areca nut.
Farmers could get additional income from banana cultivation.



Areca nut cultivation inter-cropped with banana.
Bananas are used for shading the transplanted areca nut seedlings.



Nursery of areca nut seedlings. The seedlings were raised in the nursery for nearly 2 years with healthy condition and transplanted in the field without selling the seedlings.

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Kolasib.
	RD Block	Bilkhawthlir.
	Village	Bilkhawthlir North
Development Zone Under Master Plan	<p>Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed</p> <p>Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.</p>	
Project Name	BN-02: Improvement of vegetable productivity	
Project Duration	2 years: 2020 April – 2022 March.	
Expected Outcome	<p>1st year: Improvement of farmer's knowledge on modern production technologies.</p> <p>2nd year: Increase farmers' income at least by 50%.</p>	
Goal for March 2022	Increase 10 pilot farmers income by 50 % .	
Approach	<ol style="list-style-type: none"> 1) Introduce quality vegetable seeds. 2) Adopt improved package of practices (INM and IPM). 3) Improve water management system. 4) Involvement of Mizo farmers in vegetable cultivation and production. 	
Responsible Dept.	Department of Horticulture	
Number of Target Beneficiaries	2020/21	10
	2021/22	5
Expenditure (INR)	2020/21	DOH: INR 144,000
	2021/22	DOH: INR 221,500
Result of Feedback Meeting	2020/21	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Procurement and distribution of quality vegetable seeds and training were timely conducted. - Mizo farmers were selected as pilot farmers - Use of sprinkler irrigation was easy to irrigate plants/crops and save time and also good for the plant growth and health. - After implementation of JICA project cultivation practices was done systematic. These practices has good impact not only to pilot farmers but also other Mizo farmers started cultivation of vegetables. - BAIDC supervision, timely monitoring and good training changed Mizo farmer's mind-set in a positive way. So, Mizo farmer's wanted to get more involve in vegetable cultivation.
	2021/22	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Seasonally technical guidance was conducted. - Only Mizo farmers were selected. - Timely seed distribution and regular monitoring were done. - Farmers were active to adopt BAIDC suggestions. - Pesticide and nutrients were timely applied. - Training materials were properly utilized.
Achieved Overall Outputs	<p>Farmers' income was increased by following activities:</p> <ul style="list-style-type: none"> - Technologies regarding land preparation, time of sowing, application of INM & IPM and time of harvesting were transferred from the BAIDC and adopted by the farmers. 	

- High yielding hybrid varieties of vegetables including sweet corn, pumpkin, okra, carrot and watermelon were introduced by the BAIDC to the farmers.
- Fertilizer and PP chemicals were procured and distributed.
- Water pump and sprinkler were provided.
- On time monitoring were conducted by the BAIDC.

Production and selling of watermelon

Sl/No.	Area of Harvesting (m ²)	Total Harvest (kg)	Total Income (INR)
1	6,520	2,417 kg	145,020

Production and selling of carrot

Sl/No.	Area of Harvesting (m ²)	Total Harvest (kg)	Total Income (Rs)
1	1,320	2,417 kg	20,800

Production and selling of okra

Sl.no	Year	Average Yield (kg/ha)
1	2021	8,767.5

Production and selling of Sweet-corn

Sl.no	Year	Average Yield (kg/ha)
1	2021	578.5

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Hold orientation meeting with pilot farmers and discuss land												
2	Improve farm land by using tractor and application of slaked												
3	Procurement of critical inputs												
4	Conduct training on plough, harrow, level, paddle the main field												
5	Transplant paddy seedlings with transplanter												
6	Supervise and monitor paddy cultivation												
7	Weeding (pre and post emergence weedicides)												
8	Yield survey												
9	Report to PMT												
10	Conduct training on rasma cultivation and procurement of												
11	Conduct land preparation for Rasma												
12	Sow rasma seed												
13	Supervise and monitor Rabi crop cultivation												
14	Conduct weeding / earthening												
15	Yield survey												
16	Report to PMT												

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select new pilot farmers among Mizos												
2	Hold awareness meeting with pilot farmers												
3	Conduct training of kharif/rabi vegetables for pilot farmers												
4	Procure seeds/ input												
5	Supervise and monitor the cultivation												
6	Conduct yield survey and analyse data												
7	Report to PMT												
8													
9													
10													
11													
12													

Photograph



On-site training on carrot cultivation during rabi season for land preparation. Farmers receive cultivation training of carrots.



Harvesting of Sweet-corn and measurement of the harvested quantity on the farm



Monitoring of okra (Ladies finger) cultivation during Kharif season. BAIDC observed the infestation of pest and nutrients management.



Monitoring of water-melon cultivation during Rabi season. Paddy straws were used for mulching the field.



On-site training (land preparation and cultivation technique) on vegetable cultivation for Rabi crop cultivation.



After training on nursery management of Chilli and tomato. Pilot farmers prepared nursery of chilli and tomato for Rabi crop cultivation.

Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Kolasib
	RD Block	Bikhawthlir
	Village	Buhchangphai
Development Zone Under Master Plan	<p>Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed</p> <p>Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.</p>	
Project Name	BU-03: Improvement of WRC productivity	
Project Duration	4 years: 2018 April – 2022 March (follow up: 2019 April – 2022 March)	
Expected Outcome	<p>(1) Improve income level by increase of paddy production with better management</p> <p>(2) Improve income level by selling rapeseed. Save expense for oil by self-production</p>	
Goal for March 2022	Production of rice and profit from Rabi crop production are increased by 20 % for the pilot farmers.	
Approach	<p>(1) Introduce new paddy variety to increase the production. Obtain the basic knowledge of paddy cultivation by owner and tenant for better farm management</p> <p>(2) Introduce rapeseed for winter cropping in a paddy field</p> <p>(3) Introduce proper benefit sharing system between landowner and tenant farmer</p> <p>(4) Rehabilitation of Tuikhurlui MIP</p>	
Responsible Dept.	Department of Agriculture, Irrigation & Water Resources Department	
Number of Target Beneficiaries	2018/19	Pilot farmers: 10 and MIP: 11
	2019/20	Pilot farmers: 10 and MIP: 11
	2020/21	Pilot farmers: 05 and MIP: 11
	2021/22	Pilot farmers: 05 and MIP: 11
Expenditure (INR)	2018/19	DOA KVK and JICA: INR 89,000
	2019/20	DOA and JICA: INR 113,500 JICA: INR 198,684.89 (Community contract)
	2020/21	DOA: INR 64,100 JICA: INR 4,362,911.07 community contract: 10,457.10, contractor contract: 4,352,453.97 IWRD: INR 6,500 (O&M training and defect liability check) Total: INR 4,433,511.07
	2021/22	DOA: INR 72,000 JICA: INR 229,076.53 (contractor contract) IWRD: INR 8,000 (water quality check, O&M training and defect liability check) Total: INR 309,076.53
Result of Feedback Meeting	2018/19	Farmers and BAIDC agreed to continue the project.
	2019/20	<p>Evaluation by BAIDC: Good/ by Farmers: Good</p> <p>Comments:</p> <ul style="list-style-type: none"> - To control tenant farmers was difficult. - Timely applying of chemical fertilizers and PP chemical brought good results. - Good training was received. - There was sufficient amount of water compared to before.

	2020/21	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average.</p> <p>Comments:</p> <ul style="list-style-type: none"> - BAIDC instruction and technical guidance were followed. - Basic knowledge of paddy cultivation training was given as per crop calendar, provision of inputs and scouting of disease and pest. - Good training and timely monitoring were conducted. - Timely provision of training and inputs (fertilizer, slaked lime, insecticide etc.) and proper monitoring were done. - Majority of the pilot farmers utilised the Tuikhurlui MIP especially during Kharif season. - Farm production was increased by using irrigation water. 																													
	2021/22	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Trainings on seed selection, cultivation techniques, INM and pest management were conducted. - Farm input was delivered on time. - Farmers followed BAIDC instructions. - Timely instruction and monitoring were given. - Production was comparatively Increased. - In order to have more profit from the land, several discussions were done with the land owner. - Farmers are satisfied in the available water from the channel. 																													
Achieved Outputs	Overall	<p>Improve income level by increase of paddy production with better management.</p> <ul style="list-style-type: none"> - Training on paddy cultivation techniques including seed selection by using salt water, modified mat nursery, line transplanting, water management, application of INM & IPM and distribution of training materials (cropping calendar) to each pilot farmer. - Provision of quality seeds (Gomati and RCM-30; high yielding varieties), INM and IPM with package of practices. - On time implementation of field monitoring, pest & disease control and application of fertilizer. - The average paddy yield of pilot farmers was more than double, compared to the average yield of Kolasib district. <p style="text-align: center;">Buhchangphai Paddy Production Record.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sl.No</th> <th>Year</th> <th>Variety</th> <th>Average yield(kg/ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2018-2019</td> <td>Nirogi</td> <td>3461</td> </tr> <tr> <td>2</td> <td>2019-2020</td> <td>Gomati</td> <td>5954</td> </tr> <tr> <td>3</td> <td>2020-2021</td> <td>Ranjit</td> <td>4418</td> </tr> <tr> <td>4</td> <td>2021-2022</td> <td>RCM-13</td> <td>5117</td> </tr> </tbody> </table> <p>Rabi:</p> <ul style="list-style-type: none"> - Training on Rabi crop cultivation techniques including line sowing, water management, and application of INM & IPM and distribution of training materials to each pilot farmer. - Provision of quality seeds, INM and IPM with package of practices. - In the first year, rapeseed cultivation was failed due to low germination rate. It was decided to change the crop to Rajma in the next year as it has good market and much suitable for the area than rapeseed. - Farmers could get additional income from Rabi crop cultivation. <p style="text-align: center;">Rajma Production record in Buhchangphai</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sl.No</th> <th>Year</th> <th>Average yield (kg/ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2020-2021</td> <td>1264</td> </tr> <tr> <td>2</td> <td>2021-2022</td> <td>1171</td> </tr> </tbody> </table>	Sl.No	Year	Variety	Average yield(kg/ha)	1	2018-2019	Nirogi	3461	2	2019-2020	Gomati	5954	3	2020-2021	Ranjit	4418	4	2021-2022	RCM-13	5117	Sl.No	Year	Average yield (kg/ha)	1	2020-2021	1264	2	2021-2022	1171
Sl.No	Year	Variety	Average yield(kg/ha)																												
1	2018-2019	Nirogi	3461																												
2	2019-2020	Gomati	5954																												
3	2020-2021	Ranjit	4418																												
4	2021-2022	RCM-13	5117																												
Sl.No	Year	Average yield (kg/ha)																													
1	2020-2021	1264																													
2	2021-2022	1171																													

Tuikhurlui MIP:

- Community works of Tuikhurlui MIP were completed, and Certificate of Completion was handed over to WUA.
- Farmers were able to utilize the irrigation water throughout the year.
- Through the trainings on O&M of Tuikhurlui MIP and strengthening of WUA, irrigation water was equally distributed and properly utilized by the WUA.

Schedule & Activities

2018/19

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and scale of pilot cultivation plot for each farmer												
4	Procure input and equipment (seed, fertilizer and weeder)												
5	Improve paddy fields												
6	Conduct training on cultivation/ Provide inputs												
7	Monitor and collect data on cultivation												
8	Conduct field day training at pilot farmers' field												
9	Prepare and distribute of Package of Practice (POP)												
10	Collect information on tenant farming system collected by DOA												
11	BAIDC Discuss about tenant farming system and show solution												
12	Draft standard regulation of tenant farming system												
13	Refine the regulation though workshop												
14	Finalize standard regulation												
15	Achieve endorsement from DC												
16	Implement new regulation												
17	Prepare DPR of Tuikhurlui												
18	Select the contractor through tender procedure												
19	Construction and supervision												
20	Conduct O&M training on the facilities to WUA												
21	Conduct management capacity development training on WUA												
22	Conduct final inspection												
23	Hand over the facility to WUA												

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers (same farmers)												
2	Hold orientation meeting with pilot farmers												
3	Discussion on variety with owners and tenant												
4	Conduct training on cultivation												
5	Procure and provide input and equipment (seed and fertilizer)												
6	Monitor and collect data on cultivation												
7	Evaluation/ reporting												
8	Conduct training on cultivation for rapeseed / mustard seed												
9	Procure and provide rapeseed / mustard seed												
10	Monitor and collect data on cultivation												
11	Evaluation/ Reporting												
12	Construction of Tuikhurlui MIP												
13	Conduct O&M training on the facilities to WUA												
14	Organizational training to WUA												
15	Pilot study on benefit sharing between and owner and tenant by Mizoram University												
16	Making the strategy on above subject												

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Select pilot farmers (5 farmers)												
2	Have orientation meeting with pilot farmers												
3	Discussion on variety with owners and tenants												
4	Conduct training on cultivation of paddy												
5	Procure and provide input and equipment												
6	Monitor and collect data on cultivation												
7	Evaluation												
8	Reporting												
9	Conduct training on Package of practices of Rajma crop												
10	Procure and provide Rajma seed												
11	Monitor and collect data on cultivation												
12	Evaluation/ Reporting												
13	Conduct water quality check												
14	Conduct training on O&M of the facilities and WUA												
15	Defect liability check of facilities												
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Have orientation meeting with pilot farmers												
2	Discussion on variety with owners and tenants												
3	Conduct training on cultivation of paddy												
4	Procure and provide input and equipment												
5	Monitor and collect data on cultivation												
6	Evaluation												
7	Reporting												
8	Conduct training on Package of practices of Rajma crop												
9	Procure and provide Rajma seed and field pea												
10	Monitor and collect data on cultivation												
11	Evaluation												
12	Reporting												
13	Conduct water quality check												
14	Conduct water quality check												
15	Conduct training on O&M of the facilities and functioning of WUA to WUA												
16	Defect liability check of facilities												

Photograph



Training on modified mat nursery preparation including seed selection by using salt water, seed treatment and soil preparation.



Demonstration for modified mat nursery at pilot farmer's paddy field



On-site training on land preparation for paddy cultivation for landowners and tenant farmers



Monitored of the paddy field after transplanting. Periodical monitoring were carried out to check the condition of paddy growth.



Visit to ICAR in Kolasib to share the project activities and mutual collaboration



Technical assistance received from ICAR to select suitable paddy variety for Buhchangphai

Photograph	
	
<p>Maintenance of harvesting dam-spillway which provides proper drainage to the dam</p>	<p>Dismantling and fitting of GI pipe and construction of outlet box with channel: Discharge at inlet is design to be 0.0908 cumec.</p>
	
<p>Construction of main channel to irrigate WRC at the upper part</p>	<p>Slab culvert and public pond constructed to be utilized for the villagers</p>
	
<p>Construction of Distribution channel: Design discharge at inlet 0.0388 cumec at a command area of 15ha.</p>	<p>Community construction work for cleaning channel and repairing channel floor and wall</p>

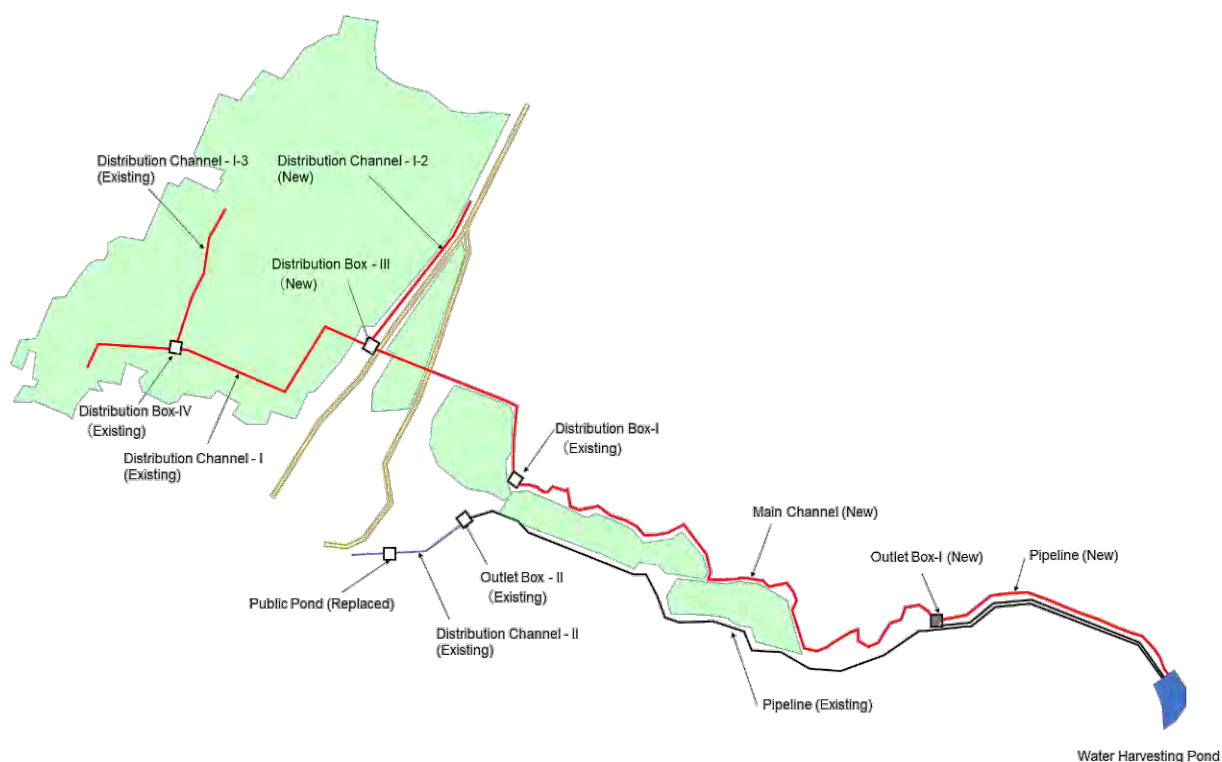
Rehabilitation of Tuikhurlui Minor Irrigation Project	
1. Salient Features of Tuikhurlui MIP	
Village Name / RD Block / District Development Zone Under M/P	Buhchangphai / Bilkhawthir RD Block / Kolasib District Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed.
Purpose of the Project	Improvement of WRC productivity through rehabilitation of existing irrigation facilities
Culturable Command Area (CCA)	50 ha
Water Sources	Tuikhurlui River and other small rivers
No. of Beneficiaries	42 families
Present Cropping Pattern	25 ha for paddy in Kharif (Crop intensity 50%)
Proposed Cropping Pattern	62.5 ha in total (Crop intensity 126%) In Kharif, 50 ha for paddy In summer, 35 ha for maize (HQPM-1) In Rabi, 6.6 ha for Rajma
Estimated Cost in DPR	INR 117.61 lakhs
Cost Benefit Ratio in DPR	1.24
2. Implementation Record	
(1) Contractor's Works	
Financial Source	JICA
Tender	20th December 2018 ~ 23rd January 2019
Contractor	Excell Consultancy
Contract Signing	8th February, 2019
Amendment No.1	20th July, 2020
Contract Price (Original)	INR.6,049,090.59 (including taxes)
Contract Price (Final)	INR. 5,036,047.4 (including taxes)
Commencement	26th February, 2019
Contract Period (Original)	4 months
Contract Period (Amended)	4 months + 355 days (including suspension period during rainy season & COVID-19 Lockdown)
Contract Works	Rehabilitation of water harvesting pond ; Repair of left and right Spillways Additional outlet pipe installation (one) Main Channel: 695 m (including aqueduct 295 m) Distributary Channel: 325.40 m (including aqueduct 10.40 m) Dismantling and Resetting pipeline 1,330 m (additional work) Structures: Drop Box 2nos Culvert 2nos Public pond 1no
Completion	14th July, 2020
Defects Liability Period	6 months
(2) Community Contract	
Financial Source	JICA
Water User Association	Water User Association Tuikhurlui MI Project,
Buhchangphai	
MOU signing	4th February, 2019

Amendment No.1	14th November, 2019
Contract Price (Original)	INR.563,860.92 (including taxes)
Contract Price (Final)	INR.232,379.98 (including taxes)
Commencement	4th February, 2019
Contract Period	2 months
Contract Period (Amended)	2 months + 117 days (including suspension period during rainy season)
Contract Works	Rehabilitation of Distributary channel: Desiltation in the channel 822.40m Repair of damaged section 1009.15m Installation of inlet pipes 14 nos. (additional works)
Completion	29th July, 2019
Defects Liability Period	6 months

3. Registration of WUA

Name of WUA:	Water User Association Tuikhurlui MI Project, Buhchangphai
Date :	13th December 2018
Number :	MSR0001
Nos. of Members	11 families
Handing Over of the completed facilities	April, 2021

4. Location Map



Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Aizawl
	RD Block	Aibawk
	Village	Sailam
Development Zone Under Master Plan	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.	
Project Name	SA-02: Support for transition from Jhum to settled farming	
Project Duration	2 years: 2018 April – 2020 March (follow up: Nil)	
Expected Outcome	Save farmers' time and effort for cultivation	
Goal for March 2022	At least 3 techniques verified are adopted to the ordinary farmers in the village.	
Approach	(1) Show and demonstrate the feasibility of the slope area for settled cultivation to foster the transition to settled farming (2) Promote 2nd year cultivation in Jhum land by testing and dissemination of appropriate techniques such as crop rotation and soil improvement practices	
Responsible Dept.	Department of Agriculture ATMA	
Number of Target Beneficiaries	2018/19	30 including 5 pilot farmers
	2019/20	30 including 5 pilot farmers
Expenditure (INR)	2018/19	LR&WCD/: INR 261,000 (Vetiver Grass), DOA: INR 74,000 Total: INR 335,000
	2019/20	DOA: INR 105,499
Result of Feedback Meeting	2018/19	Comments: - After seeing the demonstration plot in the slope area, the farmers who participated in the pilot activities in improvement of Jhum cultivation in the 1 st year expressed a desire to start the settled farming near their house. - Farmer commented to start Bokashi production on bigger scale.
	2019/20	Evaluation by BAIDC: Average/ by Farmers: Average Comments: - BAIDC commented that the farmers follow instruction and occurrence of Fall Army Worm (FAW) would be controlled in the next year. - Two farmers decided to cultivate maize as settled farming. - Maize was harvested yearly and was sold at good price. - Activities were implemented at the right time.
Achieved Overall Outputs	(1) The feasibility of the slope area settled cultivation was verified by introducing changkham (log wood bunding) which can control top soil erosion. (2) The 2nd year cultivation in Jhum land was tried and demonstrated by testing and dissemination of appropriate techniques such as crop rotation and soil improvement practice. (3) BAIDC could introduce more than 3 techniques to farmers. - To introduce triangle planting methods (maize, cowpea or sesame and soybean cultivation). - To introduce mulching system by Vetiver grass, cover crop and gunny bag. - To prepare Bokashi and introduce Bokashi application. (4) Out of 5 pilot farmers, other jhum farmers used to attend the training on land use	

and importance of settled farming. BAIDC imparted the knowledge of settled farming to these farmers. Some Jhum farmers continued their Jhum cultivation in same Jhum land in the 2nd year as settled farming.

Schedule & Activities

2018/19

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and scale of pilot cultivation plot												
4	Procure inputs (Vetiver and vegetable seeds)												
5	Train and demonstrate Changkam in the field												
6	Monitor Changkam effectiveness												
7	Conduct field training at pilot farmers' field												
8	Prepare and distribute of Package of Practice (POP)												
9	Discuss and prepare next year program												
10	Select pilot farmers												
11	Hold orientation meeting with pilot farmers/ Finalize location												
12	Conduct survey and planning for preparation of terrace												
13	Construct terrace												
14	Procure equipment/ inputs (vegetable seed and fertilizer)												
15	Conduct training to pilot farmers												
16	Monitor and collect data on cultivation												
17	Procure machineries & equipment for compost production												
18	Conduct training on compost production												
19	Prepare and distribute of Package of Practice (POP)												

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select of technique for testing												
2	Select pilot farmers												
3	Have orientation meeting with selected farmers												
4	Conduct training on selected technique												
5	Provide inputs (Maize)												
6	Provide inputs (Soyabean)												
7	Provide inputs (Sesame)												
8	Monitor and collect data on cultivation												
9	Yield survey												
10	Data analysis and harvest report												
11	Select crops and technique for demonstration												
12	Provide inputs, if needed												
13	Provide protected cultivation facilities, if needed												
14	Monitor and collect data on cultivation												
15	Yield survey												
16	Data analysis and harvest report												
17	Field day training for expansion to others												

Photograph



Establishment of field demonstration farm for showing the several techniques necessary to improve the productivity of slope area cultivation: More than 30 farmers visited the farm and learn them.



Application of Rice Bran at the vegetable cultivation area for organic manure and weed control



Planting of vetiver grasses below the Changkham for stabilizing the Changkham and forming terraces



Using of available material for mulching (gunny bag) at the vegetable cultivation area to control weed and soil moisture conservation



Collection of weed/thatch grass for mulching material used for soil and water conservation in the large-scale settled slope land



Training and demonstration on nursery production of cabbage, cauliflower, knol khol and broccoli

Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Aizawl
	RD Block	Aibawk
	Village	Sailam
Development Zone Under Master Plan	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.	
Project Name	SA-03: Improvement of Orange Productivity	
Project Duration	4 years: 2018 April – 2022 March	
Expected Outcome	Improve orange productivity and profitability	
Goal for March 2022	Increase 4 pilot farmers income by 20% by providing improve methods and techniques of cultivation	
Approach	Improve farming practices by proper pruning and soil nutrient management	
Responsible Dept.	Department of Horticulture	
Number of Target Beneficiaries	2018/19	37 including 4 pilot farmers
	2019/20	37 including 4 pilot farmers
	2020/21	4 farmers
	2021/22	5 farmers
Expenditure (INR)	2018/19	DOH: INR 39,400
	2019/20	DOH: INR 24,500
	2020/21	DOH: INR 48,000
	2021/22	DOH: INR 85,000
Result of Feedback Meeting	2018/19	Farmers and BAIDC agreed to continue the pilot project.
	2019/20	Evaluation by BAIDC: Average/ by Farmers: Average Comments: - Farmers followed the instruction and adopted improve farming practices in their fields. - Provisions of PP chemicals were appreciated. - Timely training and monitoring of BAIDC was good.
	2020/21	Evaluation by BAIDC: Average/ by Farmers: Average Comments: - Farmers have not fully accepted improved POP and still hold their traditional methods. - Provisions of PP chemicals were less and fertilizers were not provided. - Regular monitoring and training were not conducted due restriction of movements caused by the Covid-19 pandemic.
	2021/22	Evaluation by BAIDC: Above Average/ by Farmers: Above Average Comments: - Improvement in production of orange can be seen. - Provision of inputs through the Rejuvenation Scheme was appreciated by the farmers. - Cooperation between farmers and BAIDC was good.
Achieved Overall Outputs	(1) Farming practice was improved by training on proper pruning and soil nutrient management. - Provided numbers of training for pruning of orange trees at the field - Provided training on construction of half-moon terrace	

- Constructed half-moon terraces by pilot farmers as well as other farmers in their orange orchards.
- (2) Orange productivity and profitability were improved.
 - Disseminated Orange cultivation booklet to the farmers
 - Implemented rejuvenation scheme using DOH funds. Orange farmers in the village were provided with soil amendments, fertilizers, PP chemicals and few tools for improving the productivity of their oranges.
 - Conducted monitoring and yield survey with farmers along with the Assam traders to make aware the farmers their profitability.

Schedule & Activities

2018/ 19

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Hold orientation meeting with orange grower association												
2	Procure vetiver seedlings												
3	Conduct training on vetiver cultivation and utilization												
4	Plant vetiver seedlings												
5	Monitor and collect data on cultivation												
6	Conduct training on mulching with vetiver grass												
7	Prepare and distribute of Package of Practice (POP)												
8	Conduct market survey on orange												
9	Prepare action plan for improvement of orange productivity												
10													
11													
12													
13													
14													
15													
16													

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Providing training on INM, IPM and IDM												
2	Provide input (organic fertilizer, fungicide and pesticide)												
3	Halfmoon terracing												
4	Monitoring												
5	Yield and profitability survey												
6	Pruning and training												
7	Data analysis and harvest report												
8													
9													
10													
11													
12													
13													
14													
15													
16													

2020/ 21

No.	Implementation Procedure/Activity (Timeline of Activity)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Conduct training on improved management of Orange orchard				█								
2	Dissemination of booklets on cultivation of POP of Mandarine Orange				█								
3	Conduct training on INM/ IPM and provision of kits					█							
4	Monitoiring of activities and progress						█	█	█	█	█	█	█
5	Yield survey												█
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

2021/ 22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Conduct training on improved scientific management of Mandarine Orange orchard			█									
2	Dissemination of booklets on cultivation of POP of Mandarine Orange			█									
3	Conduct training on INM and IPM along with provision of INM and IPM kits				█								
4	Monitoiring of activities and progress					█	█	█	█	█	█	█	█
5	Yield survey												█
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph	
 <p>Before</p>	 <p>After</p>
<p>TOT for pruning of orange tree carried out in the office and in the field with the farmers. Both reading materials and practical training were given.</p>	 <p>Before</p>  <p>After</p>
<p>Training on pruning the orange was given both to the pilot farmers and 37 ordinary farmers. Pruning is one the most important management activities for oranges</p>	<p>Training on pruning the orange was given both to the pilot farmers and 37 ordinary farmers. Pruning is one the most important management activities for oranges</p>
	
<p>Monitoring of the conditions of the orange trees at the field with the farmers along with BAIDC</p>	<p>Training on construction of half-moon terracing: 35 farmers were participated in the training program.</p>
	
<p>Collection of soil sample from the field to be tested by DOH</p>	<p>Yield Survey by the farmers and BAIDC facilitated with Assam traders for better and profitable trade</p>

Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Aizawl
	RD Block	Aibawk
	Village	Sailam
Development Zone Under Master Plan	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.	
Project Name	SA-05: Improvement of WRC area productivity	
Project Duration	4 years: 2018 April – 2022 March (follow up: 2020 April – 2022 March)	
Expected Outcome	Increase the paddy production and improve Rabi crops profitability	
Goal for March 2022	Production of rice and Rabi crop are increased by 15 % for the pilot farmers.	
Approach	(1) Introduce short duration higher yielding variety with better farm management (2) Introduce marketable crops such as cabbage, tomato, cowpea, maize, field pea & rapeseed in Rabi though field demonstration (80%: Oilseed crop / 20%: Vegetable) (3) Rehabilitation of Laului MIP with enhancing the OM capacity of WUA	
Responsible Dept.	Department of Agriculture/ ATMA Irrigation and Water Resources Department	
Number of Target Beneficiaries	2018/19	5
	2019/20	Pilot farmers in WRC: 5, WUA: 8
	2020/21	Pilot farmers in WRC: 7, WUA: 8
	2021/22	Pilot farmers in WRC: 7, WUA: 8
Expenditure (INR)	2018/19	DOA: INR 81,000 (Kharif: 47,500, Rabi: 33,500)
	2019/20	DOA: INR 28,000 (Kharif: 18,000, Rabi: 10,000) IWRD and JICA: INR 2,575,588.39 - Supervise construction work: 145,550 (IWRD) - Organisational management training to farmers: 5,800 (IWRD) - O&M training to farmers: 5,800 (IWRD) - Irrigation-Rehabilitation: Contractor works: 2,031,347.68 (JICA) - Community works: 387,090.71 (JICA) Total: INR 2,603,588.39
	2020/21	DOA: INR 152,000 (Kharif: 92,000, Rabi: 60,000) JICA: INR 3,656,520.94 - Irrigation-Rehabilitation: Contractor works: 3,327,419.27 - Community works: 329,101.67 Total: INR 3,808,520.94
	2021/22	DOA: INR 155,000 (Kharif: 98,000, Rabi: 58,000). JICA: INR 37,694.34 (Irrigation-Rehabilitation: Community works) Total: INR 192,694.34
Result of Feedback Meeting	2018/19	The farmers wanted to continue pilot activities.
	2019/20	Evaluation by BAIDC: Average/ by Farmers: Average Comments: - By the BAIDC instruction, high yielding variety RCM-13 was introduced, and proper nursery beds were prepared. - Trainings provided by BAIDC were very useful for the farmers. - Seeds for Rabi cultivation were provided, and training was conducted.

		- All pilot farmers started rabi cultivation.																				
	2020/21	Evaluation by BAIDC: Above Average/ by Farmers: Above Average Comments: <ul style="list-style-type: none"> - Farmers and BAIDC cooperation was good. - Seeds and PP chemicals were provided timely. - Due to outbreak of disease and pest, paddy yield was not improved from previous year. - Late on-set of rain caused low germination rate of rabi crops and resulted in decrease of production. 																				
	2021/22	Evaluation by BAIDC: Above Average/ by Farmers: Above Average Comments: <ul style="list-style-type: none"> - Seeds and inputs for paddy and rabi cultivation were timely provided. - Area for rabi cultivation and number of farmers engage in rabi crop cultivation were increased. - Training and monitoring at the field were timely done by BAIDC. 																				
Achieved Outputs	Overall	<p>(1) Paddy cultivation in WRC</p> <ul style="list-style-type: none"> - BAIDC could introduce more than 3 techniques for farmers. However manual transplanter could not be provided because ICAR stopped production of IRRRI model transplanter. - Average yield of paddy was 3.5 t/ha and maximum yield was 4.8 t/ha without chemical fertilizer. <p style="text-align: center;">The average yield of paddy is given in the table</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sl.no</th> <th>Year</th> <th>Variety</th> <th>Average Yield (kg)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2018-19</td> <td>CAU-R1</td> <td>3013.6</td> </tr> <tr> <td>2</td> <td>2019-20</td> <td>Hakuchuk</td> <td>3872.05</td> </tr> <tr> <td>3</td> <td>2020-21</td> <td>RCM-13</td> <td>2,616</td> </tr> <tr> <td>4</td> <td>2021-22</td> <td>RCM-13</td> <td>3619.80</td> </tr> </tbody> </table> <p>(2) Rabi cultivation</p> <ul style="list-style-type: none"> - Rabi cultivation in WRC was started for the first time. - Cultivation techniques of rapeseed were acquired in the second year, and produce of cooking oil from the rapeseed commenced after COVID-19 pandemic <p>(3) Laului MIP</p> <ul style="list-style-type: none"> - Irrigation rehabilitation works were carried out in two ways: community contract and tendered works (Contractor's work).The construction was significantly behind schedule. The community contract started in March 2019 and completed in Jan 2020. Construction work by the contractor started in February 2019 and completed in May 2020 after an interruption during the rainy season and lockdown due to the COVID-19 pandemic. - Farmers were able to utilize the irrigation water throughout the year. - Through the trainings on O&M of Laului MIP and strengthening of WUA, the WUA was united towards the proper O&M of Laului MIP and effective utilization of irrigation water. 	Sl.no	Year	Variety	Average Yield (kg)	1	2018-19	CAU-R1	3013.6	2	2019-20	Hakuchuk	3872.05	3	2020-21	RCM-13	2,616	4	2021-22	RCM-13	3619.80
Sl.no	Year	Variety	Average Yield (kg)																			
1	2018-19	CAU-R1	3013.6																			
2	2019-20	Hakuchuk	3872.05																			
3	2020-21	RCM-13	2,616																			
4	2021-22	RCM-13	3619.80																			

Schedule & Activities

2018/19

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and scale of pilot cultivation plot												
4	Procure input and equipment (fertilizer and weeder)												
5	Improvement of paddy fields												
6	Provide inputs												
7	Conduct training for pilot farmers												
8	Monitor and collect data on cultivation												
9	Prepare and distribute of Package of Practice (POP)												
10	Select pilot farmers												
11	Hold orientation meeting with pilot farmers												
12	Finalize location and scale of pilot cultivation plot												
13	Procure input and equipment (Seed and fertilizer)												
14	Conduct training on cultivation												
15	Monitor and collect data on cultivation												
16	Conduct field day training at pilot farmers' field												
17	Prepare and distribute of Package of Practice (POP)												

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Have orientation meeting with selected farmers												
2	Site visit by BAI DC for farm layout												
3	Provide inputs												
4	Conduct training on cultivation for paddy												
5	Monitor and collect data on cultivation												
6	Yield survey												
7	Data analysis and harvest report												
8	Conduct training on cultivation for Rabi crop												
9	Provide inputs (Seeds, INM and IPM)												
10	Monitor and collect data on cultivation												
11	Yield survey												
12	Data analysis and harvest report												
13	Construction and supervision of Laului MIP												
14	Provide organisational management training to Laului FS												
15	Operation and maintenance training to Laului Farmers' Society												
16													

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Have orientation meeting with selected farmers												
2	Provide inputs (seeds and pp materials)												
3	Conduct training on cultivation for paddy												
4	Monitor and collect data on cultivation												
5	Yield survey												
6	Data analysis and harvest report												
7	Conduct training on cultivation for Rabi crop												
8	Provide inputs (Seeds, INM and IPM)												
9	Monitor and collect data on cultivation												
10	Yield survey												
11	Data analysis and harvest report												
12	Conduct O&M training on the facilities to WUA												
13	Conduct management capacity development training on WUA												
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Have orientation meeting with selected farmers												
2	Provide inputs (seeds and pp materials)												
3	Conduct training on cultivation for paddy												
4	Monitor and collect data on cultivation												
5	Yield survey												
6	Data analysis and harvest report												
7	Conduct training on cultivation for Rabi crop												
8	Provide inputs (Seeds, INM and IPM)												
9	Monitor and collect data on cultivation												
10	Yield survey												
11	Data analysis and harvest report												
12	Conduct O&M training on the facilities to WUA												
13	Conduct management capacity dev. training to WUA												
14													
15													
16													

Photograph



Preparing mat nursery by using plastic tray, banana leaf and bamboo: BAIDC introduced new method to change farmers' traditional method (Jhum method).



Spread of rice bran instead of chemical fertilizer after transplanting: Other than rice bran, Bokashi and Neem cake also utilized as trial to increase yield without chemical fertilizer.



Training and field demonstration on utilization of manual weeder. The manual weeder complement the farmers transplanting their paddy in a line



Training and demonstration on production of Bokashi for utilization of paddy and Rabi crop cultivation in WRC



Checking damaged of paddy in the field which was infected with unidentified agents

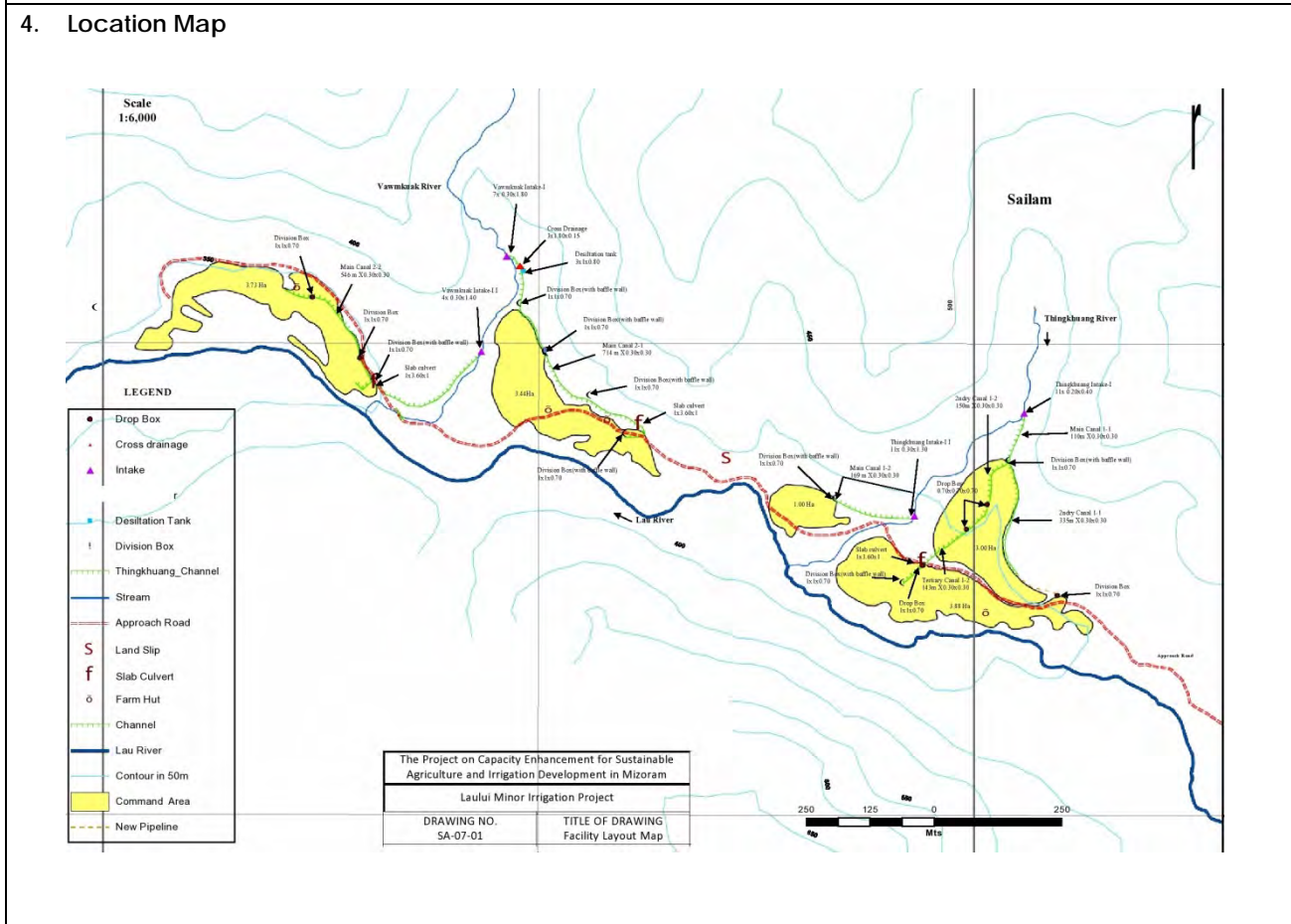


Yield survey at the field after threshing by weighing paddy

Photograph	
	
<p>Thingkhuanglui Intake-I: Design discharge in inlet 0.0051 Cumec, it provides water to 4 farmers in a command area of 6.88 ha.</p>	<p>Thingkhuanglui Intake-II: Design discharge in inlet 0.0039 Cumec, it provides water to 1 farmer in a command area of 1.00 ha.</p>
	
<p>Vawmkuaklui Intake-I: Design for supply water to 2 farmers in a command area of 3.44 ha. Design discharge at inlet 0.0077 Cumec.</p>	<p>Vawmkuaklui Intake-II: Design for supply water to 2 farmers in a command area of 3.73 ha. Design discharge at inlet 0.0090 Cumec.</p>
	
<p>Community construction work carried out Improvement of Approach road</p>	<p>O&M and Farmers strengthening training to WUA at the fields</p>

Rehabilitation of Laului Minor Irrigation Project	
1. Salient Features of Laului MIP	
Village Name / RD Block / District Development Zone Under M/P	Sailam, Sialsuk / Aibawk RD Block / Aizawl District Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region.
Purpose of the Project	Improvement of WRC area productivity through rehabilitation of the existing irrigation facilities
Culturable Command Area (CCA)	15 ha
Water Resources	Thingkuang Lui River and Vawmkuak Lui River
No. of Beneficiaries	8 families
Present Cropping Pattern	8 ha for paddy in Kharif
Proposed Cropping Pattern	27 ha in total In Kharif, 14 ha for paddy In summer, 9 ha for field pea, mustard, onion, soybean In Rabi, 4 ha for cow pea and maize
Estimated Cost in DPR	INR 67.45 lakhs
Cost Benefit Ratio in DPR	2.7
2. Implementation Record	
(1) Contractor's Works	
Financial Source	JICA
Tender	20th December 2018 ~ 23rd January 2019
Contractor	Excel Consultancy
Contract Signing	8th February, 2019
Amendment No.1	14th November, 2020
Contract Price (Original)	INR.6,579,863.33 (including taxes)
Contract Price (Final)	INR. 5,890,390.66 (including taxes)
Commencement	26th February, 2019
Contract Period	4 months
Contract Period (Amended)	4 months + 324 days (including suspension period during rainy season & COVID-19 Lockdown)
Contract Works	Intake Structure 4 nos. Main Channel: 1,495 m Distributary Channel: 672 m
Completion	14th May, 2020
Defects Liability Period	6 months
(2) Community Contract	
Financial Source	JICA
Water User Association	Water User Association Charpui MI Project Society, Sailam
MOU signing	5th March 2019
Amendment No.1	18th May 2020
Contract Price (Original)	INR. 1,126,140.99 (including taxes)
Contract Price (Final)	INR. 837,651.91 (including taxes)
Commencement	5th March, 2019
Contract Period	4 months
Contract Period (Amended)	4 months + 210 days (including suspension period during rainy season)
Contract Works	Rehabilitation of existing approach road: 3,980.00 m Related structures; Slab Culvert 5 nos, Cause-way 2 nos.
Completion	30th January 2020

Defects Liability Period	6 months
3. Registration of WUA	
Name of WUA:	Water User Association Charpui MI Project Society, Sailam
Date :	23rd May 2013
Number :	MSR533
Nos. of Members	33 families (
Handing Over of the completed facilities	November 2020



Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Serchhip
	RD Block	Serchhip
	Village	Serchhip-II
Development Zone Under Master Plan	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.	
Project Name	SE-03: Maintenance and Rehabilitation of Lumtui M.I. Project	
Project Duration	3 years: 2018 April – 2021 March	
Expected Outcome	Recover the paddy production in Kharif and vegetable production in Rabi	
Goal for March 2023	To Provide proper irrigation facilities in the field	
Approach	(1) Attend urgent repair works for proper distribution of irrigation water (2) Extensions of existing channel (3) Strengthening of WUA	
Responsible Dept.	Irrigation and Water Resources Department	
Number of Target Beneficiaries	2018/19	-
	2019/20	54
	2020/21	54
Expenditure (INR)	2018/19	-
	2019/20	JICA: 1,813,076.49 contractor contract: 1,599,985.63 community contract: 213,090.86
	2020/21	JICA: 195,980.32 community contract: 111,770.56 contractor contract: 84,209.76
Result of Feedback Meeting	2018/19	N/A
	2019/20	N/A
	2020/21	N/A
Achieved Overall Outputs	Lumtui MIP <ul style="list-style-type: none"> - Maintenance and rehabilitation of Lumtui MIP was carried out in two ways: contractor's contract and community contract. - The contractor's contract works was started in February 2019 and completed in January 2020. Maintenance work by the community contract was started in April 2019 and completed in February 2020. - Maintenance and rehabilitation of Lumtui MIP provided properly irrigation water for the farmers. - Through this community contract, works were carried out in group which united and strengthened the WUA. - Through the trainings on O&M and strengthening of WUA, farmers were able to prepare proper O&M plan and calendar and also appoint the responsible person for each activity. 	

Schedule & Activities

2018/19:

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Prepare DPR	■	■										
2	Select the contractor through tender procedure							■	■	■	■	■	■
3	Construction and supervision								■	■	■	■	■
4	Conduct O&M training on the facilities to WUA											■	■
5	Conduct management capacity development training on WUA										■		
6	Conduct final inspection												■
7	Hand over the facility to WUA												■
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Prepare DPR												
2	Select the contractor through tender procedure												
3	Construction and supervision	■	■	■	■	■	■	■	■	■	■	■	■
4	Conduct O&M training on the facilities to WUA											■	■
5	Conduct management capacity development training on WUA								■	■			
6	Conduct final inspection											■	■
7	Hand over the facility to WUA											■	■
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													

Photograph



Maintenance of Main channel and construction of desiltation tank by contractor work



Construction of main channel haunch to prevent leakage from channel corner



Channel walls repaired to prevent many leakage of water from the broken walls



Construction of Aqueduct: Due to over flow from channel wall erosion occurred at the channel bed.



Community construction work for cleaning and desilting sand deposit from the channel

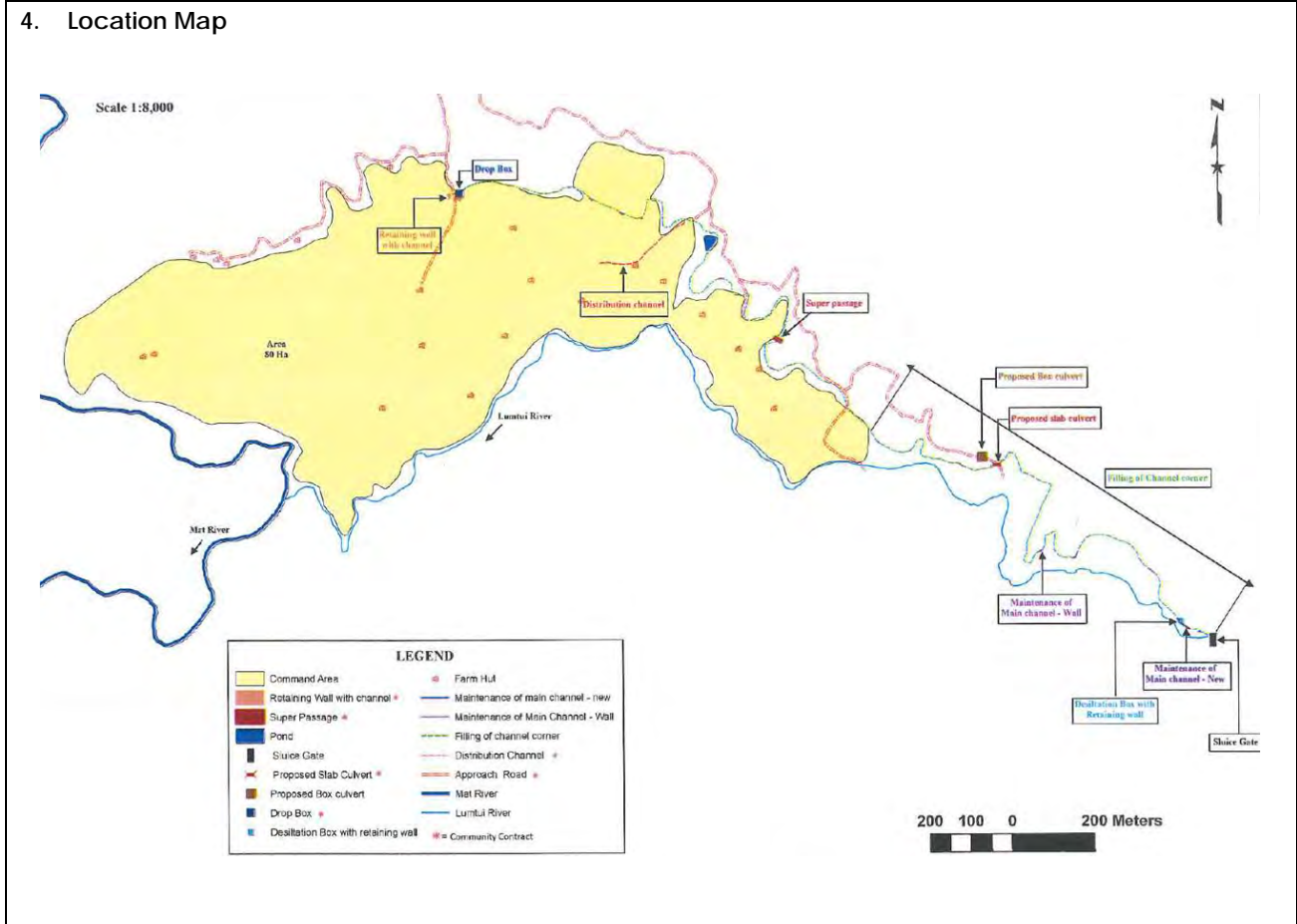


Training on O&M and WUA strengthening

Rehabilitation of Lumtui Minor Irrigation Project	
1. Salient Features of Lumtui MIP	
Village Name / RD Block / District	Keitum / Serchhip II RD Block / Serchhip District
Development Zone Under M/P	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region.
Purpose of the Project	Improvement of agricultural productivity through rehabilitation of the existing irrigation facilities
Culturable Command Area (CCA)	80 ha
Water Resources	Lumtui River
No. of Beneficiaries	54 families
Present Cropping Pattern	80 ha for paddy in Kharif
Proposed Cropping Pattern	80 ha in total In Kharif, 80 ha for paddy In summer, 20 ha for mustard, 8 ha for maize
Estimated Cost in DPR	INR 33.28 lakhs
Cost Benefit Ratio in DPR	1.47
2. Implementation Record	
(1) Contractor's Works	
Financial Source	JICA
Tender	20th December 2018 ~ 23rd January 2019
Contractor	Mizotech
Contract Signing	11th February, 2019
Amendment No.1	23rd February, 2020
Contract Price (Original)	INR. 1,847,262.55 (including taxes)
Contract Price (Final)	INR. 1,851,278.27 (including taxes)
Commencement	26th February, 2019
Contract Period	4 months
Contract Period (Amended)	4 months + 204 days (including suspension period during rainy season)
Contract Works	Rehabilitation of Main Channel: 1,192.65 m Rehabilitation of Distributary Channel: 240 m Structures: Desiltation tank 1 no RCC Aqueduct 7 m Box Culvert 1 no Sluice gate 1 no
Completion	15th January, 2020
Defects Liability Period	6 months
(2) Community Contract	
Financial Source	JICA
Water User Association	Water User Association Lumtui MI Project, Serchhip,
MOU signing	10th April 2019
Amendment No.	12th February 2020
Contract Price (Original)	INR. 477,707.92 (including taxes)
Contract Price (Final)	INR. 360,957.13 (including taxes)
Commencement	10th April, 2019
Contract Period	4 months
Contract Period (Amended)	4 months + 183 days (including suspension period during rainy season)
Contract Works	Construction of approach road: 587 m

<p>Completion Defects Liability Period</p>	<p>Desilting in the existing channels; 1,664.70 m Related structures; Super passage, Retaining wall with channel, slab culvert. 8th February 2020 6 months</p>
--	--

<p>3. Registration of WUA</p>	
<p>Name of WUA : Date : Number : Nos. of Members Handing Over of the completed facilities</p>	<p>Water User Association Lumtui MI Project, Serchhip, 2nd April 2019 MSR1024 32 families April, 2020</p>



Data Sheet for Pilot Activities

Pilot classification	1 st Pilot										
Location	District	Champhai									
	RD Block	Champhai									
	Village	Hnahlan									
Development Zone Under Master Plan	Zone-4: Accessibility is relatively good and plantation crops are cultivated together with jhum practice. Development Direction: Production of market-oriented differentiated and fruits production suitable for high altitude.										
Project Name	HN-01: Improvement of jhum cultivation										
Project Duration	2 years: 2018 April – 2020 March (follow up: Nil)										
Expected Outcome	Sustain the production and productivity of jhum cultivation without simple expansion of the cultivation area										
Goal for March 2022	Transform jhum cultivation into permanent/ settled farming										
Approach	Provide soil erosion control measures and some seeds (sesame, Mizo chilli) for improvement of productivity										
Responsible Dept.	Department of Agriculture Land Resources and Soil Water Conservation Department										
Number of Target Beneficiaries	2018/19	5									
	2019/20	5									
Expenditure (INR)	2018/19	LR&SWCD, JICA: INR 37,500									
	2019/20	DOA, LR&SWCD, JICA: INR 21,000									
Result of Feedback Meeting	2018/19	The farmers wanted to continue pilot activities.									
	2019/20	Evaluation by BAIDC: Average/ by farmers: Good Comments: <ul style="list-style-type: none"> - Seeds were timely provided. - Training, monitoring and yield survey were timely implemented. - Changkham was set up in each pilot farmers' plot to conserve soil erosion. - Changkham technology helped in increasing the paddy production. 									
Achieved Overall Outputs	<ul style="list-style-type: none"> - Pilot farmers pointed out that the Changkham method introduced by the BAIDC greatly prevented the soil erosion in their jhum cultivation area and thereby increased their paddy production to some extent. - The paddy yield in the Changkham area was higher than the average yield of Champhai district. However, the significance difference of the yield of Changkham area and Control area was not found. - Results of yield survey on upland paddy are presented in the following Table. Average paddy yields at Changkham and Control were 2,125 kg/ha and 1,950 kg/ha respectively. For comparison, the yield survey data in Champhai district conducted by DOA is 1,200kg/ha in 2019/20. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Treatment</th> <th>No. of hills per unit area (/4m)</th> <th>Yield (kg/ha)</th> </tr> </thead> <tbody> <tr> <td>Changkham</td> <td>26</td> <td>2,125</td> </tr> <tr> <td>Control</td> <td>28</td> <td>1,950</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - Mizo chilli and sesame seeds were provided to the pilot farmers for inter-cropping with upland rice to increase the farmer's income from jhum. However, due to uncontrollable weather conditions, the production level of chilli and sesame was not up to the expectation. 		Treatment	No. of hills per unit area (/4m)	Yield (kg/ha)	Changkham	26	2,125	Control	28	1,950
Treatment	No. of hills per unit area (/4m)	Yield (kg/ha)									
Changkham	26	2,125									
Control	28	1,950									

Photograph	
	
<p>Changkham which is the traditional soil erosion measures were implemented by pilot farmers with the remaining residues after burning the jhum land</p>	<p>Upland rice germinated under dry climate condition in the jhum cultivation land</p>
	
<p>Training on improvement of jhum cultivation with Changkham practices, using A-Flame to identify the contour line</p>	<p>Monitoring of the progress and condition of soil erosion control and checking the amount of top soil collected by the Changkham</p>
	
<p>Yield survey at jhum cultivation area The BAIDC are trained to make record on paddy yield every year even in the Jhum area</p>	<p>Harvested paddy threshed and collected at the field</p>

Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Champhai
	RD Block	Champhai
	Village	Hnahlan
Development Zone Under Master Plan	Zone-4: Accessibility is relatively good and plantation crops are cultivated together with jhum practice. Development Direction: Production of market-oriented differentiated and fruits production suitable for high altitude.	
Project Name	HN-02: Promotion of vegetable in grape field	
Project Duration	4 years: 2018 April – 2022 March (follow up: 2019 April – 2022 March)	
Expected Outcome	Increase vegetable productivity and profitability	
Goal for March 2022	Pilot farmers' income from vegetable production is increased by 20%.	
Approach	(1) Provide irrigation water (Dilhnuai MIP) (2) Provide technical training on vegetable cultivation and management (3) Develop terraces (4) Provide knowledge for market chain development	
Responsible Dept.	Department of Horticulture Department of Agriculture Land Resources and Soil Water Conservation Department	
Number of Target Beneficiaries	2018/19	7
	2019/20	39 including 10 pilot farmers
	2020/21	39 including 10 pilot farmers
	2021/22	39 including 9 pilot farmers
Expenditure (INR)	2018/19	N/A
	2019/20	DOH, LR&SWCD, JICA: INR 284,200 (Vegetable cultivation) IWRD and JICA: INR 4,599,335.13 - Irrigation contractor contract: 1,448,049.21 (JICA) - Community contract Phase-I: 1,024,621.23 (JICA) - Community contract Phase-II: 2,100,064.69 (JICA) - Organization management and O&M trainings, supervision and monitoring: 26,600.00 (IWRD) Total: INR 4,883,535.13
	2020/21	DOH: INR 97,000 (Vegetable cultivation) JICA: INR 1,674,290.89 - Irrigation contractor contract: 1,563,761.17 - Community contract Phase-II: 110,529.72 Total: INR 1,771,290.89
	2021/22	DOH: INR 287,690 IWRD and JICA: INR 166,516.33 - Irrigation contractor contract: 158,516.33 (JICA) - Monitoring: 8,000.00 (IWRD) Total: INR 454,206.33
Result of Feedback Meeting	2018/19	The farmers wanted to continue pilot activities.
	2019/20	Evaluation by BAIDC: Good/ by farmers: Excellent Comments:

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Have orientation meeting with pilot farmers												
3	Finalize location and scale of pilot cultivation plot for each farmer												
4	Conduct survey and planning for preparation of terrace												
5	Construct terrace												
6	Procure equipment/ inputs (vegetable seed and fertilizer)												
7	Conduct cultivation training to pilot farmers												
8	Monitor and collect data on cultivation (farm management and yield)												
9	Conduct field day training at pilot farmers' field												
10	Procure machineries & equipment for compost production												
11	Conduct training on compost production												
12	Prepare and distribute of Package of Practice (POP)												
13	Construction and supervision												
14	Conduct O&M training on the facilities to WUA												
15	Conduct management capacity development training on WUA												
16	Conduct final inspection												
17	Hand over the facility to WUA												

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Select pilot farmers												
2	Assistance for field preparation, sundrying material, etc.												
3	Conduct training on cultivation (on & off site) for pilot farmers												
4	Procure and distribute inputs (seeds, fertilizers and PP chemicals)												
5	Monitor and collect data on cultivation												
6	Yield survey and data analysis												
7	Supervision and monitoring of Dilhnuai MIP construction works												
8	Conduct O&M training on the facilities to WUA												
9	Report to PMT												
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Assistance for preparation of planting lanes and lines of Cabbage, etc.	■	■										
3	Conduct training on cultivation (POP) for pilot farmers		■	■									
4	Procurement of seeds and shade net	■	■	■	■								
5	Monitoring on pest and disease incidence		■	■	■	■							
6	Yield survey, collect data and analysis.				■	■	■	■					
7	Monitoring of Dilhnuai Irrigation structure				■	■	■	■	■			■	
8	Report to PMT												
9	Construction and supervision of Dilhnuai MIP								■	■	■	■	■
10	Conduct O&M training on the facilities to WUA												■
11	Conduct management capacity development training on WUA											■	
12	Conduct final inspection												■
13	Hand over the facility to WUA												■
14													
15													
16													

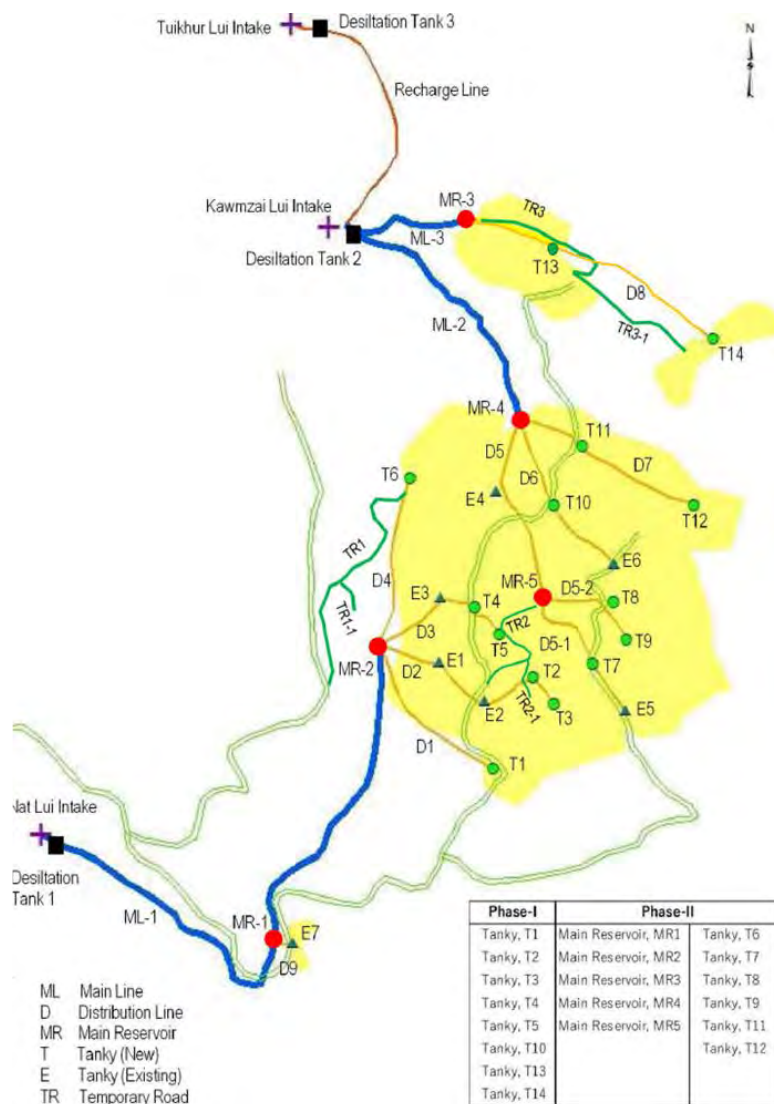
Photograph	
	
<p>Constructed Main Reservoir. The construction of the Main Reservoir was done by the farmers by themselves.</p>	<p>Rehabilitated Access Road. Farmers rehabilitated Access Road by using JCB. Farmers easily access their farms by motorcycle.</p>
	
<p>On-site training on vegetable cultivation technique for pilot farmers. Farmers learnt new skills for preparing vegetable nursery and cultivation techniques.</p>	<p>Monitoring on cabbage cultivation area. Periodical monitoring was conducted on cabbage cultivation area to check the growing condition.</p>
	
<p>Yield survey on tomato cultivation. Farmer could harvest tomato during off season and sell with better prices.</p>	<p>Market survey with the objective of grasping the current situation and issues on vegetable supply and demand</p>

Photograph	
<p>Construction of Dilhnuai intake: Water requirement is calculated as Rabi-0.00219 cumec, Summer-0.00257 Cumec. No. of beneficiaries 27 families. Area-10.77Ha.</p>	<p>ML-1: GI Pipe line was fitted by contractor work to supply water to Main reservoir-1 and Main reservoir-4. No. of beneficiaries 27 families.</p>
<p>Construction of Main reservoir-3 for Command area-2: In an area of 7.03 ha, design water requirement in Rabi is 0.00195 Cumec, 0.00104 Cumec in summer</p>	<p>Construction of Main reservoir-2 for command area-3: In an area of 3.91 ha, design water requirement in Rabi is 0.00061 cumec, 0.00112 cumec in summer.</p>
<p>Slab culvert constructed by community work to access the farm throughout the season</p>	<p>Training on O&M and strengthening of farmers' organisation</p>

Dilhnuai Minor Irrigation Project	
1. Salient Features of Dilhnuai MIP	
Village Name / RD Block / District	Hnahlan / Champhai RD Block/ Champhai District
Development Zone Under M/P Zone-4	Accessibility is relatively good and plantation crops are cultivated together with jhum practice.
Purpose of the Project	Promotion of vegetable in grape field through rehabilitation and newly construction of irrigation facilities
Culturable Command Area (CCA)	21 ha
Water Resources	Nat lui, Kawmzailui, and Pi Roi Tuikhurlui
No. of Beneficiaries	39 families
Present Cropping Pattern	In Rabi, 0.2 ha for field pea, 0.2 ha for leafy mustard
Proposed Cropping Pattern	In summer, 0.50 ha for cabbage 21 ha in total In Kharif, 14 ha for leafy mustard In summer, 2 ha for cabbage In Rabi, 1 ha for field pea, 2 ha for leafy mustard, 1 ha for tomato
Estimated Cost in DPR	INR 65.37 lakhs
Cost Benefit Ratio in DPR	1.66
2. Implementation Record	
(1) Contractor's Works	
Financial Source	JICA
Tender	20th December 2018 ~ 23rd January 2019
Contractor	Mizotech
Contract Signing	11th February, 2019
Amendment No.1	17th December, 2020
Contract Price (Original)	INR. 3,582,840.73 (including taxes)
Contract Price (Final)	INR. 3,484,843.25 (including taxes)
Commencement	26th February, 2019
Contract Period	4 months
Contract Period (Amended)	4 months + 523 days (including suspension period during rainy season & COVID-19 Lockdown)
Contract Works	Intake Structure 3 nos. Recharge Line 1no 396.25 m Main pipeline: 65 mm dia-1,056 m, 40mm dia-350.75 m Distribution pipeline: 32 mm dia-3,000 m, 20mm dia-42 m
Completion	26th November, 2020
Defects Liability Period	6 months

<p>(2) Community Contract (Phase-1)</p> <p>Water User Association MOU signing Amendment No.1 Contract Price (Original) Contract Price (Final) Commencement Contract Period Contract Period (Amended)</p> <p>Contract Works</p> <p>Completion Defects Liability Period</p>	<p>Dilhnuai Farmer's Society, Hnahlan, 8th March 2019 14th June 2019 INR. 1,249,828.54 (including taxes) INR. 1,138,468.03 (including taxes) 8th March, 2019 2 months 2 months + 39 days (including suspension period during rainy season)</p> <p>Construction of tankys: 8 nos. Construction of approach road; 1,213 m (additional work)</p> <p>15th June 2019 6 months</p>
<p>(3) Community Contract (Phase-2)</p> <p>Water User Association MOU signing Amendment No.1 Contract Price (Original) Contract Price (Final) Commencement Contract Period Contract Period (Amended)</p> <p>Contract Works</p> <p>Completion Defects Liability Period</p>	<p>Dilhnuai Farmer's Society, Hnahlan, 17th June 2019 16th December 2020 INR. 2,456,479.57 (including taxes) INR. 2,456,216.01 (including taxes) 5th March, 2019 4 months 4 months + 72 days (including suspension period during rainy season)</p> <p>Construction of Main Reservoir: 4 nos. Construction of Tanky: 6 nos. Structures on approach road (Culvert) 2 nos. (Additional Works)</p> <p>17th December 2019 6 months</p>
<p>3. Registration of WUA</p> <p>Name of WUA: Date: Number: Nos. of Members Handing Over of the completed facilities</p>	<p>Dilhnuai Farmer's Society, Hnahlan 28th January 2019 MSR995 39 families April, 2020</p>

4. Location Map



Data Sheet for Pilot Activities

Pilot classification	1 st Pilot	
Location	District	Champhai
	RD Block	Champhai
	Village	Hnahlan
Development Zone Under Master Plan	Zone-4: Accessibility is relatively good and plantation crops are cultivated together with jhum practice. Development Direction: Production of market-oriented differentiated and fruits production suitable for high altitude.	
Project Name	HN-04: Improvement of WRC area productivity	
Project Duration	4 years: 2018 April – 2022 March (follow up: 2020 April – 2022 March)	
Expected Outcome	Increase paddy and Rabi crop production	
Goal for March 2022	Enhancement of productivity of WRC area of pilot farmers by 15%	
Approach	(1) Introduce better farming practices of paddy (use of quality seeds, seed treatment, nursery management, line transplanting, water management, use of organic matters, land levelling). (2) Promote Rabi crops cultivation and enhance soil fertility.	
Responsible Dept.	Department of Agriculture	
Number of Target Beneficiaries	2018/19	5
	2019/20	2
	2020/21	2
	2021/22	2
Expenditure (INR)	2018/19	DOA and JICA: INR 81,500
	2019/20	DOA and JICA: INR 271,000
	2020/21	DOA: INR 43,000
	2021/22	DOA: INR 22,000
Result of Feedback Meeting	2018/19	The farmers wanted to continue pilot activities.
	2019/20	Evaluation by BAIDC: Good/ by farmers: Excellent Comments: - Seed supply, monitoring, training and yield survey were timely implemented. - High yielding variety seeds were provided to farmers. - Practical training on paddy line transplanting method was conducted to the farmers. - Farmers followed the instructions given by the BAIDC.
	2020/21	Evaluation by BAIDC: Above Average/ by farmers: Excellent Comments: - New variety seeds were introduced to farmers. - Seeds and PP chemicals were timely distributed. - Technical supervision and monitoring were regularly done. - Seeds supplied were replaced because the distributed seeds of the first batch were not viable.
	2021/22	Evaluation by BAIDC: Above Average/ by farmers: Average Comments: - Line transplanting method was properly carried out. - Due to the pandemic of COVID-19, BAIDC could not conduct training to the farmers. - Monitoring was timely implemented amidst the COVID-19

2019/20

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers		■										
2	Have orientation meeting with pilot farmers		■										
3	Finalize location and scale of pilot cultivation plot for each farmer		■	■									
4	Procure input and equipment (seed, fertilizer and weeder)		■	■									
5	Improvement of paddy fields			■									
6	Provide inputs			■									
7	Conduct training on cultivation including quality seed harvest and multiplication			■									
8	Monitor and collect data on cultivation (farm management and yield)			■	■	■	■	■	■	■	■	■	■
9	Conduct field day training at pilot farmers' field			■				■		■			
10	Prepare and distribute of Package of Practice (POP)								■	■	■	■	
11													
12													
13													
14													
15													
16													

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
1	Select pilot farmers (same as 1st pilot farmers)			■	■								
2	Conduct training and demonstration on cultivation including			■	■								
3	Procure and provide inputs (seeds and PP chemicals, if necessary)			■	■								
4	Monitor and collect data on cultivation (farm management)					■		■					
5	Yield survey and data analysis								■	■			
6	Conduct training on Rabi crop cultivation									■	■		
7	Procure and provide inputs (seeds and PP chemicals, if necessary)									■	■		
8	Monitor and collect data on cultivation (farm management)										■		■
9	Yield survey and data analysis												■
10	Report to PMT												■
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers (same as 1st pilot farmers)												
2	Conduct training and demonstration on cultivation including use of quality seeds, seed treatment, nursery management, line transplanting, disease and pest management.												
3	Procure and provide inputs												
4	Monitor and collect data on cultivation (farm management)												
5	Yield survey and data analysis												
6	Conduct training on Rabi crop cultivation												
7	Procure and provide inputs												
8	Monitor and collect data on cultivation (farm management)												
9	Yield survey and data analysis												
10	Report to PMT												
11													
12													
13													
14													
15													
16													

Photograph	
	
<p>Training and demonstration for hand-made weeder at pilot farmer's paddy field. The hand-made weeder were prepared to complement the line transplanting done by the farmers and greatly help to save time and energy</p>	<p>Poor accessibility during rainy season: Vehicle could not be used because several access roads to the paddy field were damaged by landslides.</p>
	
<p>On-site training on paddy cultivation with pilot farmers. Farmers learnt the importance of seed treatment, line transplanting and water management</p>	<p>On-site training on paddy line transplanting method. Farmers recognised the paddy harvest was increased after following the line transplanting method</p>
	
<p>Periodical monitoring of paddy cultivation in WRC area to check the growing condition of paddy. Pilot farmer followed the instruction given by BAIDC members</p>	<p>Yield survey conducted with BAIDC and pilot farmers under the assistance of JPT. Crop Cutting Experiment (CCE) was applied to check the yield result of demonstration plot and control plot</p>

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Kolasib
	RD Block	Bilkhawthlir
	Village	Bilkhawthlir North
Development Zone Under Master Plan	<p>Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed</p> <p>Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.</p>	
Project Name	BN-01: Increase production of paddy and productivity of WRC area	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	<p>1st year: Reshaping of plots by tractor</p> <p>2nd Year: Increase production of paddy of pilot farmers by 10 % from 1st year. Reduce cost of production of pilot farmers through farm mechanization by 10% from 1st year</p>	
Goal for March 2022	Production of rice and profit from Rabi crop production were increased by 15% for the pilot farmers.	
Approach	<ol style="list-style-type: none"> 1) Introduce farm mechanization 2) Popularize Gomati variety with improvement of package of practice 3) Promote summer ploughing and deep ploughing 	
Responsible Dept.	Department of Agriculture	
Number of Target Beneficiaries	2020/21	13
	2021/22	5
Expenditure (INR)	2020/21	DOA: INR 242,500
	2021/22	DOA: INR 159,500
Result of Feedback Meeting	2020/21	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Land preparation along with application of slaked lime was done to all the pilot farmers plots - Utilizing of tractor for ploughing of the field contributed to increase paddy production. - Training, monitoring and supervision were timely conducted. - Deep summer ploughing was good to control pest.
	2021/22	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Utilisation of farm mechanization contributed to save time and labour cost. - Production was increased more than 10%. - Training, monitoring and supervision were timely conducted.
Achieved Overall Outputs	<p>WRC (Kharif) : Paddy production was increased by following activities:</p> <ul style="list-style-type: none"> - Implementation of deep summer ploughing by using tractor and application of slaked lime. - Training on paddy cultivation techniques including seed selection by using salt water, modified mat nursery, line transplanting, water management, application of INM & IPM and distribution of training materials (cropping calendar) to each pilot farmer. - Provision of quality seeds (RCM-30 and Toposi; high yielding varieties), INM and IPM with package of practices. - On time implementation of field monitoring, pest & disease control and 	

application of fertilizer.

Paddy Production Record

Sl.No	Year	Variety	Average yield (kg/ha)
1	2020-2021	RCM-13	3,567.2
2	2021-2022	Toposi	5,820.2

WRC (Rabi): Rajma production was increased by following activities;

- Training on Rabi crop cultivation techniques including line sowing, water management, and application of INM & IPM and distribution of training materials to each pilot farmer.
- Provision of quality seeds, INM and IPM with package of practices.
- Farmers could get additional income from Rabi crop cultivation.

Rajma Production Record

Sl.No	Year	Average yield (kg/ha)
1	2020-2021	1,264
2	2021-2022	1,171

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Hold orientation meeting with pilot farmers.	■											
2	Improve farm land by using tractor and slaked lime.		■	■	■	■							
3	Conduct training on paddy cultivation/ procurement of inputs					■	■						
4	Plough, harrow, level, paddle the main field and raise nursery					■	■	■	■				
5	Weeding (pre and post emergence weedicides)							■	■	■			
6	Harvest and thresh paddy with machine										■	■	
7	Conduct training on maize & rasma cultivation and procurement									■	■		
8	Conduct land preparation for Maize & Rasma											■	■
9	Sow maize & rasma seed											■	■
10	Conduct weeding / earthening	■											
11	Harvest and thresh (with maize sheller)		■	■									
12	Supervise and monitor the cultivation							■	■	■	■	■	■
13	Conduct yield survey and analyze data											■	■
14	Report to PMT												■

2021/22:

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Hold orientation meeting with pilot farmers and discuss land		■										
2	Improve farm land by using tractor and application of slaked			■	■	■							
3	Procurement of critical inputs			■	■	■							
4	Conduct training on plough, harrow, level, paddle the main field			■	■	■	■						
5	Transplant paddy seedlings with transplanter					■	■	■	■	■	■	■	■
6	Supervise and monitor paddy cultivation					■	■	■	■	■	■	■	■
7	Weeding (pre and post emergence weedicides)					■	■	■					
8	Yield survey								■	■	■		
9	Report to PMT										■	■	
10	Conduct training on rasma cultivation and procurement of								■	■	■	■	■
11	Conduct land preparation for Rasma									■	■	■	■
12	Sow rasma seed										■	■	■
13	Supervise and monitor Rabi crop cultivation										■	■	■
14	Conduct weeding / earthening											■	■
15	Yield survey											■	■
16	Report to PMT												■

Photograph



Training and demonstration on modified mat nursery for landowner and tenant farmers including seed selection, treatment. Farmers learnt the new techniques of preparation of paddy nursery.



Monitoring of paddy cultivation after transplanting and checking the growth and health condition.



Application of slaked lime with deep summer ploughing for better soil health conditions.



Threshing of harvested paddy by using thresher machine which saves farmers' time and energy.



Monitoring of Rajma (Red kidney bean) cultivation during Rabi. Pilot farmers cultivated Rabi crops for their additional income.



Seedlings of Modified Mat Nursery before transplanting to the fields. Young seedlings of paddy are ready to be transplanted in the paddy fields.

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Kolasib.
	RD Block	Bilkhawthlir.
	Village	Bilkhawthlir North
Development Zone Under Master Plan	<p>Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed</p> <p>Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.</p>	
Project Name	BN-02: Improvement of vegetable productivity	
Project Duration	2 years: 2020 April – 2022 March.	
Expected Outcome	<p>1st year: Improvement of farmer's knowledge on modern production technologies.</p> <p>2nd year: Increase farmers' income at least by 50%.</p>	
Goal for March 2022	Increase 10 pilot farmers income by 50 % .	
Approach	<ol style="list-style-type: none"> 1) Introduce quality vegetable seeds. 2) Adopt improved package of practices (INM and IPM). 3) Improve water management system. 4) Involvement of Mizo farmers in vegetable cultivation and production. 	
Responsible Dept.	Department of Horticulture	
Number of Target Beneficiaries	2020/21	10
	2021/22	5
Expenditure (INR)	2020/21	DOH: INR 144,000
	2021/22	DOH: INR 221,500
Result of Feedback Meeting	2020/21	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Procurement and distribution of quality vegetable seeds and training were timely conducted. - Mizo farmers were selected as pilot farmers - Use of sprinkler irrigation was easy to irrigate plants/crops and save time and also good for the plant growth and health. - After implementation of JICA project cultivation practices was done systematic. These practices has good impact not only to pilot farmers but also other Mizo farmers started cultivation of vegetables. - BAIDC supervision, timely monitoring and good training changed Mizo farmer's mind-set in a positive way. So, Mizo farmer's wanted to get more involve in vegetable cultivation.
	2021/22	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Seasonally technical guidance was conducted. - Only Mizo farmers were selected. - Timely seed distribution and regular monitoring were done. - Farmers were active to adopt BAIDC suggestions. - Pesticide and nutrients were timely applied. - Training materials were properly utilized.
Achieved Overall Outputs	<p>Farmers' income was increased by following activities:</p> <ul style="list-style-type: none"> - Technologies regarding land preparation, time of sowing, application of INM & IPM and time of harvesting were transferred from the BAIDC and adopted by the farmers. 	

- High yielding hybrid varieties of vegetables including sweet corn, pumpkin, okra, carrot and watermelon were introduced by the BAIDC to the farmers.
- Fertilizer and PP chemicals were procured and distributed.
- Water pump and sprinkler were provided.
- On time monitoring were conducted by the BAIDC.

Production and selling of watermelon

Sl/No.	Area of Harvesting (m ²)	Total Harvest (kg)	Total Income (INR)
1	6,520	2,417 kg	145,020

Production and selling of carrot

Sl/No.	Area of Harvesting (m ²)	Total Harvest (kg)	Total Income (Rs)
1	1,320	2,417 kg	20,800

Production and selling of okra

Sl.no	Year	Average Yield (kg/ha)
1	2021	8,767.5

Production and selling of Sweet-corn

Sl.no	Year	Average Yield (kg/ha)
1	2021	578.5

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Hold orientation meeting with pilot farmers and discuss land												
2	Improve farm land by using tractor and application of slaked												
3	Procurement of critical inputs												
4	Conduct training on plough, harrow, level, paddle the main field												
5	Transplant paddy seedlings with transplanter												
6	Supervise and monitor paddy cultivation												
7	Weeding (pre and post emergence weedicides)												
8	Yield survey												
9	Report to PMT												
10	Conduct training on rasma cultivation and procurement of												
11	Conduct land preparation for Rasma												
12	Sow rasma seed												
13	Supervise and monitor Rabi crop cultivation												
14	Conduct weeding / earthening												
15	Yield survey												
16	Report to PMT												

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select new pilot farmers among Mizos												
2	Hold awareness meeting with pilot farmers												
3	Conduct training of kharif/rabi vegetables for pilot farmers												
4	Procure seeds/ input												
5	Supervise and monitor the cultivation												
6	Conduct yield survey and analyze data												
7	Report to PMT												
8													
9													
10													
11													
12													

Photograph	
	
<p>On-site training on carrot cultivation during rabi season for land preparation. Farmers receive cultivation training of carrots.</p>	<p>Harvesting of Sweet-corn and measurement of the harvested quantity on the farm</p>
	
<p>Monitoring of okra (Ladies finger) cultivation during Kharif season. BAIDC observed the infestation of pest and nutrients management.</p>	<p>Monitoring of water-melon cultivation during Rabi season. Paddy straws were used for mulching the field.</p>
	
<p>On-site training (land preparation and cultivation technique) on vegetable cultivation for Rabi crop cultivation.</p>	<p>After training on nursery management of Chilli and tomato. Pilot farmers prepared nursery of chilli and tomato for Rabi crop cultivation.</p>

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Kolasib
	RD Block	Bilkhawthlir
	Village	Bilkhawthlir North
Development Zone Under Master Plan	<p>Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed</p> <p>Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.</p>	
Project Name	BN-03: To control and reduce stream bank erosion and protect the cropland from huge loss of fertile soil	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	<p>1st year: Stream bank erosion for the targeted areas will be greatly reduced</p> <p>2nd year: Loss of riverside fertile cropland will be under controlled</p>	
Goal for March 2022	Soil erosion and loss of fertile crop land will be reduced	
Approach	<ol style="list-style-type: none"> 1) Construction of gab ionic structure for erosion susceptible areas along the river side. 2) Construction of check dams at convenient intervals to reduce the flow of run off 3) Construction of river spur to divert the flow at places where turbulence of water is high 	
Responsible Dept.	Land Resources, Soil and Water Conservation Dept.	
Number of Target Beneficiaries	2020/21	13
	2021/22	13
Expenditure (INR)	2020/21	LRS&WCD: INR 1,404,500
	2021/22	-
Result of Feedback Meeting	2020/21	<p>Evaluation by BAIDC: Excellent/ by Farmers: Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Construction of GA bionic structures was completed within stipulated period. - Supervision on construction and monitoring were timely done. - 3 Unit of GA bionicstructures had been constructed to reduce soil erosion from the river.
	2021/22	Due to lack of fund work cannot be done.
Achieved Overall Outputs	<ul style="list-style-type: none"> - Check dams (Gabionic type Structures) were constructed to control and reduce stream bank erosion and protect the crop land from huge loss of fertile soil. - Planting of vetiver grass was introduced for soil erosion control at the river bank. 	

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Procurement of materials/inputs			■									
2	Constructional activities			■	■	■	■	■					
3	Supervise and monitor		■	■	■	■	■	■	■	■	■	■	
4	Evaluation											■	
5	Report to PMT												■
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Procurement of materials/inputs for construction of Diversion channel		■										
2	Constructional and maintainance activities		■	■	■	■	■	■	■	■			
3	Supervise and monitor		■	■	■	■	■	■	■	■	■	■	
4	Evaluation											■	
5	Report to PMT												■
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph



Field survey was conducted for construction of check dam at the vulnerable areas of soil erosion.



Construction of check Dam for soil erosion control at stream bank.



Supervision of check dam during the construction period.



Checking the condition and effectiveness of check dam construction by the field officers from LRS&WCD



Explanation of the importance of Vetiver grass planting in the river bank to control soil erosion



Demonstration of vetiver grass planting in the river bank for soil erosion control at stream bank.

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot.	
Location	District	Kolasib.
	RD Block	Bilkhawthlir.
	Village	Bilkhawthlir North
Development Zone Under Master Plan	<p>Zone-1: Agricultural advance region with high productivity and marketability where industrialisation of agriculture is progressed</p> <p>Development Direction: Progressing of production and processing of industrial crop (oil palm, rubber, areca catechu, areca nut etc) and wet rice through development and effective management of better land and water resources.</p>	
Project Name	BN-04: Rehabilitations and Extensions of Lungzawn M.I Project	
Project Duration	2 years: 2020 April – 2022 March.	
Expected Outcome	<p>1st year: Providing year-round irrigation facilities to the pilot farmers.</p> <p>2nd year: To enhance farmers' economy.</p>	
Goal for March 2022	To increase production by supplying irrigation water throughout the year.	
Approach	(1) Rehabilitations of existing channel. (2) Extensions of existing channel.	
Responsible Dept.	Irrigation and Water Resources Department.	
Number of Target Beneficiaries	2020/21	20
	2021/22	20
Expenditure (INR)	2020/21	IWRD: INR 505,750 (maintenance of irrigation facilities, training, final inspection and commissioning facilities of WUA, DPR preparation, construction costs are not included)
	2021/22	IWRD: INR 15,000 (costs for final inspection, commissioning facilities of WUA, O&M training and seasonal inspection)
Result of Feedback Meeting	2020/21	<p>Evaluation by BAIDC: Average/ by Farmers: N/A</p> <p>Comments:</p> <ul style="list-style-type: none"> - Before receiving the fund, maintenance and rehabilitation were carried out. - Works were done as per scheduled. - water channel was cleaned. - Detailed estimate was submitted but fund had not been disbursed.
	2021/22	<p>Evaluation by BAIDC: Above Average/ by Farmers: Above Average</p> <p>Comments:</p> <ul style="list-style-type: none"> - Water was sufficiently utilized. - Works were completed within a time frame. - Water was available sufficiently throughout the year.
Achieved Overall Outputs	<ul style="list-style-type: none"> - The Detailed Project Report (DPR) of Lungzawn Minor Irrigation Project (MIP) had been prepared by IWRD and rehabilitation of Lungzawn MIP was completed in 2021. - Maintenance and rehabilitation of channel and fitting of GI pipe was carried out by the IWRD and clearing of debris from channel was done by WUA. After completion of the maintenance work, farmers can utilise the irrigation water throughout the year. 	

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Work through survey with the pilot farmers	█											
2	Preparations of DPR	█	█										
3	Constructions and supervision (by Departmental)			█	█	█	█	█					
4	Conduct O & M training to the pilot farmers					█	█						
5	Conduct final inspection						█	█					
6	Commissioning of the facilities to the WUA						█						
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

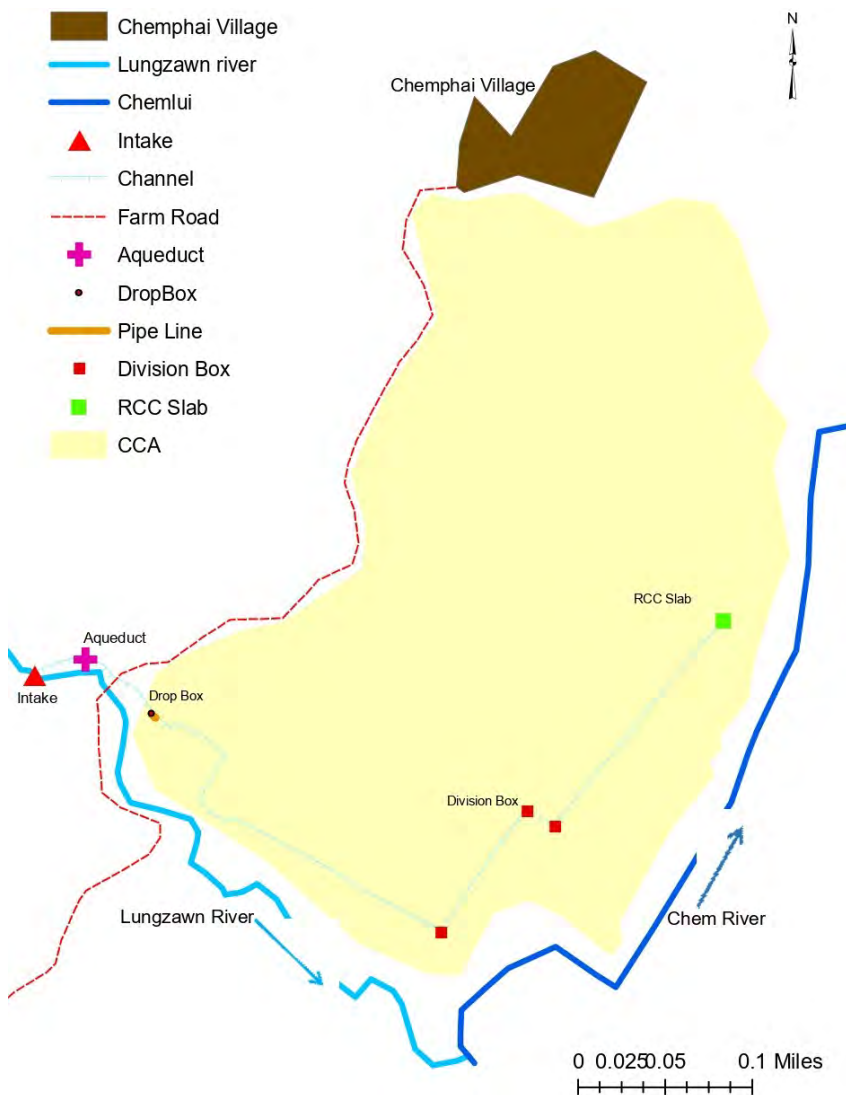
2021-2022:

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Conduct final inspection		█										
2	Commissioning of irrigation facilities to WUA		█										
3	Conduct O & M training to the pilot farmers		█	█	█	█	█	█					
4	Conduct seasonal inspection with WUA								█	█	█		█
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph	
<p>Clearing of debris from the channel carried out by WUA for good cooperation and sense of ownership among the farmers</p>	<p>Plastering of channel to avoid leakage of water from the channel floors and walls</p>
<p>Division box and channel: Repaired works were done by IWRD to irrigate WRC at the downside areas.</p>	<p>Channel line collapsed due to landslide: Fitting of GI pipe and construction of outlet box were done.</p>
<p>Damaged aqueduct near the diversion weir: Fitting of GI pipe was done in this point to supply water to WRC.</p>	<p>Renovation of the entire channel lines: Irrigation water can be utilized throughout the year.</p>

Rehabilitations and Extensions of Lungzawn Minor Irrigation Project	
1. Salient Features of Lungzawn MIP	
Village Name, RD Block, District	Chemphai / Bilkhawthlir North Village, Bilkhawthlir Block, Kolasib District
Development Zone Under M/P	Zone-1: Agricultural advance region with high productivity and marketability where industrialization of agriculture is progressed.
Purpose of the Project	Improvement of WRC productivity through Rehabilitation and extension of existing irrigation Facilities.
Culturable Command Area (CCA)	75 ha
Water Resources	Lungzawn River
No. of Beneficiaries	20 families
Estimated Cost	INR 5 lakhs
2. Implementation Record	
Financial Source	Special assistance (Covid-19 combat)
Contractor	IWRD Direct Works and WUA
Estimate Amount	INR. 5 lakh
Commencement	27 th October 2020
Work Schedule (Original)	2 months
Original Working Period	2 months + 116 days (including Paddy harvesting, Construction of village road and Border Issue)
Works Items	Rehabilitations of existing channel 522 m Extensions of existing channel 5m Fitting of GI pipe 150mm dia 30m Structures Drop Box. RCC slab
Completion	22 nd April, 2021
Community	
Financial Source	community work.
Water User Association	Lungzawn Water User Association
Commencement	7 th December, 2020
Contract Works	Cleaning of grass and removal of silt deposit from channel (465 m).
Completion	11 th December, 2020.
3. Registration of WUA	
Name of WUA:	Lungzawn Water User Association
Date :	
Number :	
Nos. of Members	20 families
Handing Over of the completed facilities	

4. Location Map



Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Aizawl
	RD Block	Aibawk
	Village	Lamchhip
Development Zone Under Master Plan	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.	
Project Name	LC-01: Achieve sustainable vegetable cultivation	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	1st Year: All of pilot farmers recognized increase of production (Chow-Chow, Passion fruit and French Bean) 2nd Year: Increased production of vegetables (Chow-Chow, Passion fruit and French Bean) of pilot farmers by 10 % from 1st year	
Goal for March 2022	Increased 5 pilot farmers income by 20% by introducing mixed cropping along with crop rotation	
Approach	1) Provide training on IPM & INM 2) Provide critical farm inputs 3) Develop soil conservation measures 4) Develop irrigation facilities	
Responsible Dept.	Department of Horticulture	
Number of Target Beneficiaries	2020/21	5
	2021/22	5
Expenditure (INR)	2020/21	DOH & LRS&WCD: INR 124,000
	2021/22	DOH: INR 48,500
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Average/ by Farmers: Average Comments: <ul style="list-style-type: none"> - On-site training on half-moon terrace provided by BAIDC was great and 300 pits of half-moon terrace were constructed by the farmers. - Limited amount of PP chemicals were provided. - Farmers hold on to their traditional methods and improper maintenance of farm tools and equipment. - Farmers wanted more trainings and inputs.
	2021/22	Evaluation by BAIDC: Above Average/ by Farmers: Average Comments: <ul style="list-style-type: none"> - Training was good but needed to improve. - Farmers commented that amount of PP chemicals were limited and less. - Due to Covid-19 pandemic monitoring was not conducted regularly. - Farmers have increased the number of half-moon terraces in their field. - DPR was approved, but waiting for release of funds.
Achieved Overall Outputs	Vegetable production was increased by the following activities: <ul style="list-style-type: none"> - Half-moon terraces were constructed to reduce soil erosion and the effectiveness the terraces were checked by measuring the amount of soil deposited in them using measuring tape. - The neighbouring farmers emulated the activities of the pilot farmers and constructed half-moon terraces in their own plots. - Cultivation practices and farm management training were conducted: 	

- Crop calendar was prepared to help farmers understand on the periodic application of PP chemicals and fertilizers.
- Monitoring of chow-chow cultivation was conducted with the farmers regularly in 2020/21 but not possible during 2021/22 due to the COVID 19 pandemic.
- Drip irrigation facilities were provided and installed for all the chow-chow farmers.

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Hold orientation meeting with farmers		■										
2	Finalize location and area to be covered for each pilot farmer		■										
3	Select pilot farmers		■										
4	Conduct training on half moon terrace construction			■									
5	Construct half moon terrace				■								
6	Prepare DPR and construct Irrigation facilities	■	■	■	■					■	■	■	■
7	Conduct training on INM & IPM and provide critical inputs					■	■						
8	Supervise and monitor the cultivation						■	■	■	■	■	■	■
9	Conduct yield and profit survey and analyse data											■	■
10	Report to PMT												■
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers		■										
2	Finalize location and area to be covered for each pilot farmer and have orientation meeting		■										
3	Conduct training on INM & IPM and provide critical inputs (seed, PP chemical & etc.)		■	■									
4	Supervise and monitor the cultivation				■		■		■		■		
5	Maintenance and renovation of half-moon terraces and training if necessary		■										
6	Organize study tour for pilot farmers				■								
7	Conduct yield and profit survey and analyse data									■	■		
8	Report to PMT											■	
9													
10													
11													
12													
13													
14													
15													
16													

Photograph



Training with pilot farmers on construction of half-moon terraces at field together with BAIDC. Half-moon was constructed as a soil conservation measure.



Half-moon terraces constructed by the farmers before cultivation of chow-chow



Monitoring of the conditions of the fruits by farmers along with BAIDC. BAIDC along with the farmers went to their fields and inspect the fruits and look for signs of pests and diseases.



Training of Integrated Nutrient Management and use of crop calendar. Farmers were trained how apply PP chemicals and help them to remember the timing of applying them through the crop calendar.



On-site training regarding use of PP chemicals where BAIDC show farmers proper method of spraying their PP chemicals and take safety measures such as wearing mask.



Yield survey of chow-chow: The fruits were harvested two times a week and farmers weighted them every time.

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot													
Location	District	Aizawl												
	RD Block	Aibawk												
	Village	Lamchhip												
Development Zone Under Master Plan	Zone-2: Transition from jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.													
Project Name	LC-02: Enhance paddy production													
Project Duration	2 years: 2020 April – 2022 March													
Expected Outcome	1st Year: All pilot farmers recognized increase of paddy production 2nd Year: Increased production of paddy of pilot farmers by 10% from first year													
Goal for March 2022	Increased production of rice by 15% for the pilot farmers													
Approach	1) Adopt improved Package of Practices 2) Provide Irrigation water (3 acres)													
Responsible Dept.	Department of Agriculture/ATMA													
Number of Target Beneficiaries	2020/21	3												
	2021/22	4												
Expenditure (INR)	2020/21	DOA and ATMA: INR 67,000												
	2021/22	DOA and ATMA: INR 76,500												
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Average/ by Farmers: Excellent Comments: <ul style="list-style-type: none"> - Farmers received on-site training such as improved variety (RCM-13), seed selection and treatment, modified mat nursery and Line transplanting. - Farmers were able to increase production by following instruction given by BAIDC. - Necessary action was taken to prevent disease and pests for the next season/year. 												
	2021/22	Evaluation by BAIDC: Above Average/ by Farmers: Above Average Comments: <ul style="list-style-type: none"> - Training and monitoring could not be provided to the farmers at the right time due to COVID-19 pandemic. - Irregular rainfall may have caused decrease in cultivation area. - Preventive measures for disease and pests were taken by BAIDC. 												
Achieved Overall Outputs	<p>(1) The production of paddy was increased by introducing high yielding and short duration variety of paddy and trainings on seed selection, seed treatment, nursery preparation, line transplanting and utilizing manual weeders.</p> <p>(2) The conditions of the paddy during the cultivation period were regularly checked with the farmers. Farmers also took necessary action by informing BAIDC members regarding incidence of pests and diseases.</p> <p>(3) As the results, the average productivity of paddy achieved was more than 4 t/ha, which greatly exceeded the national average productivity of 2.5 t/ha.</p> <p style="text-align: center;">The average yield of paddy is given in the table</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sl.no</th> <th>Year</th> <th>Variety</th> <th>Average Yield (kg)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2020-21</td> <td>RCM-13</td> <td>4,652.0</td> </tr> <tr> <td>2</td> <td>2021-22</td> <td>RCM-13</td> <td>5,439.5</td> </tr> </tbody> </table>		Sl.no	Year	Variety	Average Yield (kg)	1	2020-21	RCM-13	4,652.0	2	2021-22	RCM-13	5,439.5
Sl.no	Year	Variety	Average Yield (kg)											
1	2020-21	RCM-13	4,652.0											
2	2021-22	RCM-13	5,439.5											

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Select pilot farmers		█										
2	Hold orientation meeting with pilot farmers		█										
3	Finalize location and area to be covered for each pilot farmer		█										
4	Prepare DPR and construct Irrigation facilities	█	█	█	█					█	█	█	█
5	Conduct training and demonstrate POP					█	█	█	█	█			
6	Provide critical farm inputs through DBT				█	█	█	█					
7	Monitor the cultivation and collect field data on cultivation							█		█		█	█
8	Conduct yield and profit survey and analyse data										█	█	█
9	Report to PMT												█
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Hold orientation meeting with pilot farmers		█										
2	Provision of inputs			█									
3	Conduct training and demonstrate POP including use of quality seeds, seed treatment, nursery management, line transplanting, water management, use of organic matters, land levelling.				█	█	█	█					
4	Provide critical farm inputs (seeds, PP chemical, etc.)			█	█	█	█						
5	Monitor the cultivation and collect field data on cultivation					█		█		█			
6	Conduct yield and profit survey and analyse data									█	█	█	
7	Report to PMT										█	█	
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph



Preparation of paddy nursery with the farmers: It was the first time they have prepared nursery beds for their paddy.



Farmers transplanting their paddy seedlings in lines using ropes. It was practiced for the first time with the guidance from BAIDC



Farmers are shown the advantages of using manual weeder. Manual weeder can be easily used by the farmers if they have transplanted their paddy in lines



On-site training on pest and disease: Farmers and BAIDC went round the field and check the environment for insects and signs of disease and farmers were tough to identify them



Checking of damaged rice plant in the field: Pilot farmers contacted with BAIDC over the phone about disease.



Yield survey of paddy conducted with the farmers: Yield survey gives an understanding of productivity of paddy to farmers.

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Aizawl
	RD Block	Aibawk
	Village	Lamchhip
Development Zone Under Master Plan	Zone-2: Transition from Jhum to permanent cultivation is progressed. Semi self-sufficient and market-oriented region Development Direction: Production of various products needed for main habitants in the state through enhancement and upgrading of settled agriculture.	
Project Name	LC-03: Promote Rabi crops	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	1st Year: All of pilot farmers recognized increase of farm income through cultivation of Rabi crops 2nd Year: Pilot farmers' income is increase by 10% from 1st year	
Goal for March 2022	Increased farmers' income from Rabi crop cultivation by 10%	
Approach	1) Provide irrigation water (same as LC-02) 2) Adopt scientific technology on production of field pea, cow pea and rapemustard	
Responsible Dept.	Department of Agriculture	
Number of Target Beneficiaries	2020/21	3
	2021/22	4
Expenditure (INR)	2020/21	DOA and ATMA: INR 42,000
	2021/22	DOA and ATMA: INR 63,000
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Below Average/ by Farmers: Average Comments: <ul style="list-style-type: none"> - Seeds for rabi cultivation required by farmers were provided by BAIDC to the farmers. - Training on cultivation of rabi cultivation was good. - Rabi cultivation was started by all the pilot farmers. - The germination percentage of the rabi seeds were effected by less rainfall during the dry season.
	2021/22	Evaluation by BAIDC: Average/ by Farmers: Average Comments: <ul style="list-style-type: none"> - Rabi cultivation was continued by the farmers and seeds provided to them were sown. - Regular training and monitoring was difficult due to the COVID-19 pandemic. - Germination percentage was good but due to lack of water plant growth was limited.
Achieved Overall Outputs	Rabi cultivation <ul style="list-style-type: none"> - Rabi cultivation in WRC was started for the first time. - The pilot farmers were provided seeds and trainings on cultivation of rapeseeds, cow-pea, Rajma and field pea. - On-time monitoring could not be conducted due to the COVID-19 pandemic. 	

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Conduct training on Rabi crop cultivation												
2	Provide critical farm inputs through DBT												
3	Monitor the cultivation and collect field data on cultivation												
4	Prepare DPR and construct Irrigation facilities (LC-02)												
5	Conduct yield and profitability survey and analyse data												
6	Report to PMT												
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Conduct training on Rabi crop cultivation												
2	Provide critical farm inputs (seed, PP chemical & etc.)												
3	Monitor the cultivation and collect field data on cultivation												
4	Conduct yield and profitability survey and analyse data												
5	Revision of DPR												
6	Report to PMT												
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph	
	
<p>Distribution and cultivation training of rabi crops with the farmers before the start of the rabi season</p>	<p>Monitoring of rapeseed growth in the field and checking the plant growth</p>
	
<p>Monitoring rapeseeds during its flowering stage</p>	<p>Monitoring of field pea growth conditions at the field</p>
	
<p>Harvesting of rapeseeds. Rapeseeds are harvested and dried in the sun. They are then threshed and farmers collect the seeds</p>	<p>Extraction of oil from rapeseed harvested using oil expeller</p>

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Champhai
	RD Block	Champhai
	Village	Tlamsam
Development Zone Under Master Plan	Zone-7: Land-intensive agriculture region in urban neighbourhood Development Direction: Supply of safe and traceable qualified agriculture product to urban population	
Project Name	TL-01: Increase vegetable production in Kharif	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	1st Year: All of pilot farmers recognized increase of vegetable production in Kharif 2nd Year: Increase production and productivity of vegetables of pilot farmers by 10 % from 1st year	
Goal for March 2022	Overall increased in vegetable production and productivity of all pilot farmers	
Approach	1) Adopt improved Package of Practices 2) Develop terrace for soil conservation and farm mechanization 3) Provide poly-house 4) Provide irrigation with micro irrigation technique	
Responsible Dept.	Department of Horticulture	
Number of Target Beneficiaries	2020/21	5
	2021/22	5
Expenditure (INR)	2020/21	DOH, LR&SWCD and ATMA: INR 1,513,140
	2021/22	DOH and LR&SWCD: INR 810,449
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Above Average / by farmers: Average Comments: - Terraces were timely constructed by the BAIDC. - Farmers participated in farm activities actively. - Farmers maintained farming record properly as instructed by the BAIDC. - Vegetable production level was quitesatisfactory and also enhanced the farmers' income.
	2021/22	Evaluation by BAIDC: Average/ by farmers: Average Comments: - Farmers made use of the terraces constructed by the BAIDC members. - Inputs and training were timely provided. - Rain guns were provided to the farmers. - Due to the COVID-19 pandemic, BAIDC could not provide PP chemicals on time. - Production of cabbages was low due to large-scale rotting.
Achieved Overall Outputs	Pilot farmers recognized increase of vegetable production in Kharif through transfer of technology and farm development. - Training on vegetable cultivation techniques and distribution of training materialsto each pilot farmer. - Provision of quality seeds, INM and IPM with package of practices. - Construction of terraces for soil conservation. Vegetable profitability of pilot farmers was increased more than 10% from the previous year vegetable production because of the high price of vegetables during the pandemic.	

Off-season cabbage was introduced and thereby increased the farmers' income.
DPR was prepared but construction works was delayed due to late sanction of fund.

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and area to be covered for each pilot farmer												
4	Provide poly-house												
5	Conduct training on terrace construction												
6	Construct terrace												
7	Prepare DPR and construct irrigation facilities												
8	Provide micro sprinkler kit												
9	Procure critical farm inputs (seeds, PP chemical and etc.)												
10	Transfer of technology (TOT) on crop cultivation at pilot farmers' field												
11	Supervise and monitor the cultivation												
12	Conduct yield survey and analyse data												
13	Report to PMT												
14													
15													
16													

2021-2022

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and area to be covered for each pilot farmer												
4	Provide poly-house												
5	Monitoring and maintenance on terraces												
6	Procurement of seeds and shade net												
7	Assistance for preparation of planting lanes and lines of Cabbage, etc.												
8	Transfer of technology (TOT) on crop cultivation at pilot farmers' field												
9	Monitoring on efficiency of sprinkler(Rain gun)												
10	Supervise and monitor the cultivation												
11	Conduct yield survey and analyse data												
12	Report to PMT												
13													
14													
15													
16													

Photograph	
<p>Terrace construction for vegetable cultivation in slope area to control soil erosion at the permanent slope cultivation area</p>	<p>Class-room training on Kharif crops cultivation and provision of vegetable seeds to the pilot farmers</p>
<p>On-site training on vegetable cultivation technique. Farmers learnt the vegetable crops rotation techniques through this training</p>	<p>After several trainings, farmers cultivated vegetables during the off season to meet market demand</p>
<p>Checking and monitoring of the off-season cabbage growing condition. BAIDC gave technical advice to the pilot farmers on their cultivation issues</p>	<p>Conducted yield survey of cabbage. Farmers recorded the cultivation data and sell amount from the harvested cabbage</p>

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Champhai
	RD Block	Champhai
	Village	Tlansam
Development Zone Under Master Plan	Zone-7: Land-intensive agriculture region in urban neighbourhood Development Direction: Supply of safe and traceable qualified agriculture product to urban population	
Project Name	TL-02: Promotion of vegetables cultivation in Rabi	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	1st Year: All of pilot farmers recognized increase of vegetable production in Rabi 2nd Year: Increase production and productivity of vegetables of pilot farmers by 10 % from 1st year	
Goal for March 2022	Overall increased in rabi vegetable production and productivity of all pilot farmers	
Approach	1) Adopt improved Package of Practices 2) Develop terrace for soil conservation and farm mechanization (same as TL-01) 3) Provide low poly-tunnel 4) Provide irrigation with micro irrigation technique (same as TL-01)	
Responsible Dept.	Department of Horticulture	
Number of Target Beneficiaries	2020/21	5
	2021/22	5
Expenditure (INR)	2020/21	DOH, DOA and ATMA: INR 155,300
	2021/22	DOH: INR 38,000
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Above Average/ by farmers: Average Comments: <ul style="list-style-type: none"> - Farmers were satisfied with the terrace construction and were making the best use of it. - Seeds were timely sowed by the farmers. - Pest and disease management were properly carried out on time, so no severe disease was reported during the cultivation period. - Farmers were able to sell their produce with a reasonable price.
	2021/22	Evaluation by BAIDC: Average/ by farmers: Average Comments: <ul style="list-style-type: none"> - Seeds were timely provided. - Training, monitoring and yield survey were timely implemented. - All the pilot farmers adopted package of practices. - Crop production and farmers' income were increased.
Achieved Outputs	Overall	Pilot farmers recognized increase of vegetable production in Rabi through transfer of technology and farm development. <ul style="list-style-type: none"> - Training on vegetable cultivation techniques and distribution of training materials to each pilot farmer. - Provision of quality seeds, INM and IPM with package of practices. - Construction of terraces for soil conservation (same as TL-01). Vegetable production of pilot farmer was increased in the second year from the previous year by expanding the cultivation area and thereby increased the farmers' income. DPR was prepared but construction works was delayed due to late sanction of fund (same as TL-01).

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Procure critical farm inputs (seeds, PP chemical and etc.)												
2	Demonstrate and install low poly-tunnel house												
3	Transfer of technology (TOT) on crop cultivation at pilot farmers' field												
4	Supervise and monitor the cultivation												
5	Conduct yield survey and analyse data												
6	Report to PMT												
7	Discuss and prepare next year program												
8													
9													
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Procure critical farm inputs (seeds, PP chemical and etc.)												
2	Demonstrate and install low poly-tunnel house												
3	Transfer of technology (TOT) on crop cultivation at pilot farmers' field												
4	Supervise and monitor the cultivation												
5	Conduct yield survey and analyse data												
6	Report to PMT												
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph



Provision of vegetable seeds to the pilot farmers with the cultivation instruction



Training on vegetable cultivation technique at village information centre. Pilot farmers learnt the importance of Rabi crop cultivation for their additional income



Periodical monitoring of the growing conditions of cabbage. BAIDC observed the cabbage was infested by caterpillars and termites. BAIDC provided insecticides for treatment



Provision of rain gun for watering the vegetable during dry season



Yield survey of Rabi crops. BAIDC also maintained the farming and yield record of Rabi crops



Farmers' feedback meeting was conducted to improve for the next year activities

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Champhai
	RD Block	Champhai
	Village	Tlamsam
Development Zone Under Master Plan	Zone-7: Land-intensive agriculture region in urban neighbourhood Development Direction: Supply of safe and traceable qualified agriculture product to urban population	
Project Name	TL-03: Improvement of WRC area productivity	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	1st Year: All of pilot farmers recognized decrease of paddy production cost and increase of paddy production 2nd Year: Increase production of paddy of pilot farmers by 10 % from the 1st year. Decrease cost of production of paddy of pilot farmers by with farm mechanization by 10% from the 1st year	
Goal for March 2022	Achievements and knowledge acquired by pilot farmers were disseminated to other farmers.	
Approach	1) Develop irrigation facilities (Thliarpui MIP) 2) Adopt improved Package of Practice (POP) 3) Promote farm mechanization 4) Enhance soil fertility through INM	
Responsible Dept.	Department of Agriculture	
Number of Target Beneficiaries	2020/21	5
	2021/22	5
Expenditure (INR)	2020/21	DOA and ATMA: INR 35,500
	2021/22	DOA: INR 32,000
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Above Average/ by farmers: Above Average Comments: - Cooperation between the farmers and the BAIDC members was good. - Farmers learnt proper dosage of PP chemical through training. - Farmers learnt the benefits of line transplanting of paddy in the field. - The BAIDC imparted technical knowledge to farmers on seed treatment, nursery management and disease management.
	2021/22	Evaluation by BAIDC: Above Average/ by farmers: Below Average Comments: - Seeds were timely distributed to the farmers. - Monitoring, training and yield survey were timely implemented. - Dwarf variety of rice was introduced for experiment, but farmers found it difficult in its maintenance and harvesting. - Fungicides were provided on time.
Achieved Overall Outputs	Pilot farmers recognized increase of paddy production in Kharif through transfer of technology. - Training on paddy cultivation techniques including seed selection by using salt water, nursery management, line transplanting, water management, and distribution of training materials (cropping calendar) to each pilot farmer. - Provision of quality seeds (RCM-30 and Gomati; high yielding varieties), INM and IPM with package of practices. - On time implementation of field monitoring, pest & disease control and	

application of fertilizer.

Table : Yield Survey Results of Paddy in Tlangsam

S.No.	Year	Variety	AverageYield (kg/ha)
1	2020	Burma buh	1,822.3
2	2021	Gomati	1,354.3

DPR was prepared and submitted but the construction works was delayed due to late sanction of fund.

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and area to be covered for each pilot farmer												
4	Prepare DPR and construct irrigation facilities												
5	Conduct training and demonstration on cultivation including use of quality seeds, seed treatment,nursery management,												
6	Procure critical farm inputs (seeds, PP chemical and etc.)												
7	Monitor and collect data on cultivation (farm management)												
8	Conduct yield survey and analyse data												
9	Report to PMT												
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Select pilot farmers												
2	Hold orientation meeting with pilot farmers												
3	Finalize location and area to be covered for each pilot farmer												
4	Prepare DPR and construct irrigation facilities												
5	Conduct training and demonstration on cultivation including use of quality seeds,pest and disease management seed treatment,nursery management,like toprotecting water												
6	Procure critical farm inputs (seeds, PP chemical and etc.)												
7	Monitor and collect data on cultivation (farm management)												
8	Conduct yield survey and analyse data												
9	Report to PMT												
10													
11													
12													
13													
14													
15													
16													

Photograph	
	
<p>Paddy nursery was prepared by pilot farmers and transplanted the young seedling to the field</p>	<p>Farmers followed the line-transplanting method as instructed by BAIDC members</p>
	
<p>BAIDC and pilot farmers conducted monitoring of the growing condition of paddy after transplanting</p>	<p>Yield survey of paddy was conducted to check the benefits of package of practices against the conventional method</p>
	
<p>BAIDC provided systemic fungicide to the pilot farmers to control rice blast</p>	<p>Farmers' feedback meeting was conducted to hear the voice of pilot farmers after one year of annual plan implementation</p>

Data Sheet for Pilot Activities

Pilot classification	2 nd Pilot	
Location	District	Champhai
	RD Block	Champhai
	Village	Tlansam
Development Zone Under Master Plan	Zone-7: Land-intensive agriculture region in urban neighbourhood Development Direction: Supply of safe and traceable qualified agriculture product to urban population	
Project Name	TL-04: Introduction of Rabi crops	
Project Duration	2 years: 2020 April – 2022 March	
Expected Outcome	1st Year: All of pilot farmers harvested vegetables and pulses in Rabi 2nd Year: Increase production of vegetables and pulses of pilot farmer by 10% from 1st year	
Goal for March 2022	Achievements and knowledge acquired by pilot farmers were disseminated to other farmers.	
Approach	1) Develop irrigation facilities (Thliarpui MIP) 2) Adopt improved Package of Practice (POP) 3) Promote farm mechanization 4) Enhance soil fertility through INM 5) Introduce low poly-tunnel house	
Responsible Dept.	Department of Agriculture	
Number of Target Beneficiaries	2020/21	5
	2021/22	5
Expenditure (INR)	2020/21	DOA, ATMA and DOH: INR 476,640
	2021/22	DOA: INR 60,000
Result of Feedback Meeting	2020/21	Evaluation by BAIDC: Average/ by farmers: Average Comments: - Seeds were timely distributed. - Farmers cultivated field pea for the first time as a rabi crop in the WRC area. - Monitoring and training were timely implemented. - Irrigation facilities like individual water tanks and PVC pipes were provided.
	2021/22	Evaluation by BAIDC: Excellent/ by farmers: Above Average Comments: - Field pea seeds as additional inputs were providing to the farmers. - Sowing seeds was delayed due to the unfavourable weather conditions. - Farmers followed the cultivation method as instructed during the training. - Farmers production level was quite satisfactory.
Achieved Overall Outputs	All the pilot farmers harvested pulses during Rabi season in WRC. - Adoption of package of practices (land preparation, time of sowing, line planting, application of fertilizers and time of harvesting). - Provision of quality seeds and fertilizers to increase the production. Due to the flooding of the WRC in the early Rabi season, farmers could not cultivate Rabi crop in the 2 nd year.	

Table : Yield Survey Results of Field Pea in Tlamsam

S.No.	Year	Variety	Average Yield (kg/ha)
1	2020-21	Super Arkel	2,512

DPR was prepared and submitted but the construction works was delayed due to late sanction of fund.

- Construction works of Thliarpui MIP could not be implemented as plan due to late sanction of funds from NABARD. However, with the available CSS under DOA, individual water tanks and distribution pipes were provided to the pilot farmers.

Schedule & Activities

2020/21

No.	Implementation Procedure/Activity (Timeline of Activity)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Conduct training on Rabi crop cultivation												
2	Procure and provide inputs (seeds and PP chemicals, if necessary)												
3	Monitor and collect data on cultivation (farm management)												
4	Provide irrigation facilities												
5	Provide micro sprinkler												
6	Demonstrate and install low poly-tunnel house												
7	Conduct yield survey and analyse data												
8	Report to PMT												
9	Discuss and prepare next year program												
10													
11													
12													
13													
14													
15													
16													

2021/22

No.	Implementation Procedure/Activity (Timeline of Activity)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Procure and provide inputs (seeds and PP chemicals, if necessary)												
2	Conduct training on Rabi crop cultivation												
3	Monitor and collect data on cultivation (farm management)												
4	Provide irrigation facilities (same as TL-03)												
5	Conduct yield survey and analyse data												
6	Report to PMT												
7	Discuss and prepare next year program												
8													
9													
10													
11													
12													
13													
14													
15													
16													

Photograph



BAIDC provided adequate amount of Inputs (field pea seeds) to the pilot farmers for Rabi crop cultivation



Training on field pea cultivation technique at village information centre. Farmers learnt the benefits of cultivating Rabi crops



Monitoring of Rabi crop cultivation (field pea). BAIDC observed that the growing condition was good and no infection of pest and diseases was found



Water tank was constructed in WRC area to meet the farmers need for watering Rabi crop during winter season



Yield survey of field pea cultivation and measurement of cultivation area of field pea was conducted



Farmers' feedback meeting was conducted for next year improvements

Attachment 10

JCC MINUTES OF MEETINGS

MINUTES OF 1ST MEETING OF JOINT COORDINATION COMMITTEE
(JICA)

ad-519/17
(w & D)
2
45
22. EE (10)
D/Asst.

Venue : Chief Secretary's Conference Hall
Time : Dt. 7th August, 2017 (Monday), 1:00 pm.-3:00pm
Members present: List attached

In absence of Mr.Lalmalsawma, I.A.S, Chief Secretary Mizoram and Chairperson, Joint Coordination Committee (JICA), Mr.Lalrinliana Fanai, I.A.S, Commissioner and Secretary to the Government of Mizoram, Home etc. chaired the meeting. At the outset, the chairman welcomed all the members present, and thanked Mr. Takema Sakamoto, Chief Representative and other representatives of the JICA India Office, New Delhi, for making it convenient to attend the meeting.

The chairman informed that Government of Mizoram has been in touch with JICA from 2005 to seek the possibility of having JICA project in Mizoram and expressed his gratitude that JICA has already completed one Development Study during 2013-15 and that the Technical Cooperation Project (TCP) has now started. The chairman then invited Mr. Takema Sakamoto, Chief Representative, JICA India Office for opening remarks on the project.

Mr. Takema Sakamoto informed that India is the biggest friend of Japan and JICA is the biggest contributor to India. He stated that, even though there is a long gap between signing of Record of Discussion on 26th Oct. 2016 and the actual starting of the project due to the internal coordination procedures within the Government of India and the Government of Mizoram followed by the delay of the internal approval in the Government of India, it might be a good lesson implying how the inter-departmental collaboration and close communication are essential for the success of the project. In this regard, he highlighted that, since the project is tackling broad issues such as) land-use & resource management planning, ii) construction of small-scale irrigation facilities, iii) food and cash crop production, iv) marketing, v) social and environmental consideration, and vi) gender mainstreaming, and requires wide knowledge of each department, establishment of joint collaborative mechanism including timely information sharing is very important. He also explained that the real owner of the project is the Government of Mizoram and that JICA Team will render technical and other necessary assistance for successful implementation of the project as a supporter. In this regard, he narrated the unprecedented phone call his office received from a farmer in Champhai, Mizoram who informed him of their zeal and high expectations for JICA project in Mizoram and requested JICA to implement the project as soon as possible. Mr. Sakamoto expressed his surprise and delight to get such a very positive and enthusiastic call directly from a farmer, which he feels is the clear sign of readiness and willingness of farmers on the ground and the state to

implement the project. He stated that we have heavy responsibilities to respond to their expectations and to catch up the delay of the starting of the project, and that we shall always keep the faces of the actual beneficiaries in mind.

In addition, he expressed his concern for safety of Indian and Japanese citizens while implementing the pilot projects including civil works, and underscored that every safety measure in the construction works shall be followed in accordance with the Guidance for the Management of Safety for Construction Works in Japanese ODA Projects. He also informed that he is confident of Mizoram government in checking corruption and fraudulent practices and clarifies that Japanese Government has zero tolerance to corruption.

He further stated that one accident / corruption case may lead to significant delay of the project since most of project activities shall stop till the proper countermeasures to prevent similar future accidents / incidents are figured out and implemented.

Mr. Sakamoto also spoke about the importance of Public Relation (PR) activities to make the citizens of both the countries clearly understand these collaborative projects. He underscored that Japanese ODA is operated by the fund of Government of Japan which is a contribution of Japanese tax payers, hence, informing success stories and good collaboration between India and Japan to Japanese society is quite important to get broad understanding and support from Japanese citizens for continuing and expanding Japanese ODA. He also emphasized that awareness for the project activities in Mizoram and all over India is equally important and requested the Government of Mizoram to appeal how JICA's cooperation is robust and strong, and to inform JICA India Office if they find media coverage related to JICA activities.

He closed his opening remark by informing the Committee that JICA is keen to extend cooperation to North and East region to support the balance economic growth of the country and to enhance the connectivity within India and with neighboring countries. He also said that Mizoram can be a good model of JICA cooperation in the North and East region and JICA is willing to support for future state projects based on the aspiration of both governments and success of the on-going projects.

Then, on invitation from the chair, Er. K.Hamlet, Sr. Executive Engineer, I&WRD gave Power-point Presentation on TCP. He briefly explained the background on how this TCP came about by reporting that JICA has successfully conducted a development study for 20 months and submitted 'The Final Report' in May 2015 in which 'Master Plan' for development of agriculture in Mizoram was included. According to the Master Plan, which was officially approved by the Government of Mizoram, there are 3 approaches containing 7 programmers with 27 (twenty seven) projects for attaining 50% self-sufficiency in food production within 20 years with a growth rate of 4% in agriculture sector.

In order to achieve the objective of the Master Plan, Mizoram government has requested JICA for the TCP entitled '**The Project on Capacity Enhancement for sustainable Agriculture and Irrigation Development in Mizoram**' and the Record of Discussion was signed on 26th October 2016 between JICA and Mizoram government which will be implemented for 60 months and expected to be completed in July, 2022.

The overall goal of the TCP is 'Sustainable agriculture and irrigation development will be expanded in Mizoram' and the project purpose is 'Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced'. There are three outputs expected from the project. They are:

1. Methods for sustainable agriculture and irrigation development are developed,
2. Capacity of the state government officials is enhanced for planning and implementation of sustainable agriculture and irrigation development, and
- 3.—Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.

Er. K.Hamlet also showed that the primary project beneficiaries would be Mizoram government officials and that the secondary beneficiaries would be farmers of the four selected priority RD Blocks, namely Bilkhawthlir (in Kolasib district), Aibawk (in Aizawl district), Serchhip (in Serchhip district) and Champhai (in Champhai district) RD Blocks.

It was also shown in the presentation that Joint Coordination Committee (JCC), chaired by the Chief Secretary, Mizoram is the apex body responsible for implementation of the project. There is a 'Counterpart Team' comprising of 'Project Management Team' and 'Block Agriculture & Irrigation Development Committee (BAIDC)'.

The presentation showed that there will be five following key approaches that will be employed in this project.

1. Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.
2. Viability of the second pilot activities utilising fund from the State/Central Government shall be assured.
3. Active mode of the beneficiaries in technology transfer shall be encouraged.

- (94)
4. Knowledge transfer amongst government officers by conducting study tours in the other states shall be promoted.
 5. "Output driven evaluation system" for giving appropriate collaborative incentives amongst the relevant departments shall be promoted.

There are three phases in the work plan as follows:

1. Phase I (July 017- Feb.2018): During this period, priority villages will be selected, methods for implementation of the project will be drafted, and overall development plan for priority villages will be prepared.
2. Phase II (April 2018 - Feb 2020): During this period, pilot activities for irrigation development, improvement of food crop cultivation skills, and cash crop cultivation skills will be implemented. Second pilot activities will also be prepared during this period.
3. Phase III (April 2020- July 2022): During this period second pilot activities will be implemented and 'Methods' will be finalised.

The chairman thanked Er. K.Hamlet for concise and informative presentation, and he invited all the members for discussion.

The Committee discussed in depth all the important points listed out in the presentation for proper implementation of the TCP. After due deliberations, the Joint Coordinating Committee (JCC) resolved the following points:

1. Appropriate budget from New Economic Development Policy (NEDP) or from other similar schemes should be kept by the government of Mizoram in a timely manner for execution of the 2nd pilot activities of the project.
2. Adequate budget should be kept by all the departments in a timely manner for Travel Allowance (TA), Daily Allowance (DA) and Lodging Expenses of their counterpart personnel for implementation of this TCP or the department may ask Finance Department for the same.
3. Marketing activities and post-harvest management will be under the responsibility of Agriculture & Horticulture department as laid down in the signed Record of Discussion.
4. The Committee took a note of the IFAD project being implemented by the government of Mizoram for similar goal and activities. Joint Coordinating Committee (JCC) would ensure synergy of both projects without duplication of works.
5. As close coordination / cooperation amongst the different departments is one of the keys to the success of this project, all the head of departments should

ensure that Project Management Team (PMT) and BAIDC are working cohesively to attain the common goal.

6. Public should be appropriately made aware of the achievements and works undertaken under this project through print media, signboards on sites, etc.
7. Appropriate training/exposure visits to other states like Himachal Pradesh, Nagaland etc. should be conducted for cross learning of their experiences in agriculture marketing, water management etc. as well as the training/exposure visits to Japan. The meeting also took notice of the experience shared by JICA wherein exposure visits by farmers had positive impact in changing the mindset of the farmers.
8. Difference in the extension boundaries in the field level of 4 line departments is mentioned in the meeting as one of the biggest possible obstacles for establishment of collaborative mechanism for planning and implementation. It was reported that Agriculture & Horticulture departments are in the process of resolving the issue. Joint Coordination Committee (JCC) is of the opinion that having the same boundary for circle levels under different departments will help in execution of this TCP.

The chairman then invited Er. Manoj Kumar Meena, Executive Engineer, CWC, NEID-II, Aizawl, a representative of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD & GR) for any comments, who informed that he believes TCP to be a very good project which can benefit Mizoram farmers and wished the project a great success.

On invitation from the chairman, Mr. H.Lalengmawia, IAS, Secretary, Irrigation & Water Resources thanked all the JICA India representatives for coming all the way to the extreme corner of the country to attend the meeting. He said that he is surprised to learn that the Chief Representative have come to Mizoram three times, which clearly shows his commitment and sincerity as well as those of the government of Japan to change the agriculture scenario in Mizoram into a strong and sustainable agriculture.

He also thanked JICA team members for their hard work in the preparation of a wonderful and very practical Master Plan for uplifting the livelihood of the farmers in Mizoram, but, he said, the Master plan, wonderful as it is, cannot do any magic unless it is acted upon. He once again thanked JICA for the TCP which would ensure the proper implementation of the Master Plan by enhancing the capacity of government officials as well as farmers of Mizoram.

Mr. H.Lalengmawia then thanked all the Secretaries to the Government of Mizoram for attending the meeting as they are the key persons for

successful implementation of the project and their participation is crucial to the project. He thanked the chairman Mr.Lalrinliana Fanai for his wonderful chairmanship and his great advice in the discussion. He also thanked Er.Manoj Kumar Meena, representative of MoWR,RD&GR for his keen observation and inspiring comment.

The chairman, Mr. Lalrinliana Fanai winded up the meeting at 3:00 pm by thanking all the members for their active participation and said that it has been a great experience to witness the discussion on TCP and wished the project a great success.

Sd/-H.LALENGMAWIA
Secretary, I&WRD
&
Secretary
Joint Coordination Committee (JICA)

Sd/-LALRINLIANA FANAI
Secretary Home and
Health & Family Welfare Department
Government of Mizoram
&
Chairman

Memo No.B:13020/1/2016-I&WR : Dated Aizawl, the 5th September, 2017

Copy to:-

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Ministry of Water Resources, River Development & Ganga rejuvenation, Govt. of India
3. Mr. Takema Sakamoto, Chief Representative, JICA India Office for information.
4. All Members concerned for information.
5. Guard file.

(C.LALSANGZUALA)
Joint Secretary to the Govt. of Mizoram
Irrigation & Water Resources Department

**ATTENDANCE SHEET
MEETING OF 1ST JOINT COORDINATION COMMITTEE**

DATE: 7.8.2017

No.	Name	Position	Department
1	Lalrinliana Fanai	Comm. & Secy.	Health & Home
2	Lalhmingthanga	Secy.	Agri., Horti., Rural Dev
3	Lalmalsawma	Secy.	Finance, Excise & Narc
4	C.Vanlalramsanga	Secy.	Planning, UD&PA
5	Sangdingliana	Secy.	LR,S&WC
6	H.Lalengmawia	Secy.	I&WRD, Power
7	Lalrotluanga	C.E.	I&WRD
8	C.Lalsangzuala	Jt.Secy.	I&WRD
9	Manoj Kumar Meen	E.E.	C.W.C.
10	Beizawzi T. Azyu	S.E. (W&D)	I&WRD
11	S.K.Das	S.E. (P&M)	I&WRD
12	Yodai Okuyama	Marketing	JICA Project Team
13	M.Takemura	Cash Crop	JICA Project Team
14	Takema Sakamoto	Chief Representative	JICA Project Team
15	Subroto Talukdar	Principal Dev Spl	JICA India
16	Akihiro Kimura	Representative	JICA India
17	Shigeki Yamaoka	Chief Advisor	JICA Project Team
18	Takashi Kurauchi	Irrigation, O/M, WUA	JICA Project Team
19	Takuya Saisho	Food Crop Cultivation	JICA Project Team
20	Hironori Inoue	Coordinator Training	JICA Project Team
21	K.Hamlet	Sr.E.E. (Works)	I&WRD
22	Isaac Malsawmtluan	Secy. (JICA)	
23	Jacinta Laltanpuui	A.E. (Works)	I&WRD

MINUTES OF 2nd MEETING

OF JOINT COORDINATION COMMITTEE (JICA)

Venue : Chief Secretary's Conference Hall
Time : Dt. 5th July, 2018 (Thursday), 11:00 am-1:00pm
Members present: List attached

In the absence of Pu Arvind Ray, I.A.S, Chief Secretary Mizoram and Chairperson, Joint Coordination Committee (JICA), Pu Lalnunmawia Chuaungo, Principal Secretary, Finance Department chaired the meeting. At the outset, the chairman welcomed all the members present, and thanked the representatives of the JICA India Office, New Delhi, for making it convenient to attend the meeting.

The chairman then invited Mr. Takayoshi Tange, Senior Representative, JICA India Office to give opening remarks on the project. Mr. Takayoshi Tange informed that JICA has a good cooperation with India and that JICA is making commitment every year for taking up new development projects in India, giving special attention to North East India. The projects to be implemented in these areas always required convergence of the line departments in order to have better outputs. He also emphasized the uniqueness of technical cooperation projects which are designed for a joint collaboration between India and Japan and stressed the need for sense of strong ownership by State Government for successful project implementation. He also mentioned about the need for security of JICA staffs and requested the State Government to ensure their safety in Mizoram during the project period.

Mr. K.Hamlet, Senior Executive Engineer, I&WRD briefly explained the background of JICA Technical Cooperation Project (TCP) through a Power-point Presentation. The project duration will be 60 months starting from July, 2017 and is expected to be completed by June, 2022. The overall goal of the TCP is expansion of '*Sustainable agriculture and irrigation development in Mizoram*' and the project purpose is '*Enhancement of Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development*'.

Three outputs are expected from the project, which are as follows:

OUTPUT 1: Development of "Methods for sustainable agriculture and irrigation development"

OUTPUT 2: Enhancement of Capacity of the state government officials for planning and implementation of sustainable agriculture and irrigation development.

OUTPUT 3: Establishment of 'Collaborative implementation framework among the state government departments in the field of sustainable agriculture and irrigation development'.

Mr. Hamlet explained that the primary project beneficiaries would be Mizoram government officials and that the secondary beneficiaries would be farmers of the four selected priority RD Blocks, namely Bilkhawthlir (in Kolasib district), Aibawk (in Aizawl district), Serchhip (in Serchhip district) and Champhai (in Champhai district) RD Blocks.

The Joint Coordination Committee (JCC), chaired by the Chief Secretary, Mizoram is the apex body responsible for implementation of the project at the State level. There is a 'Counterpart Team' comprising of 'Project Management Team' in the state level and 'Block Agriculture & Irrigation Development Committee (BAIDC)' at the block level.

The overall implementation plan is divided into three phases and Phase-1 is currently in progress. The activities involved in Phase-1 are:-

- i) Selection of 1st pilot villages
 - Buhchangphai in Bilkhawthlir RD Block
 - Sailam in Aibawk RD Block
 - Serchhip II in Serchhip RD Block
 - Hnahlan in Champhai RD Block
- ii) Preparation of 1st draft methods

The following draft guidelines and manuals are prepared by PMT and working group members:

 - Implementation guideline
 - Farm Management manual for sustainable agriculture
 - Strengthening Farmers' Organization
 - Construction Management of MIP
 - Strengthening of WUA for O&M for MIP
- iii) Preparation of development plan in pilot villages.

Under the implementation guidelines, Annual Activity Plan of BAIDC was formulated which consists of –

Hnahlan Village	: 5 projects
Sailam Village	: 7 Projects
Buhchangphai Village	: 5 projects
Serchhip II Village	: 3 projects

The activities taken up within these villages involve government officials and farmers. These activities include improvement of jhum cultivation,

improvement of paddy cultivation, promotion of vegetable cultivation in grape fields, walk-through survey for construction of MIP, etc. Several training and tour programmes for Govt. officials and farmers are also expected to be organized throughout the project duration.

It was mentioned that several issues and challenges arose while implementing the first phase of TCP. Although the project was regularly monitored with all BAIDC members after the commencement of the first pilot activities in the field in each RD block, only half of them actively participated due to late information, heavy work load and non-flexibility in utilization of the budget etc. In order to overcome this problem, the following points were proposed –

- To use low cost information system and communication tools such as Whatsapp to deliver a timely information to BAIDC and other stakeholders,
- To appoint Officers specifically responsible for execution of the 20 projects listed in the BAIDC annual activity plan 2018.
- To issue an official order to the field officers to regularly and actively monitor all the field works.

It was pointed out that the following points are necessary to achieve good quality work.

- Minor irrigation schemes should be implemented without any political intervention to achieve the project objectives.
- Strengthen technical knowledge and management skill and change the mindset of both govt. officials and farmers for good quality work.
- Since the overall goals and project target area of JICA TCP are somewhat similar as that of the IFAD, both should be collaborated and converged in areas such as implementing procedures and method of training for which, proper order for collaboration is needed from higher authorities.
- Provide basic needs in agriculture such as manures and fertilizers and improve the quality of agricultural services in the implementation of Annual Activity Plan.
- Although the project activities are publicized through local newspaper and Facebook, more should be done to actively update every activity during phase-1 of the project.

Project Design Matrix (PDM) indicators (which show progress on number of farmers trained, numbers of RD Blocks in which TCP is commenced, increase in farm income etc.) will be verified through monitoring data of concerned

departments, reports, survey and analysis of questionnaire and minutes of JCC meetings.

The activities under Phase-2 include preparation of work plan compiled with basic approaches, project activities, implementation structures and plan of operation of phase-2 activities. Activities related to *Irrigation and Farm Management Skill Development* which was prepared during phase-1 is also proposed to be implemented. BAIDC Annual Activity Plan 2019 will be prepared in consideration with feedback of 2018 activities and implemented which will be monitored by PMT. Selection of 2nd pilot villages will also start at the beginning of 2019. Basic training programmes for counterpart personnel are also prepared including two training programmes in Japan.

The Committee discussed in depth all the important points listed out in the presentation and approved the following:-

1. Progress report of activities taken up under TCP.
2. BAIDC Annual Activity Plan 2018 consisting of 20 projects.
3. PDM and Evaluation Indicators.

After due deliberations, the Committee also resolved the following points:

1. For efficient communication regarding activities under TCP such as BAIDC programmes, PMT meetings, workshops, trainings etc, the notices made through Whatsapp should be considered '*official*' and no additional order/document from head of the Department or Office is required.
2. Officer in-charge may be appointed by all departments for each pilot activities/projects listed in the BAIDC Annual Activity Plan 2018.
3. For collaboration of TCP with IFAD project, the committee suggested to contact Mr. Rohmingthanga Colney, Jt. Director (P&M), DOA.
4. Keeping of separate funds for JICA projects such as Travel Allowance (TA), Daily Allowance (DA) and Lodging Expenses is considered unnecessary as JICA activities are normal government works. The department heads are requested to communicate to BAIDC members of their respective departments regarding the usage of funds for JICA activities.
5. In order to make the trials in the demonstration farms in the pilot sites sustainable, the project should focus on utilizing the locally available resources. It was suggested that officers who are able to pass on the technical knowledge

acquired should be kept responsible for the project activities. The field officers should be on the ground, working hand in hand with farmers.

6. The PMT and BAIDC should seek early approval of *Project Implementation Guideline* and *officers' manual*.
7. For activities related to construction works, community contract without political intervention was suggested.
8. Although the *objectively verifiable indicators in PDM* suggested by PMT were generally accepted by the JCC members as a version 2, these should be reviewed after proceeding it with pilot activities in phase-2 in consultation with JICA head office if required.

The chairman, Mr. Lalnunmawia Chuaungo thanked all the members for their active participation.

Sd/-H.LALENGMAWIA
Secretary, I&WRD and
Secretary,
Joint Coordination Committee (JICA)

Sd/-LALNUNMAWIA CHUAUNGO)
Principal Secretary,
Finance Department etc.
Government of Mizoram
&
Chairman

Memo No.B.13020/1/2016-I&WR :
Copy to:-

Dated Aizawl, the 16th August, 2018

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Ministry of Water Resources, River Development & Ganga rejuvenation, Govt. of India
3. Mr. Takayoshi Tange, Senior Representative, JICA India Office for information.
4. All Members concerned for information.
5. Guard file.



(C.LALSANGZUALA)

Joint Secretary to the Govt. of Mizoram
Irrigation & Water Resources Department



Attendance Sheet

Date: 2018/July/05

Meeting Name: 2nd JCC Meeting

No.	Name	Position	Department	District or RD Block	Mobile	Email	Signature
1	Lalhumawia Chuauange	Principal Secy.	Finance				
2	Lalhmingthanga	Commissioner & Secy.	DoA & RD				
3	Lalengmawia	Secy.	I&WRD				
4	Rodney L. Ralte	Secy.	DoH				
5	Lalrotluanga	CE	I&WRD				
6	C. Lalsangzuala	Jt. Secy.	I&WRD				
7	Bezawzi T. Azyu	SP	I&WRD				
8	Hualthanga	Jt. Director	IRS&WCD				
9	Takayoshi Tange	Senior Representative	JICA India				
10	Subroto Talukdar	Principal Dev. Spl.	JICA India				



Attendance Sheet

Date: 2018/July/05

Meeting Name: 2nd JCC Meeting

No.	Name	Position	Department	District or RD Block	Mobile	Email	Signature
11	Mariya Watanabe	JICA Representative	JICA				
12	Shigeki Yamaoka	Chief Advisor	JPT				
13	T.Saisho	JICA Expert	JPT				
14	Lalthanzuala	Dy. Director	DoA (CH)				
15	K.Lalduhawma	Jt. Director	DoH				
16	K.Hamlet	Sr. IE	I&WRD				
17	James C. Lalengmawia	Cash crop cultivation & marketing expert	JPT				
18	B. Vanlalehluaga	Cash crop cultivation & marketing expert	JPT				
19	H. H. alramnghaki	Asst. for Irrigation, OM & FO	JPT				
20	Ruatkimi Varte	AE	I&WRD				



Attendance Sheet

Date: 2018/July/05

Meeting Name: 2nd JCC Meeting

No.	Name	Position	Department	District or RD Block	Mobile	Email	Signature
21	Lalruatfela	Asst. for Irrigation, OM & PO	JPT				
22	Malsawmdawngzela	Cash crop cultivation & marketing expert	JPT				
23							
24							
25							
26							
27							
28							
29							
30							

①

MINUTES OF 3rd MEETING
OF JOINT COORDINATION COMMITTEE (JICA)

Venue : Chief Secretary's Conference Hall
Date & Time : 18.02.2019 (Monday), 2:00 pm
Members present : 31 (List attached)

The chairman, Pu Lalnunmawia Chuaungo IAS, Chief Secretary welcome all members and thanked JICA team for their efforts and enthusiasm in the ongoing project. He also mentioned other JICA projects being undertaken in Mizoram and expressed his hope for success of the pilot projects under Technical Cooperation Project.

On invitation from the chair, Dr. Narihide Nagayo, Senior Technical Advisor of JICA shared his views on the ongoing TCP and stated the importance of the project for sustainable agriculture development which will ultimately increase the income of farmers. He mentioned that the purpose of their visit is to review the progress of the project and to make necessary suggestions for successful implementation of the project and reported the activities of the Review Mission Team during their visit.

Dr. Elizabeth Saipari, Director, Department of Horticulture and Member, Project Management Team (TCP) gave a power point presentation on the various activities of the 1st Pilot Projects. She described the standardization of procedure called 'Methods' which is expected to be legislated as a state guideline at the end of the project. The 1st Pilot villages were selected by the Block Agriculture & Irrigation Development Committee (BAIDC) formed in each block. BAIDC Annual Activity Plan is prepared before the month of February every year for each pilot village in consultation with farmers of the respective village by conducting Participatory Rural Appraisal (PRA) Workshop. Final approval of the plan is then obtained from Project Management Team before the AAP is implemented.

BAIDC Annual Activity Plan 2018 consists of 20 sub-projects out of which 19 projects are being implemented. The present activities under each pilot village are as under:-

Buhchangphai Village:

- Improvement of areca nuts productivity.
- Improvement of broom grass productivity.
- Improvement of profitability of paddy land.
- Introduce proper benefit sharing system between land owner and tenant farmer.
- Rehabilitation of Tuikhurlui Minor Irrigation Project.

Sailam Village:

- Improvement of Jhum cultivation
- Support for transition from Jhum to settled farming
- Improvement of orange productivity
- Development of Tuirum MIP
- Improvement of Paddy Productivity
- Promotion of Rabi cultivation
- Rehabilitation of Laului MIP

Serchhip-II:

- Upgrade Technical skills in vegetable cultivation to increase productivity
- Improve marketing system on vegetable
- Rehabilitation of Lumtui MIP

Hnahlan Village:

- Improvement of Jhum cultivation
- Promotion of vegetable cultivation in grape field
- Construction of Dilhnuai MIP
- Improvement of paddy productivity
- Promotion of Rabi cultivation

It was reported that progress on capacity development of each counterpart members were monitored. Number of trainings and tours had been conducted under TCP including one training programme in Japan.

In response to the chairman's question, Mr. Shigeki Yamaoka, Chief Advisor of JICA Project Team reported that the response of farmers is quite positive and are enthusiastic to participate in all the activities of the project.

The chairman then invited Review Mission Team for their presentation. Mr. Ryohei Chiyojima, Programme Officer and Dr. Narihida Nagayo reported the findings and results of the Review Mission Team using a power point presentation.

After the result of the discussions, Government of Mizoram and JICA Review Mission Team have reached a mutual understanding on the matters referred to the following contents.

1. Institutionalization of BAIDC

Consideration of countermeasures to ensure sustainability of BAIDC functions in post- project is necessary. Therefore, it is required to set up the action plan which includes drafting the state regulation of BAIDC, consideration of establishing inter-departmental council etc.

2. Capacity development of core trainers for dissemination of technical skills

- i. Human Resources Development who could assume technical training to field extension officers is urgent need toward the dissemination of the methods and skills produced by the Project in Mizoram. The core trainer's group, therefore, will be formed in BAIDC.

- ii. Although human resource transfer is inevitable, it should be minimized during the pilot project period.
- 3. Preparation of second pilot activities utilizing the government fund and resources
 - i. Government of Mizoram will ensure to prepare government fund for the implementation of second pilot activities by April, 2020. If Government of Mizoram could not prepare the fund, JICA will reconsider the inputs for the Project.
 - ii. For implementation of 2nd Pilot Activities, line departments were requested to make proposals which may be incorporated for funding under SEDP.
- 4. For concentration on the 2nd pilot activities, one target block and pilot villages will be reduced in 2nd pilot project
- 5. Government of Mizoram ensures the counterpart funds for the Project such as activity allowance for the smooth implementation of the activities

Keeping separate funds for JICA projects such as Travel Allowance (TA), Daily Allowance (DA) and Lodging Expenses is, however, considered unnecessary as JICA activities are considered as normal government works. If there is any fund constraint in this regard, departments were suggested to approach Finance Department.

6. Revision of Project design matrix

For details of the change please refer to the modified PDM attached (ANNEX

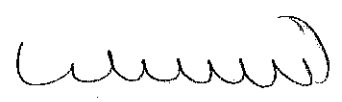
1)

Although representatives from JICA India Office were unable to attend the JCC meeting due to unavailability of flight, they had participated in the meeting online.

The chairman expressed his gratitude towards JICA team for their efforts and wished the project a great success. The meeting ended at 3:35 pm.



(Er. VALBUANGA)
 Secretary, I&WRD and
 Secretary,
 Joint Coordination Committee (JICA)



(LALNUNMAWIA CHUAUNGO)
 Chief Secretary
 Government of Mizoram and
 Chairman,
 Joint Coordination Committee (JICA)

Memo No.B.13020/1/2016-I&WR/266 :
Copy to:-

Dated Aizawl, the 3rd May, 2019

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Ministry of Water Resources, River Development & Ganga Rejuvenation, Govt. of India.
3. Mr. Takayoshi Tange, Senior Representative, JICA India Office for information.
4. Dr.Narihide Nagayo, Senior Technical Advisor, JICA, Tokyo for information.
5. All Members concerned for information.
6. Guard file.

Lalthlamuani 3/5/19
(LALTHLAMUANI)

qr Joint Secretary to the Govt. of Mizoram
Irrigation & Water Resources Department

Project Design Matrix

Version 3.0

Date : 18 February 2019

Project Title:	The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram
Implementation Agency :	Irrigation and Water Resources Department (IWRD), Department of Agriculture (DOA), Department of Horticulture (DOH), Land Resources and Soil and Water Conservation Department (LRSWCD) in the State of Mizoram, India
Target Group	Direct target: The state government officials (IWRD, DOA, DOH, LRSWCD) Indirect target: Farmers at the pilot RD blocks and other relevant organizations.
Period of Project:	July 2017 to July 2022 (5 years)
Project Site :	All of Mizoram State Pilot Rural Development (RD) blocks: Bilkhawthlir RD block (Kolasib district), Aibawk RD block (Aizawl District) and Champhai RD block (Champhai district) in Mizoram 1st pilot villages : Buhchangpai (Bilkhawthlir), Sailam (Aibawk) and Hnahlan (Champhai) 2 nd pilot villages : 1 villages will be selected in each pilot RD block

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
<p>Overall Goal: Sustainable agriculture and irrigation development* will be expanded in Mizoram</p> <p>* Sustainable agriculture and irrigation development must be economically viable, socially responsible and ecologically sound. These shall be achieved by uplifting the farmers' income with due regard to environmental conservation through proper assessment of farmers' needs, available resources and market opportunities.</p>	<p>1. Projects for sustainable agriculture and irrigation development are commenced in more than additional 4 blocks in Mizoram</p>	<ul style="list-style-type: none"> Monitoring data of IWRD, DOA, DOH and LRSWCD 			
<p>Project Purpose: Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation</p>	<p>1. The methods are approved by JCC, and officialised. 2. At least 2 activities based</p>	<ul style="list-style-type: none"> Minutes of the Meetings of JCC The official letter 	<ul style="list-style-type: none"> Policies of Central and Mizoram government on 		

6

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
development is enhanced.	<p>on collaborative implementation framework in each block are implemented by BAIDC in the 2nd pilot project</p> <p>3. Action plan to expand project output to all RD blocks and the Methods are endorsed by Chief Minister</p>	<p>from higher authority (Chief Minister)</p> <ul style="list-style-type: none"> • Technical Cooperation Project (TCP) Progress and completion reports 	<p>agriculture and irrigation development are maintained.</p>		
<p>Outputs:</p> <p>1. Methods* for sustainable agriculture and irrigation development are developed.</p> <p>* Methods comprise implementing guideline, officers' manuals, and training materials for farmers. The methods will be refined through pilot activities.</p>	<p>Indicators:</p> <p>1.1 Production of food crop is increased by 12.5% in pilot farmers in the first pilot villages.</p> <p>1.2 Farm income of cash crop is increased by 12.5% in the pilot farmers (excluding orchard or plantation farmers) in first stage pilot villages.</p> <p>1.3 50% of the technologies practiced in the pilot farmers are disseminated to other farmers in the first pilot villages</p> <p>1.4 More than 80% of village plan are implemented in the first pilot villages.</p> <p>1.5 Activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram gov.</p>	<ul style="list-style-type: none"> • Baseline survey reports. • Questionnaire survey and analysis • TCP Progress and completion reports • Finalized documentation of the methods 	<ul style="list-style-type: none"> • Majority of IWRD, DOA, DOH, LRSWCD staff who acquire the technologies under the Project are not transferred or resigned. 	<ul style="list-style-type: none"> • 	

Project Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions	Achievement	Remarks
<p>1. Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced.</p>	<p>2.1 More than 60% of the nominated counterparts achievement goal set by them. 2.2 More than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development</p>	<ul style="list-style-type: none"> Established achievement goal Questionnaire survey and reports 			
<p>2. Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.</p>	<p>3.1 Action plan to expand project output to all RD blocks in Mizoram is prepared by PMT</p>	<ul style="list-style-type: none"> Finalized Action Plans 		<ul style="list-style-type: none"> Communication among 4 departments were encouraged after forming PMT and BAIDC which will contribute to the establishment of collaborative implementation framework Through the preparation of method in the working group discussion, the platform to collaborate each department are gradually established. 	

Activities	Input		Important Assumptions
	Japan	Mizoram	
<p><Formulation of draft Methods in the first pilot villages></p> <p>1.1 Conduct baseline survey (Satellite image, GIS data, land use, farming situation, and socio-economic conditions) in order to understand the current situation of pilot RD blocks.</p> <p>1.2 Collect and analyze existing guidelines, manuals and training materials in specific subjects* and draft the methods.</p> <p>1.3 Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation and monitoring at each pilot RD block.</p> <p>1.4 Select one pilot village in each pilot RD block.</p> <p>1.5 Conduct participatory rural appraisal (PRA) and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.</p> <p>1.6 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Project fund and resources.</p> <p>1.7 Monitor and evaluate the progress and results of the activities by BAIDC.</p> <p>1.8 Revise the methods for agriculture and irrigation development according to the results of activities.</p> <p>1.9 Conduct follow-up activities.</p> <p><Verification and refinement of the methods in the second pilot villages></p> <p>1.10 Select two or three pilot villages in each pilot RD block.</p> <p>1.11 Conduct PRA and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.</p> <p>1.12 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Government fund and resources.</p> <p>1.13 Monitor and evaluate the progress and results of the activities by BAIDC.</p> <p>1.14 Finalize the methods.</p>	<p>1) Personnel/ Experts</p> <ul style="list-style-type: none"> - Chief Advisor/Development Planning - Irrigation / O&M / Farmers' Organization (1) - Food Crop Cultivation Technologies and Farmers' Organization (2) - Cash Crop Cultivation Technologies (1) & (2) - Marketing - Land Use and Resources Management - Environmental and Social Considerations - Project Coordinator/Training <p>2) Equipment</p> <ul style="list-style-type: none"> • Satellite image map (if necessary) • Machineries and equipment necessary for offices, surveys, activities in the pilot villages (such as irrigation facilities) <p>3) Counterpart Training</p> <ul style="list-style-type: none"> • Training in other states of India • Training in Japan 	<p>1) Personnel Counterpart (C/P) personnel of related departments</p> <p>2) Equipment/facilities Office space at MID in Aizawl, Kolasib, Serchhip and Champhai</p> <p>3) Others Travel expenses and allowances for C/P personnel</p>	<ul style="list-style-type: none"> • Climate change does not affect agricultural production drastically. • Activities in the pilot villages are not restricted due to natural disaster • Farmers in pilot villages are willing to participate in the Project activities • Central and Mizoram government provide enough fund to implement activities in the second pilot villages.

Activities	Input		Important Assumptions
	Japan	Mizoram	
* Subjects comprise of i) land-use plan, ii) resource management plan, iii) village farming plan, iv) village irrigation plan, v) design, construction and operation & maintenance (O&M) of small-scale irrigation facilities, vi) establishment and strengthening of water users' associations, vii) dissemination technologies of food and cash crop production, viii) dissemination skills on farm management and marketing etc.			
<p><Capacity enhancement of the state government officials></p> <p>2.1 Assess the technical level of the counterpart (C/P) personnel and set up goals of capacity enhancement.</p> <p>2.2 Conduct study tours to learn domestic and foreign advanced practices.</p> <p>2.3 Conduct basic trainings to the state government field staff</p> <p>2.4 Conduct on the job training (OJT) through activities in the pilot villages.</p> <p>2.5 Verify the achievement of the goals set by C/P personnel.</p> <p>2.6 Organize seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the Project.</p>			
<p><Establishment of collaborative implementation framework among the state government departments></p> <p>3.1 Prepare a collaboration and cooperation framework (institutional and organizational structure, budget allocation, decision-making process etc.) among state departments relating to agriculture and irrigation development in Mizoram based on the activity 1 and 2.</p> <p>3.2 Elaborate an action plan to expand project outputs to all RD blocks in Mizoram.</p>			

Abbreviations: Block Agriculture and Irrigation Development Committee (BAIDC), Rural Development (RD), Technical Cooperation Project (TCP)

**MINUTES OF 4TH MEETING
OF JOINT CO-ORDINATION COMMITTEE,
TECHNICAL COOPERATION PROJECT**

Venue : Chief Secretary's Conference Hall
Date & Time : 22.11.2019 (Friday), 11:00 AM
Members Present : 26 (list attached)

The chairman, Pu Lalnunmawia Chuaungo IAS, Chief Secretary welcomed all the members and expressed his gratitude to JICA team for their efforts and enthusiasm in the ongoing Technical Cooperation Project. He stated that the system of bottom-up approach and convergence among the departments in implementing TCP is highly required for development of agriculture in Mizoram and expressed his hope for success of the project. He thanked JICA for other on-going JICA projects in Mizoram such as construction of NH-54 and for their technical and financial support.

On invitation from the chair, Mr. Katsuo Matsumoto, Chief Representative, JICA India Office shared his views and stated that JICA focuses on the North Eastern States; in line with the Act East Policy of India. He mentioned that Mizoram is an ideal place for development considering its location and its rich natural resources such as bamboo. He expressed his appreciation for the cooperation of Mizoram government in implementing the project and the necessity to attract the attention of policy makers as well.

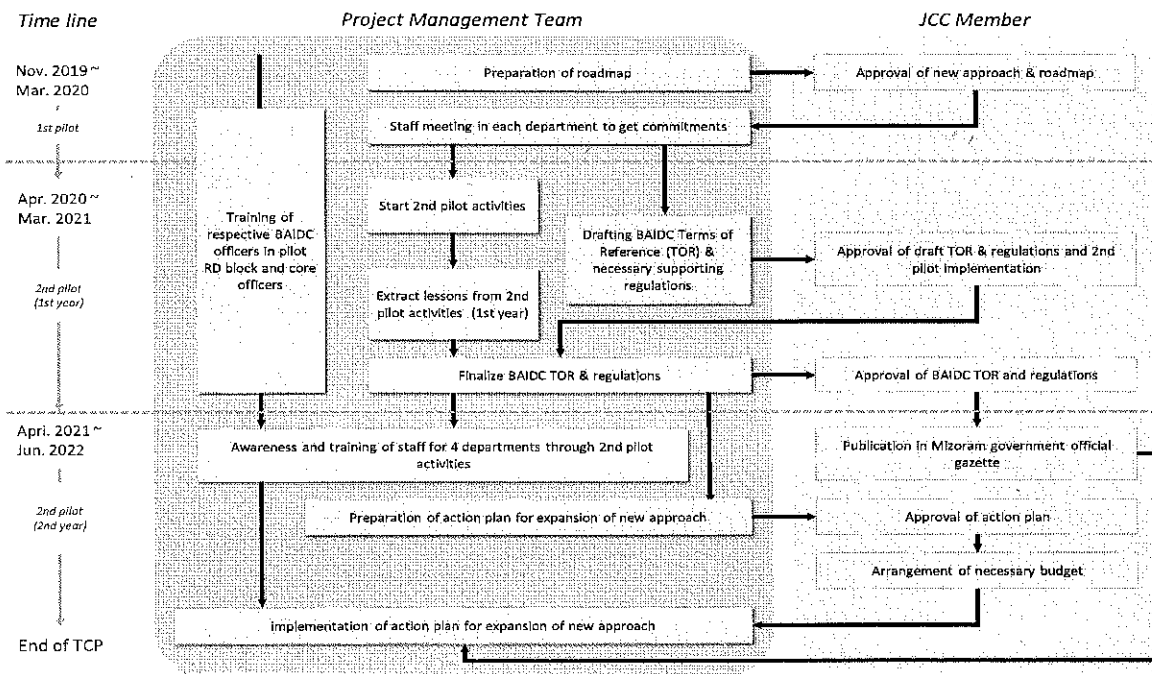
Er. K.Hamlet, PMT Member & Sr.EE(W), I&WRD and Ms Lalnunpuui Parte, BAIDC Member & SMS, Agriculture Dept. presented the following agenda using a powerpoint presentation.

- (1) Roadmap for institutionalization of "Method" and "BAIDC System"
- (2) Necessary budget for implementation of 2nd pilot activities

Er. K.Hamlet briefly explained the background, implementing structure of TCP and the role of JCC in it. He mentioned that the 'New Approach' for sustainable agriculture and irrigation development was first drafted by PMT and working groups which is expected to be institutionalized as a state guideline at the end of the project. This bottom-up approach is being tested in 4 Pilot RD Blocks where BAIDC (Block Agriculture & Irrigation Development Committee) are the main implementers. BAIDC prepares Convergence plan of each RD Blocks annually by considering farmers needs and are implemented after obtaining approval of PMT. Implementation of Agriculture Extension and Construction services are carried out based on drafted Officers' Manual. Achievements of 1st Pilot Projects showed that farmers are quite happy with the system of approach as they are able to obtain all information and help in different sectors like irrigation and crops at the same time. Through this approach, it was reported that production of paddy has increased upto 3 times more than the previous year in some pockets. Farmers' feedback also showed that they have improved their capacity in construction of irrigation facilities and in accounting through introduction of Community Contract.

Ms. Lalnunpuii Parte presented the findings at Tokushima Prefectural Government during 2 weeks training in Japan. She said that all allied sectors of agriculture are converged into one Agriculture Department and agriculture of the whole prefecture is looked after by 7 Agriculture Support Centers which serve as 'One Stop Service' centers for farmers, providing extension services in cultivation skills and marketing, infrastructure rehabilitation and management. Extension Workers Action Plan is prepared by the Support Centers by incorporating the govt. policies and farmers' requirements. She mentioned that although 60 to 70 % of the total budget is obtained from CSS, the prefecture government does not simply adopt as it is, but instead utilizes it to implement their own Master Plan to achieve their goals. Then she compared the case of Tokushima Prefectural Govt. with that of the present system followed in TCP.

Er. K.Hamlet then presented and explained the road map for institutionalization of the system as shown below:



He reported that the agenda had been discussed within each allied departments several times as well as in the PMT Meetings. The Chief Representative commented that Road-map is an essential key for institutionalization without which, the chance of project success is very low.

Moving on to the second agenda, it was reported that for 2nd phase of the project 3 villages (Bilkhawthlir 'N', Tlangsan and Lamchhip) have been selected for pilot activities, awareness meeting done and Annual Activity Plan 2020 have been prepared for all three villages. PMT have worked out on the budget for implementation of those pilot activities in those villages for 2020-2021, and the additional budget, apart from the normal departmental schemes have been worked out and suggested source of fund to meet the requirement is as laid out below (Refer Attached BAIDC AAP 2020):-

BN-03 : To control and reduce stream bank erosion

>> Rs. 14 Lakh for construction of check dams, spur and gabion structure from SEDP

BN-04: Rehabilitation and extension of Lungzawn MI Project

>> Rs. 4.50 Lakh for rehabilitation of Lungzawn M.I.Project & extension of channel from SEDP

TL-01 : Improvement of WRC area productivity

>> Rs.162 Lakhs for irrigation facilities from NABARD

>> Rs. 25 Lakh for terrace construction from SEDP

LA-01 : Restoration of Abandoned WRC

>> Rs.100 Lakhs for irrigation facilities NABARD

>> Rs. 25 Lakh for construction of half moon terrace from SEDP

Total requirement (apart from normal CSS scheme)

SEDP = Rs. 44.00 lakh

NABARD = Rs. 262.00 lakh

It was mentioned that the estimated cost will be refined through DPR preparation which will be completed by June 2020.

After due deliberations, the committee resolved that:

1. The roadmap prepared by PMT is appropriate for institutionalization of BAIDC System and is approved by JCC.
2. The fund required for implementation of 2nd pilot activities should be provided by Mizoram government as proposed as it is agreed in the Record of Discussion signed by both JICA and Government of Mizoram.


Apart from approving both the agendas, the Committee also made the following comments and suggestions:-

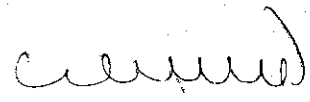
1. Re-organization of departmental structure may be required if the new approach is to be institutionalized.
2. Good communication must be maintained between farmers and extension workers in order to understand the actual needs of farmers and for the farmers to have a true sense of ownership.
3. Arrangements may be made for group of farmers to visit JICA projects in and outside Mizoram so that they may have some exposure.
4. The project must be integrated with KVKs to get maximum benefits as KVKs are the knowledge centres for development of agriculture.

5. As the overall goals and target area of TCP (JICA) are similar to that of the IFAD, both should be collaborated and converged in some areas.
6. Encourage entrepreneurship and set up proper market system through TCP as farmers will be more encouraged if market is secure.
7. CWC agreed to seek the possibility to include the 2nd pilot projects in District Irrigation Plan.
8. It was also suggested to include the 2nd pilot projects in RIDF 27 under NABARD.

Vote of thanks was proposed by Er.Valbuanga, Member Secretary, JCC & Secretary, I&WRD etc. especially to JICA delegates and thanked all the members for their contribution in the deliberation.

The chairman wined up the meeting at 12:30 PM.


 (VALBUANGA)
 Secretary, I&WRD and
 Secretary, JCC


 (LALNUNMAWIA CHUAUNGO)
 Chief Secretary,
 Govt. of Mizoram
 & Chairman, JCC


Memo No.B.13020/1/2016-I&WR

Dated Aizawl, the 7th Jan., 2020

Copy to:-

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India for favour of information.
3. Mr. Katsuo, Matsumoto, Chief Representative, JICA India Office for favour of information.
4. All Members concerned for information.
5. Guard file.

Chief Adviser, JICA Project Team


 (LALTHLAMUANI)
 Joint Secretary to the Govt. of Mizoram
 Irrigation & Water Resources Department

BAIDC Annual Activity Plan : Bilkhawthlir North in 2020

Date: 15th November 2019

Area / Farming type	ID No.	Name of Plan	Approach	Expected Outcome	No.	Implementation Procedure/Activity (Timeline of Activity)																								No. of Farmers	Cost (Rs.)	Responsible Dept.	Responsible Officers	Fund Resources	Remarks						
						2020												2021																							
						Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar																				
Irrigated upland area at Chemphui	BN-02	Improvement of vegetables productivity of Mizo farmers	1) Introduce quality vegetable seeds 2) Introduce improved package of practices 3) Introduce INM and IPM practices 4) Improvement of water management system. 5) Involvement of mizo farmers in vegetable cultivation and	1st year: Improvement of farmers knowledge on modern production technologies. 2nd year: Increase farmers income atleast by 50% 3rd year: Reduce cost of cultivation by increasing benefit to cost ratio.	1)	Select pilot farmers among mizos (already done)																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP							
						2)	Have awareness meeting with pilot farmers																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP						
							3)	Conduct training for pilot farmers																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP					
								4)	Procure seeds/ input																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP				
									5)	Monitor and collect data on cultivation																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP			
										6)	Evaluation																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP		
											7)	Reporting																								10	to be estimated	DOH	C Lalremsiana, DHO Kolasib	RKVY,MIDH,PMKS Y/SEDP	
												Total																													
Stream Bank Erosion Control for WRC	BN-03	To control and reduce stream bank erosion and protect the cropland from huge loss of fertile soil.	1) Construction of gabionic structure for erosion susceptible areas along the river side. 2) Construction of checkdams at convenient intervals to reduce the flow of run off 3) Construction of river spur to divert the flow at places where turbulence of water is high. 4th Year: Crop production will be increased as cropland is protected from loss of fertile.	1)	Procurement of materials/inputs																								13	to be estimated	LRS&WCD	V Vanlawma, DO Kolasib	CSS/SEDP								
					2)	Constructional activities																								13	to be estimated	LRS&WCD	V Vanlawma, DO Kolasib	CSS/SEDP							
						3)	Monitoring																								13	to be estimated	LRS&WCD	V Vanlawma, DO Kolasib	CSS/SEDP						
							4)	Evaluation																								13	to be estimated	LRS&WCD	V Vanlawma, DO Kolasib	CSS/SEDP					
								5)	Report																								13	to be estimated	LRS&WCD	V Vanlawma, DO Kolasib	CSS/SEDP				
									Total																																
Maintenance of WRC area	BN-04	Rehabilitations and Extensions of Lungzawn M.I Project	1) Rehabilitations of existing channel 2) Extensions of existing channel 2nd year: To enhance farmers economy	1)					Walk-through survey with the pilot farmers																								20	to be estimated	I&WRD	P Lalnuithara, SDO Kolasib Sub-Division	CSS/SEDP				
					2)				Preparations of DPR																								20	to be estimated	I&WRD	P Lalnuithara, SDO Kolasib Sub-Division	CSS/SEDP				
						3)			Constructions and supervision (by Departmental)																								20	to be estimated	I&WRD	P Lalnuithara, SDO Kolasib Sub-Division	CSS/SEDP				
							4)		Conduct O & M training to the pilot farmers																								20	to be estimated	I&WRD	P Lalnuithara, SDO Kolasib Sub-Division	CSS/SEDP				
								5)	Conduct final inspection																								20	to be estimated	I&WRD	P Lalnuithara, SDO Kolasib Sub-Division	CSS/SEDP				
									6)	Commissioning of the facilities to the WUA																								20	to be estimated	I&WRD	P Lalnuithara, SDO Kolasib Sub-Division	CSS/SEDP			
										Total																															

**MINUTES OF 5TH JOINT CO-ORDINATION COMMITTEE MEETING,
TECHNICAL COOPERATION PROJECT (JICA)**

Venue : Chief Secretary's Conference Hall
Date & Time : 15.12.2020 (Tuesday), 11:00 AM
Attendance list : 23 members(11 at CS Conference hall and 12 through VC)

Mr. JC Ramthanga IAS, Addl. Chief Secretary chaired the meeting. He welcomed all the members and expressed his gratitude to JICA team for their efforts and contribution in implementing the ongoing Technical Cooperation Project.

Mr. Kengo Akamine, Sr. Representative, JICA India Office gave a brief remark and expressed his appreciation to Mizoram govt. for taking up the TCP activities in spite of the Covid-19 outbreak. He mentioned that N.E states are considered priority by JICA for implementation of development projects in India.

On invitation from the chair, the following agenda were presented using a power-point presentation.

- (1) Progress and issues of project work.
- (2) Approval of BAIDC Terms of Reference for institutionalization of 'New Approach'.
- (3) Necessary budget for implementation of 2nd pilot activities (specially irrigation works).

Er. K. Hamlet, Sr. EE(W), IWRD explained that the ongoing MizoCESAID, Technical Cooperation Project was implemented as a first approach to achieve the goal of the Master Plan. He showed the overall Implementation Plan which is divided into 3 phases where the project is presently in the third phase. He said that several draft manuals and guidelines are being developed under this project which are being tested during the implementation of 1st and 2nd pilot activities through a system called, 'The BAIDC System'. These draft manuals and guidelines are being constantly revised and upgraded according to the feedback and success of activities in the Pilot Villages. The 1st Pilot Villages were Buhchangphai, Hnahlan, Sailam and Serchhip-II and 2nd Pilot Villages were Bilkhawthlir North, Tlangsam and Lamchhip.

Progress and issues of project work.

Er. Melony Zoremsangi, BAIDC Member & SDO, IWRD reported the progress of activities in 1st and 2nd Pilot Villages. She said that the main activities in 1st pilot Villages were completed and the following Follow-up activities were being implemented.

Buhchangphai Village, Bilkhawthlir RD Block:-

- i. Improvement of Areca Nuts Farming Profitability
- ii. Improvement of Broom Grass Productivity
- iii. Improvement of WRC area Productivity

Hnahlan Village, Champhai RD Block:-

- i. Promotion of Vegetable Cultivation in Grape Field
- ii. Improvement of Paddy Productivity

Sailam Village, Aibawk RD Block:-

- i. Improvement of Orange Productivity
- ii. Improvement of WRC Productivity

It was reported that the productivity of WRC at Sailam was lower as compared to the other villages due to viral infection on paddy. Some activities such as yield survey and trainings could not be conducted due to outbreak of Covid-19. Apart from these drawbacks, it was reported that the mindset and technical capacity of farmers have improved with better relation with BAIDC members.

The following activities were being implemented in 2nd Pilot Villages:

Bilkhawthlir North, Bilkhawthlir RD Block:-

- i. Increase Production of Paddy and Productivity of WRC Area
- ii. Improvement of vegetables productivity
- iii. To control and reduce stream bank erosion and protect the crop land from huge loss of fertile soil

Tlamsam, Champhai RD Block

- i. Increase vegetable production in Kharif
- ii. Promotion of vegetable cultivation in Rabi
- iii. Improvement of WRC area productivity
- iv. Introduction of Rabi crops

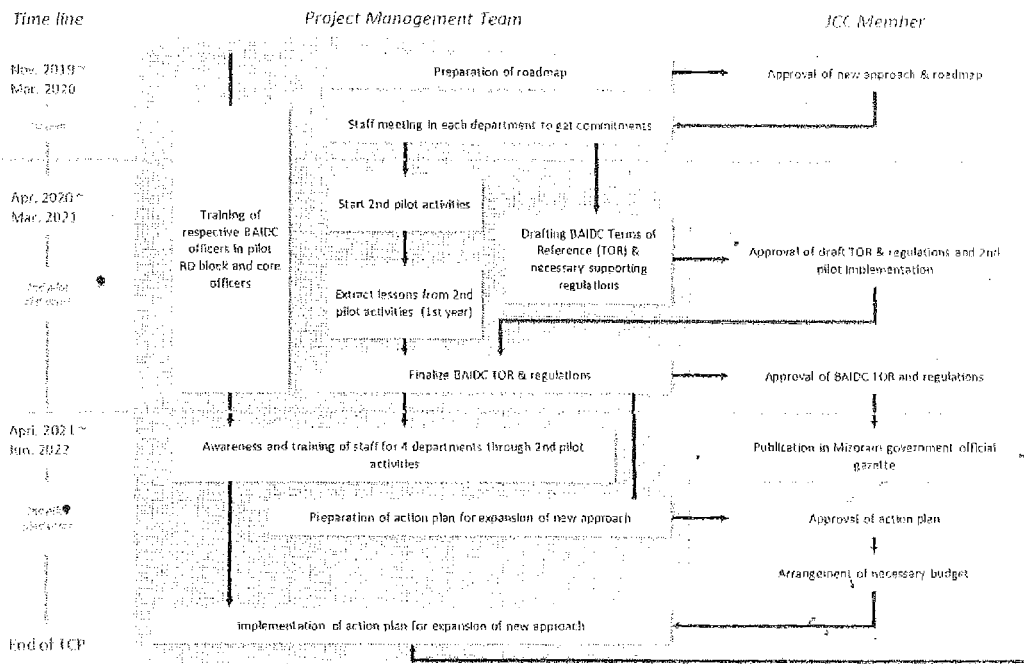
Lamchhip, Aibawk RD Block

- i. Achieve sustainable vegetable cultivation
- ii. Enhance paddy production
- iii. Promote Rabi crops

It was reported that in spite of the pandemic, most of the activities in the BAIDC Annual Activity Plan could be achieved by BAIDC. However, fund for new construction of irrigation facilities is yet to be allocated.

BAIDC Terms of Reference for institutionalization of 'New Approach'.

Er. K. Hamlet mentioned that one of the most important characteristics of the TCP is the formulation of a new system called '**The Block Agriculture & Irrigation Development Committee (BAIDC) System**' and explained the characteristics of the system. It was described as a participatory bottom-up approach which is expected to be institutionalized at the end of the project. He mentioned that all schemes/programmes related to agriculture development in the State, regardless of its source of funding, will be executed in Mizoram through and by this System only, once this new system is institutionalized. For institutionalization of this system, a Road-map had been approved in the 4th JCC Meeting on 22nd November, 2019 as shown below.



It was reported that most of the activities in the 1st and 2nd phase of the timeline had been completed except the 'Staff meeting in each department to get commitments' and 'Training of respective BAIDC officers in pilot RD Blocks and Core Officers' due to the pandemic. The draft BAIDC TOR had been prepared by the Working Committee and approved by Project Management Team in Oct, 2020.

Then he explained in detail the contents of the draft BAIDC TOR (attached). The changes in the present agricultural system that are expected to occur after institutionalization of the BAIDC System were described as follows: -

- Change-1: BAIDC will be established in all 26 RD Blocks.
- Change-2: Four departments (DoA, DoH, LRS&WCD, IWRD) and farmers will jointly prepare plan and the departments will implement and monitor each activity. All CSS / state project and any other available budgets for agricultural and irrigation development works will be executed and incorporated with the BAIDC plan.
- Change-3: BAIDC Annual Plan will be explained to farmers before implementation. The plan will be prepared by considering the village's available resources, farmers' potential, interest and challenges.
- Change-4: After completion of 1-year activity, evaluation and feedback will be collected from farmers and prepare the next year plan based on that.
- Change-5: Conduct necessary technical trainings for farmers by referring to the contents of the manuals - Manual for Improving Agricultural Extension, Construction Management Manual and Manual for Enhancement of O&M capacity.

After due deliberation, the meeting approved the draft BAIDC Terms of Reference and suggested that all the implementing departments give written commitment to BAIDC System.

As for the budget/fund requirement for the implementation of irrigation facility in the 2nd pilot activities, it was reported in the meeting that it has been decided to include it in the RIDF XXVII, which is likely to be submitted in February, 2021.

The chairman duly noted the suggestions and comments from the JICA officials as well as from CWC, Shillong as listed below:

1. To compile the success stories of farmers.
2. Keeping records of activities to know the effectiveness of the project
3. To establish BAIDC in RD Blocks and start functioning in the final year of the project.
4. To incorporate Marketing Plan and Post-harvest Management Plan in the village plan
5. To get RD department more involved in operation of BAIDC System
6. To have better coordination with Commerce & Industries Department.
7. To utilise organic manure in the implementation of TCP.
8. To introduce hydroponics amongst the farmers under TCP.

Vote of thanks was proposed by Ms. Sangchhin Chinzah, Member Secretary, JCC & Secretary, IWRD. She thanked JICA delegates and all the members for their contribution in the deliberation.

The chairman winded up the meeting at 12:30 PM.

Sd/- SANGCHHIN CHINZAH
Secretary, I&WRD and
Secretary, JCC

Sd/- J.C RAMTHANGA
Addl. Chief Secretary,
Govt. of Mizoram
& Chairman

Memo No. B.13020/1/2020-I&WR/80

Dated Aizawl, the 18th December, 2020

Copy to:-

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India for favour of information.
3. Mr. Katsuo Matsumoto, Chief Representative, JICA India Office for favour of information.
4. All Members concerned for information.
5. Guard file.


(B.ZAMKHUAWNANGA)

Under Secretary to the Govt. of Mizoram

MINUTES OF 6TH JOINT CO-ORDINATION COMMITTEE MEETING, TECHNICAL COOPERATION PROJECT (JICA)

Venue : Conference Hall, Secretariat Building, MINECO, Aizawl
Date & Time : 06.12.2021 (Monday), 12:00 PM
Attendance list : 21 members (18 at Conference Hall and 3 through VC)

Dr.Renu Sharma IAS, Chief Secretary chaired the meeting. She welcomed all the members and expressed her gratitude to JICA team for their partnership and contribution in implementing the Technical Cooperation Project. She briefly mentioned the three levels in which TCP functions and the convergence plan of allied departments through bottom-up approach.

Mr. Nuruki Yohei, Program Officer, Agriculture and Rural Development Department, JICA Hqr, Tokyo gave a brief remark and said that regardless of the lockdowns in Mizoram due to Covid-19 that affected the project activities, work had been resumed and was looking forward for a successful result.

On invitation from the chair, Er.K.Hamlet, Sr.EE, IWRD gave a power-point presentation on the following agenda.

1. Progress Report and achievements
2. Approval of Operational Guidelines and Institutional set up of BAIDC System with Publication in the Mizoram Official Gazette
3. “Action Plan” for BAIDC System operation and necessary budget in FY 2022-23
4. Work plan till March, 2022
5. Project evaluation through “End-Line” survey

1. Progress and Achievements

Mr. K.Hamlet, explained that the ongoing Technical Cooperation Project, called ‘Mizo-CESAID’, was implemented as a first approach to achieve the goal of the ‘Master Plan’ prepared by JICA for sustainable agriculture in Mizoram and the Record of Discussion for JCC was signed on 26th Oct, 2017. He showed the Implementation Structure consisting of JCC at the top, PMT at department level, JICA Project Team and BAIDC at the block level to directly interact and work with the farmers. He stated the goal of TCP and explained the three outputs of the project. He said that several draft manuals and guidelines were developed under this project which were tested and refined during the implementation of 1st and 2nd pilot activities through a system called, ‘The BAIDC System’. The roadmap of this new system was approved by JCC in November, 2019.

Then he reported the on-going follow-up activities in the 1st and 2nd Pilot Villages and showed the following department-wise budget of 2nd Pilot projects:

- DOA – Rs. 16.88 lakh
- DOH – Rs. 20.51 lakh
- LRS&WCD – Rs. 17.43 lakh

- IWRD – Rs. 349.75 lakh
- Total - Rs. 404.57 lakh

It was reported that fund for some activities of IWRD, though sanctioned from NABARD, is not yet received by the department.

Lesson learnt through field trials were reported as follows:

- i) Adopting the bottom-up approach for planning helped to focus on the actual need of farmers and resulted in their better participation and rate of success.
- ii) Yield of paddy was greatly improved due to timely intervention of extension officers as per the BAIDC Annual Activity Plan.
- iii) Converged planning helped in timely preparation of land for the next cropping season thus increase in productivity of land. Yield of paddy had increased from 2-2.5 ton/Ha to more than 5 ton/Ha in some pilot sites.
- iv) Farmers were more convinced to change from jhum to settled farming when joint demonstrations were made.
- v) Proper monitoring plan improved the services of extension officers as well as the farmers.

He further reported that, due to the positive impacts of the implementation system on productivity and farmers attitude, PMT thought that the system needed to be a formal state system in order to have sustainable agriculture development in the state. Although CSS fund is expected to be applicable, flexible planning is required in case of delay in funding.

Mr.K.Hamlet reported that overseas training had been conducted twice in Japan for BAIDC and PMT members in which 18 officers from all four implementing departments had participated. It was also reported that the concerned departments nominated two Core Training Officers each and were also given training several times. He said that farmers were quite happy with the convergence and bottom-up approach that enable them to discuss any agriculture related issues at once.

2. Approval of Operational Rules and Institutional set up of BAIDC System with Publication in the Mizoram Official Gazette

Mr.K.Hamlet said that development of sustainable agriculture system is the main target of this TCP, hence this new system called ‘BAIDC System’ is developed. Operational Guidelines of the ‘BAIDC System’ was prepared based on the activities of 1st and 2nd pilot projects which was already approved by the PMT. Then he explained in details the proposed Implementation Structure and contents of the Operational Guidelines of BAIDC System. He mentioned that the guideline, if approved by JCC would be put up for obtaining approval of competent authority and finally be published in the Mizoram Gazette.

It was also mentioned that an External Expert Team composed of University, NGO and Bank personnel would be established to monitor the project.

The Secretary, Planning Dept. enquired whether it would be more appropriate to include horticulture in the name of the new system proposed as the department is also a part of the implementing departments.

3. **“Action Plan” for BAIDC System Operation and Budget in FY 2022-23**

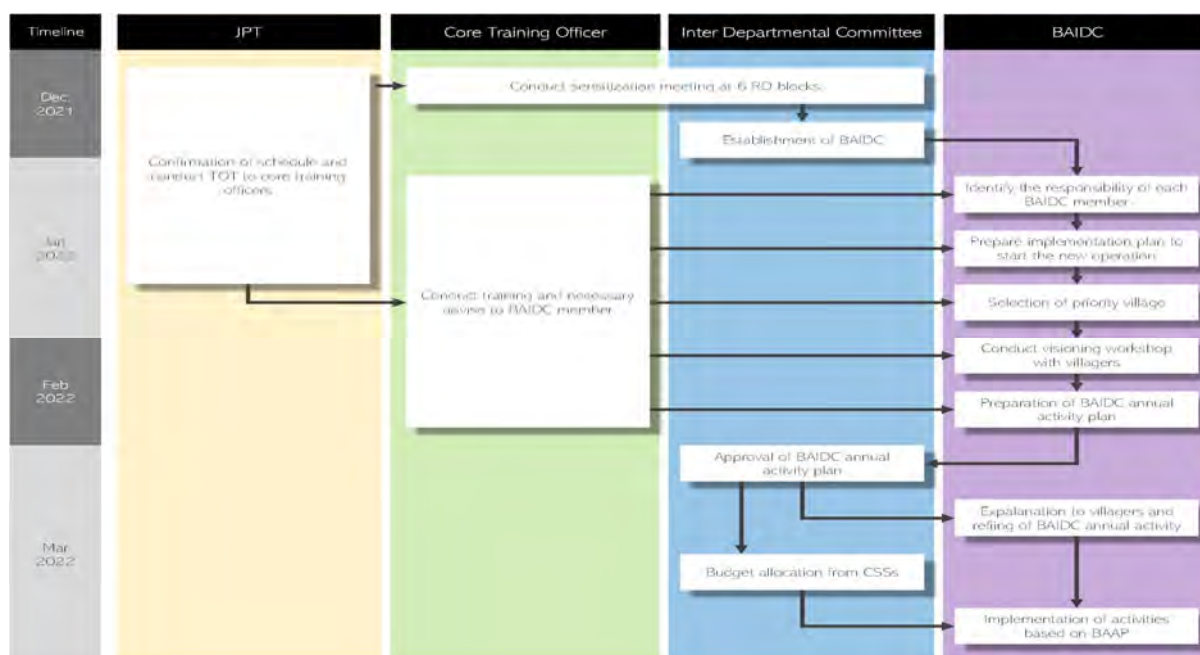
Stage-wise approach would be followed for expansion of the system for a period of 6 years from 2021-22 to 2026-27. BAIDC would be established in all 26 RD Blocks in three batches as follows:

- 2021-22 – 1st Batch (6RD Blocks)
- 2022-23 – 2nd Batch (10 RD Blocks)
- 2023-24 – 3rd RD Batch (10 RD Blocks)

The budget for implementation of Action Plan during FY 2022/23 was 8.445 lakh. It was stated that the budget was mainly for trainings and small activities only.

4. **TCP Work Plan till March, 2022**

The following work schedule for commencement of BAIDC System was shown and explained:



5. **Project Evaluation through “End-Line” Survey**

It was explained in the meeting that the main purpose of the survey was to collect information on the degree of achievement of the project goals and outputs specified and agreed in the PDM. The information and analysis results collected through the work would be used for future improvement of project management and necessary additional inputs. The survey would be conducted during November 2021 to January 2022 by Dr. James L.T. Thanga, Associate Professor, Department of Economics, MZU and his team. The Evaluation Indicators and Method of survey was explained in brief.

As the JCC Members, PMT, BAIDC, Pilot farmers and Monitoring Committee members were the informants in the survey, Mr. Hamlet requested the time and cooperation of JCC members for the up-coming End-Line Survey.

The chairman duly noted the suggestions and comments from the JICA officials and after due deliberations the meeting resolved the following points:

1. The meeting approved the following Operational Rules and Institutional set up of BAIDC System with the condition that it be approved by all relevant departments.

Name of Committee	Members	ToR
Block Agriculture and Irrigation Development Committee (BAIDC)	District and block level officers of IWRD, DoA, DoH, LRS & WCD, Krishi Vigyan Kendras (KVK) and Agriculture Technology Management Agency (ATMA) Other relevant organization (as and when required) as special invitees	Phasing of villages for BAIDC activities. Preparation of Long-Term Plan for Village Agricultural Development Preparation of 5 years Plan. Preparation and execution of Annual Activity Plan (AAP)
Inter-Departmental Committee (IDC)	Chairperson – Secretary, IWRD Member Secretary - Chief Engineer, IWRD Members- <ol style="list-style-type: none"> 1. Director Agriculture department 2. Director, Horticulture department 3. Director, LRS&WCD 4. Superintending Engineer (W&D) of IWRD 5. Addl. Director/Jt. Director (P&M) of DoA 6. Addl. Director/Jt. Director (Planning) of DoH 7. Jt. Director (W&M) of LRS & WCD 8. Dy. Director (F&QS) of DoA 	Check & Compile Annual BAIDC plan for making State level Agricultural & Irrigation Development Plan and send to SLCC for approval. Appointing of Chairman and Member of BAIDC for each RD block. Monitor and evaluate the progress and results of the activities of BAIDC. Conduct/facilitate training to BAIDC members and farmers.

<p>State Level Coordination Committee (SLCC)</p>	<p>Chairperson: Chief Secretary Member secretary – Secretary, IWRD Members-</p> <ol style="list-style-type: none"> 1. Finance Commissioner/Secretary 2. Secretary, Planning and Programme Implementation Department 3. Secretary of DoA, DoH, LRS&WCD 4. Chief Engineer (CWC) or his Representative 5. Member Secretary, IDC 	<p>Endorsement of proposed plans Give necessary guidance Sanctioning of AAP as allocated by MADA</p>
<p>Mizoram Agriculture & Irrigation Development Authority (MAIDA)</p>	<p>Chairman: Chief Minister, Mizoram Co-Chairman: Minister i/c Agriculture Member Secy: Chief Secretary Working Secy: Secretary, DOA Members: 1. Minister, DOH 2. Minister, LRS&WCD 3. Minister, IWRD. 4. Minister, Planning 5. Minister, Finance 6. Secretary, DOH 7. Secretary, LRS&WCD 8. Secretary, IWRD 9. Secretary, P & PI Department 10. Commissioner/ Secretary, Finance Department</p>	<p>Approval of plans endorsed by SLCC and allocation of fund</p>
<p>Other relevant organizations to be involved</p>	<p>Rural Development Department Commerce & Industries Department Department of Environment, Forest and Climate Change Department of Fisheries Department of Sericulture Department of AH & Vety</p>	<p>Necessary support, cooperation, and coordination in the implementation of the selected site's activities</p>

2. The meeting decided that the BAIDC Operational Rules be published in Mizoram Official Gazette after obtaining appropriate approval.
3. Action Plan for BAIDC System Operation and budget for FY 2022-23 and TCP Work Plan till March, 2022 was approved by the meeting.

The chairman thanked all the members for their contribution and wined up the meeting at 1: 10 PM.

(H.L.DINGLIANA)
Joint Secretary,
IWRD

(Dr. RENU SHARMA)
Chief Secretary,
Govt. of Mizoram
& Chairman, JCC

Memo No. _____ : Dated Aizawl, the.....December, 2021
Copy to:-

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India for favour of information.
3. Mr. Mistunori Saito, Chief Representative, JICA India Office for favour of information.
4. All Members concerned for information.
5. Guard file.

(J.HMINGTHANMAWIA)
Secretary to the Govt. of Mizoram
Irrigation & Water Resources Department.
& Secretary, JCC

**MINUTES OF 7TH JOINT CO-ORDINATION COMMITTEE MEETING,
TECHNICAL COOPERATION PROJECT (JICA)**

Venue : Conference Room of the Chief Secretary.
Date & Time : 24.05.2022 (Tuesday), 2:00 PM
Attendance list : 22 members (21 at Conference Room and 1 through VC)

Dr. Renu Sharma, IAS, Chief Secretary chaired the meeting. She welcomed JICA Team and all JCC members. She thanked JICA for their technical as well as financial support to Mizoram government not only in the field of agriculture but also in other fields as well. She also mentioned the brief discussion held with JICA Review Team on the previous day and invited Mr. Akamine Kengo, Senior Representative, JICA India Office for a short speech.

Mr. Akamine reported the team's visit to Sailam where they interacted with the farmers and visited the farms. He expressed his appreciation to the farmers feedback regarding the system of implementation and their achievement through TCP. He mentioned that the cooperation between JICA and Govt. of Mizoram in agriculture sector started at development study during 2012 to 2015 and that the achievement of TCP would contribute to the progress of the master plan for development of agriculture sector.

On invitation, Er.K.Hamlet, Sr.EE, IWRD gave a power-point presentation on the following agenda.

1. Changing the name of the new system (BAIDC system to JIFAS)
2. Outline of the Project (TCP)
3. Result of End-line Survey
4. Discussions based on Endline Survey result
5. Progress for expansion of JIFAS throughout Mizoram
6. Extension of project period

Changing the name of the new system (BAIDC system to JIFAS)

Mr. Hamlet said that BAIDC System was termed after the name of the lowest committee in TCP which is BAIDC. So PMT proposed to change the name of the system to JICA Sustainable Farming System (JIFAS). While no objections were raised on the new term, the chairman responded that to avoid confusion mid-way through the project, the project shall continue to use the same term BAIDC until the project completion. The agenda may have to be raised again at the time of Final JCC meeting for a change of name if required.

Outline of the Project (TCP)

Brief presentation was given on the project outline. It was mentioned that the 'Study on Development & Management of Land & Water Resources for Sustainable Agriculture in Mizoram, India' was conducted from September, 2013 to April, 2015 (20 months) and a 'Master Plan (development vision 2035)' was formulated consisting of 27 projects for the improvement of Agriculture in Mizoram. The Master Plan has 2 main targets which are –

- (i) A growth rate of 4% or more per annum in the agriculture sector in the State
- (ii) The self-sufficiency rate of paddy as the main food crop is 50%. He stated that the ongoing Mizo-CESAID, Technical Cooperation Project was implemented as a first

achieve the goal of the Master Plan. He showed the Implementation Structure consisting of JCC at the top, PMT at department level, JICA Project Team and BAIDC at the block level to directly interact and work with the farmers.

It was reported that average productivity of paddy in the Pilot projects of 5 ton/Ha was a great achievement compared to Mizoram average productivity which is 2.9 ton/Ha in WRC area. He said that the main reason was timely input of all activities as per the schedule of BAIDC Annual Activity Plan.

Result of End-line Survey

Er.Hamlet reported that the survey was conducted during November 2021 to February 2022 by Dr. James L.T. Thanga, Associate Professor, Department of Economics, MZU and his team. The Indicators of evaluation and results were shown (attached).

On invitation from the chair, Dr James has reported that while most of the project indicators were achieved despite Covid-19 pandemic, the Project is yet to achieve Outcome 3 (Establishment of BAIDC system/JIFAS) and Project Overall Goal (issuance of gazette on BAIDC system/JIFAS and approval of expansion plan by Chief Minister) which needs to be addressed.

Further, he gave his comments on the results of the survey. He said that although sincere effort were made by the govt, one of the main constraints during the 2nd pilot activity was non-simultaneous funding of CSS implemented by different departments which leads to implementation of BAIDC Annual Activity Plan in a phased manner. He also reported that, as the activities of pilot projects mostly required extra effort and time, the farmers thought that it would be more meaningful to increase the area to a larger scale. He mentioned that the huge income difference of pilot and controlled farmers in cash crops might be due to better technology or better record skill of pilot farmers.

It was also mentioned that the 'Guideline for Sustainable Agriculture & Irrigation Development in Mizoram' was approved by JCC in Dec, 2021 to be followed for all agriculture and allied departments.

The JICA Mission stated that 2nd Quarter of FY2022-23 is a critical year for establishment of BAIDC system/JIFAS; the system shall be established well before the Project completion to enable some activities to be carried out under the new system, hence the JICA Mission requested IWRD and the State Govt. to expedite the discussion and procedure to institutionalize the system. The JICA Mission also requested IWRD to organize State-level Workshop near the end of the Project to disseminate the Project approach, methodology, achievements to researchers and practitioners in agriculture and allied sectors to promote BAIDC system/JIFAS.

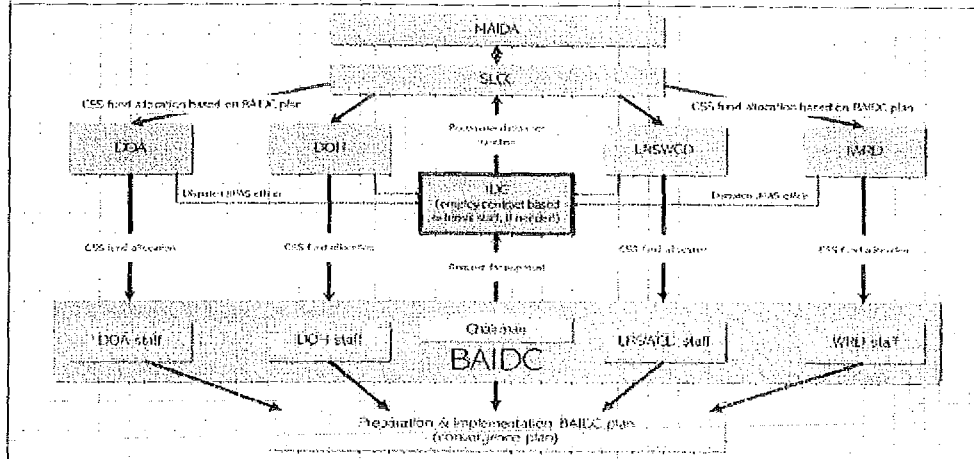
Discussions based on Endline Survey result

It was reported in the meeting that, in light of the 'End-line Survey', series of discussions were held by PMT amongst themselves as well as with some Secretaries. The discussed points are:

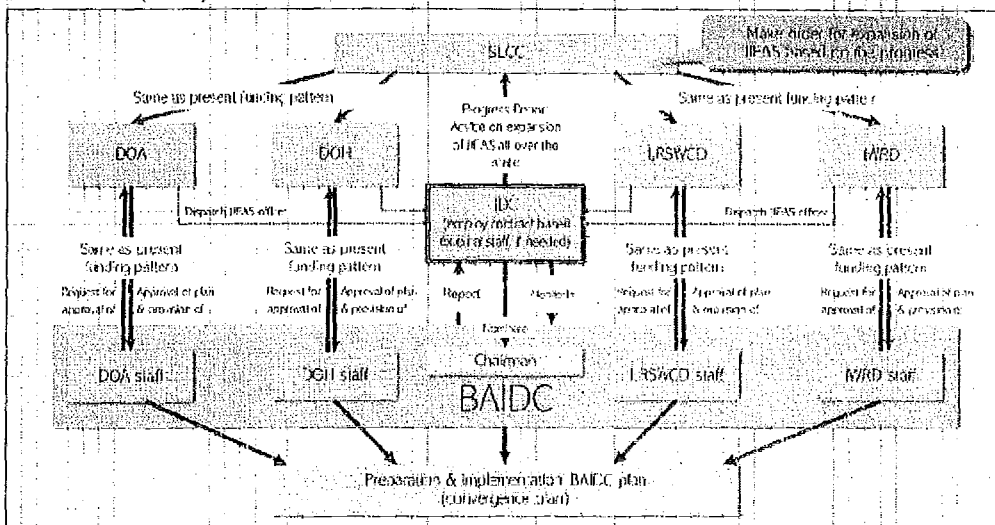
- 1) *Plan-A/B for implementation of the system:* The procedure for plan A and B was explained. It was mentioned that Plan A was the procedure followed in 1st and 2nd Pilot Projects of TCP where converged planning exists in block level (BAIDC)

and departmental level PMT. The Plan B is another option in which convergence occurs in the block level and proposal for funding would go separately to the respective departments, following the normal procedure in respect to selection of schemes and funding pattern. The JICA Mission emphasized that implementing structure shall be discussed among concerned departments as to confirm the viable structure that would function beyond the Project period for BAIDC system expansion in the entire State.

JIFAS Structure (Plan-A)



JIFAS Structure (Plan-B)



- 2) *Simplify BAIDC System to save time:* The BAIDC system of implementation as per the guideline consisted of 10 steps which required plenty of time for planning even before the actual implementation. So, it was proposed to prepare maps and village baseline data by JPT/PMT instead of BAIDC and to incorporate farmers ideas during ratification meeting so as to reduce the burden of BAIDC and to accelerate the process.
- 3) *Introduction of MIS for monitoring of BAIDC System/JIFAS:* It was reported that MIS was proposed for easy monitoring of BAIDC System/JIFAS. Way of utilization were discussed among PMT and BAIDC in batch-1 and it was generally accepted. Er.Hamlet also mentioned that around Rs. 2 to 3 lakh/year would be required for cloud hosting.
- 4) *Conduct BAIDC System/JIFAS training program with SAMETI:* It was mentioned that JPT has approached SAMETI to conduct training and contents were agreed. The JICA Mission visited SAMETI on the previous day, and the Mission stated

that in order to expand BAIDC system/JIFAS throughout the State, number of trainers need to be enhanced from the current number of 8 core training officers. As a means to train adequate number of core trainers in a sustainable manner beyond the project period, JICA regard it is important that IWRD or State Govt. partner with State Agricultural Management and Extension Training Institute (SAMETI) which has the mandate to conduct training to extension work trainers. SAMETI are ready to give training once the official instruction from higher authorities (Gazette on BAIDC system/JIFAS) and Memorandum of Understanding (MOU) is signed between SAMETI and requesting organization. On account of this, the JICA Mission requested the IWRD to discuss the necessary formalities with SAMETI to commence the training program in the 2nd Quarter of FY2022-23.

- 5) *Preparation of promotional video:* With the aim of providing awareness among government officials as well as to public, promotional video of BAIDC System/JIFAS was prepared in Mizo and English by JPT.

Progress for expansion of BAIDC system/JIFAS throughout the state

It was reported that 6th JCC had approved the expansion plan of JIFAS throughout the state in 3 stages for 3 years. The 1st batch targeted 6 RD Blocks where meeting of BAIDC, selection of target villages, preparation of 25 nos. of BAIDC Annual Activity Plan and discussion of BAIDC AAP to farmers had been completed.

No.	District	RD Block	Target Villages 2022-23
1	Aizawl	Aibawk	5 villages Chamwilung, Lamchhip, Sailam, Samlukhai, Sialsuk and Tachhip
2	Kolasib	Bilkhawthlir	4 villages / areas Chemphai, Kolasib_Zukmawi zau, Meidum and Saipum
3	Champhai	Champhai	3 villages Hmunhmeltha, Ngur and Tualcheng
4	Serchhip	Serchhip	3 villages Bungtlang Serchhip, Hmuntha, Thenzawl North
6	Lunglei	Lunglei	6 villages Bualte, Haulawng, Hauruang, Lunglei, Thaizawl and Vanhrie
9	Khawzawl	Khawzawl	3 villages Chawngtlai, Sialhawk and Tualte

Time extension of project period

It was reported that the Govt. of Mizoram had proposed the extension of TCP for 1 year due to the pandemic which hampers the activity of TCP for 2 years. On invitation from the chair, Mr. Akamine Kengo said that JICA had considered the proposal and agreed to extend the project till the 4th of March, 2023, which has been agreed by all the members of the JCC.

After due deliberations on the agenda, the meeting approved the proposals and resolved the following points: -

1. To avoid confusion, the term 'BAIDC System' will continue to be used during project period.
2. To propose for incorporation of BAIDC System when Agriculture Policy is drafted.

3. The meeting formed a sub-committee to study Plan-A and B in detail and decide which plan to be adopted by 10th June, 2022. Composition of the sub-committee is as follows:

Chairman - Secretary, Planning & Programme Implementation Department
Members - Representatives from Agriculture, Horticulture, LRS&WCD,

4. IWRD, JPT and Rural Development Department Actions to be taken by the PMT/JPT were accepted. Necessary budget allocation for SAMETI and MIS will be discussed in the sub-committee meeting.

The chairman thanked all the members for their contribution and winded up the meeting at 4:00 PM.

Sd/- **J.HMINGTHANMAWIA**
Secretary,
Govt of Mizoram, IWRD
& Secretary, JCC

Sd/- **Dr. RENU SHARMA**
Chief Secretary,
Govt. of Mizoram
& Chairman, JCC

Memo No.B.13020/1/2022-I&WR/Pt.

: Dated Aizawl, the 22nd June, 2022

Copy to:-

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India for favour of information.
3. Dr. James L.T. Thanga, Associate Professor, Department of Economics, MZU for information.
4. Chief Representative, JICA India Office for information.
5. All Members concerned for information and necessary action.
6. Guard file.



(**J.HMINGTHANMAWIA**)

Secretary,
Govt. of Mizoram, IWRD
& Secretary, JCC

Result of End-line Survey

Item	Indicator	Result	Result
(Project Purpose) Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.	The methods are approved by JCC, and officialised.	Not achieved	Approved by JCC but official gazette is not issued yet
	At least 2 activities based on collaborative implementation framework in each block are implemented by BAIDC in the 2nd pilot project	Achieved	Out of 108 activities under 11 pilot projects in 2nd pilot villages, 92 sub-plans (85%) were implemented through funding support from State (department fund) and Central Govt.
	Action plan to expand project output to all RD blocks and the Methods are endorsed by Chief Minister	Not achieved	Approved by JCC but not yet endorsed by CM.

Result of End-line Survey

Item	Indicator	Result	Result
(Project Purpose) Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.	Production of hand pumps increased by 12.5% in pilot project in the first pilot villages.	Achieved	The average yield for 3 years for 12 main crop farmers in 3 villages are achieved 4.45% higher which is 87% higher than productivity of controlled farmers' average of 2.17% for 3 years.
	Farm income of cash crops is increased by 12.5% in the pilot farmers including cashew or cardamom harvested in first stage pilot villages.	Achieved	The cash income of pilot farmers and controlled farmers are Rs. 151,433 and Rs. 88,937 respectively in average. The income of pilot farmers is 70% higher than the cost of controlled farmers.
	10% of the technologies requested by the pilot farmers are disseminated to other farmers in the first pilot villages.	Achieved	Out of 21 major skills provided by pilot farmers, 11 skills (52%) are disseminated to others in controlled technologies. Out of 42 skills are total provided in 3 pilot villages, 26 skills (62%) are received in 100%.

Result of End-line Survey

Item	Indicator		Result
[Output 1] Methods for sustainable agriculture and irrigation development are developed.	More than 80% of village plan are implemented in the first pilot villages.	Achieved	Out of 82 activities under 7 following up 1st pilot projects, 79 activities (96%) are implemented
	Activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram gov.	Achieved	Out of 108 activities under 11 pilot projects in 2nd pilot villages, 92 sub-plans (85%) were implemented through funding support from State (department fund) and Central Govt.

Result of End-line Survey

Item	Indicator		Result
[Output 2] Capacity of the state government officials in planning and implementation of sustainable agriculture and irrigation development is enhanced.	More than 60% of the nominated counterparts achievement goal set by them.	Achieved	Compare to self rating score between 2017 and 2021, 80% of PMT increase the skills level and 100% of the BAIDC member acquire some knowledge to improve their services.
	More than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development	Achieved	More than 88 % of the BAIDC and PMT member understand more than 50% of the contents of extension manual More than 77% of the staff understand the 75% of the contents of the operational guideline. IWRD staff test is not compiled yet.

Result of End-line Survey

Item	YES	NO
1. Action plan is required project delivered output for all PO tickets in	Yes	No
2. Action plan was prepared and approved by	Yes	No
3. Action plan is prepared by PMT	Yes	No
4. Action plan is prepared by PMT	Yes	No
5. Action plan is prepared by PMT	Yes	No
6. Action plan is prepared by PMT	Yes	No
7. Action plan is prepared by PMT	Yes	No
8. Action plan is prepared by PMT	Yes	No
9. Action plan is prepared by PMT	Yes	No
10. Action plan is prepared by PMT	Yes	No
11. Action plan is prepared by PMT	Yes	No
12. Action plan is prepared by PMT	Yes	No
13. Action plan is prepared by PMT	Yes	No
14. Action plan is prepared by PMT	Yes	No
15. Action plan is prepared by PMT	Yes	No
16. Action plan is prepared by PMT	Yes	No
17. Action plan is prepared by PMT	Yes	No
18. Action plan is prepared by PMT	Yes	No
19. Action plan is prepared by PMT	Yes	No
20. Action plan is prepared by PMT	Yes	No

MEETING MINUTES OF 8th JOINT COORDINATION COMMITTEE (JCC) TECHNICAL COOPERATION PROJECT (TCP) UNDER JICA

Venue : C.S. Committee Room, MINECO, Aizawl
Date & Time : 21st September, 2022 at 1:00 PM
No. of Participants : 19 members (including JICA Project Team)

Agenda:

1. Recommendation of Sub- committee for institutionalization of BAIDC System.
2. Further actions to be taken.
3. Activity Progress Report on Batch 1 & 2.
4. Other issues, if any.

The chairman Dr. Renu Sharma, Chief Secretary chaired the meeting and delivered a short welcome speech to the members present and JICA officials who joined the meeting in virtual mode.

On the chairman's invitation, Mr. Lalmalsawma Pachuau, Secretary, Planning & Programme Implementation Department gave a brief account on the meeting agenda and the recommendations made by the Sub- committee.

The Planning Secretary shared his experience with the BAIDC system at Sailam village. He stated that the BAIDC system is worth replicating across all over Mizoram in order to ameliorate the Mizo-farmers. But on the contrary, he also highlighted the flip-sides where BAIDC members sometimes lack discipline to implement the activities periodically and the mental problems of farmers' where they possess some misconception about the project.

He also highlighted the recommendations of the Sub- committee regarding plan- A/B as follows:

- The Sub-committee recommended Plan-B with slight adjustments with a view to strengthen the system.
- Once the system is mature, include more departments into the system like Sericulture dept., Fishery Dept., and Veterinary Dept.
- Participation of Commerce and Industries Department and marketing institutions such as MIZOFED in the BAIDC system is also recommended.
- The sub committee recommended that the District Commissioners (DC's) of the districts should be brought into the BAIDC system to enhance the system's effectiveness.

The Chairman made a motion to approve Plan-A or B to the four (4) departments' Secretaries and to add any recommendation or comment, if necessary. Without further comment, the Secretary of DoH; LRSWCD and Planning Departments endorsed with Plan-B while the Secretary of IWRD and DoA urged that the Plan-A has more convergence at all levels. However, after a short discourse, he too acquiesced with Plan-B.

Other Comments:

- Mr. Saisho, Expert, JPT recommended more training for the BAIDC members in order to enhance the officers' capacity in agricultural extension.
- Er.K.Hamlet, Sr.EE, IWRD explained to the members that during the pilot period, there was neither Plan-A nor Plan-B. During the implementation of TCP, a proposal for improvement of Agriculture system in Mizoram was framed, which is later known as Plan A. While implementing TCP, the level of Ministers is not included in any Committee, but in this Plan A, Minister level committee, headed by the Chief Minister is included so that there will be better convergence and appropriate allocation of fund for all the implementing departments.

Er. Ruatkimi Varte, EE, IWRD gave a Power-Point presentation on the progress of Batch 1, Batch 2 and the awareness training on JIFAS.

Mr. Takumi Hiraki, Program Officer, Economic Development Dept., JICA HQ, Japan requested all the concerned department Secretaries to cooperate with the Consultant during evaluation of TCP which is scheduled on January, 2023.

The meeting deliberated on the recommendations and resolved the following points:-

1. The meeting approved Plan-B but to revamp its role in the system and add other departments like Sericulture dept., Fishery Dept., Veterinary Dept., to JIFAS, when the system matures to enhance the system effectiveness.
2. In order to improve the convergence in Plan B, the meeting decided that BAIDC Plan will be refined and approved by IDC and endorse to each department for funding. It was also decided to include Planning & Programme Implementation Dept in IDC as one of the members.
3. The meeting also decided to include the District Commissioners (DCs) of the districts into the BAIDC system to enhance the system effectiveness, when the system matures.
4. The meeting approved IWRD as a nodal department.
5. Action will be taken by Administrative Department, IWRD to obtain approval of concerned Minister/ Chief Minister. After approval is obtained, notification will be issued.

The chairman thanked all the members for their contribution and winded up the meeting at 2:30 PM

(J.HMINGTHANMAWIA)
Secretary, IWRD
Govt. of Mizoram,
& Secretary, JCC

(Dr. RENU SHARMA)
Chief Secretary
Govt. of Mizoram,
& Chairman, JCC

Memo No.
Copy to:-

:

Dated Aizawl, the.....Sept, 2022

1. Sr. P.P.S to Chief Secretary, Govt. of Mizoram and Chairperson, Joint Coordination Committee, TCP for information.
2. Deputy Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India for favour of information.
3. Chief Representative, JICA India Office for favour of information.
4. All Members concerned for information and necessary action.
5. Guard file.

(J.HMINGTHANMAWIA)
Secretary,
Govt. of Mizoram, IWRD
& Secretary, JCC

**GOVERNMENT OF MIZORAM
OFFICE OF THE CHIEF ENGINEER
IRRIGATION & WATER RESOURCES DEPARTMENT
MIZORAM : AIZAWL**

No. W.20014/1/2022-IWR(CE)/JICA/

Dated Aizawl, the 6th Sept, 2022

To

The Chief Advisor,
JICA Project Team,
Mizo-CESAIID, TCP.

Subject: Recommendation of Sub-Committee regarding Plan A/B.

Sir,

I am forwarding herewith the recommendation submitted by Sub-Committee under JCC, TCP on Plan A/B for implementation of BAIDC System/JIFAS.

This is for your kind information and necessary action.

Enclosed: As stated above.

Regards,


(LALROTLUANGA)

Project Director, TCP
& Chief Engineer,
Irrigation & Water Resources Department
Mizoram: Aizawl.

DI/A
at 6/9/22
SE (W/R/D)
Sr. EE (W)

[Signature]
6/9
6/9

No. G.12011/2/JICA/2020-PLG(RDB)
GOVERNMENT OF MIZORAM
PLANNING & PROGRAMME IMPLEMENTATION DEPARTMENT
(RESEARCH & DEVELOPMENT BRANCH)

Dated Aizawl, 06.09.2022

To,

The Chief Secretary
& Chairperson,
Joint Co-ordination Committee (JCC)
Technical Cooperation Project (JICA)

Subject: Recommendation on the BAIDC System - reg.

Ref: Memo No. B. 13020/1/2022-I&WR/Pt, Dt 22.06.2022

Madam,

I. Kindly refer to the above Minutes of the Meeting in which a sub-committee chaired by the undersigned was to study Plan - A and B in detail and decide on which plan is to be adopted. In this regard, meetings and consultations were held with representatives from Agriculture, Horticulture and Land Resources, Soil and Water Conservation, Irrigation & Water Resources Departments as well as with representatives from JICA. Further, the undersigned along with officials working in the BAIDC System visited Sailam village wherein this system is being practiced. In this visit, interactions took place with the farmers who were practicing Wet Rice Cultivation (WRC) as well as those practicing orange plantation. The officials from the concerned Departments who were implementing the BAIDC system at the ground level were also present and feedback from them was received.

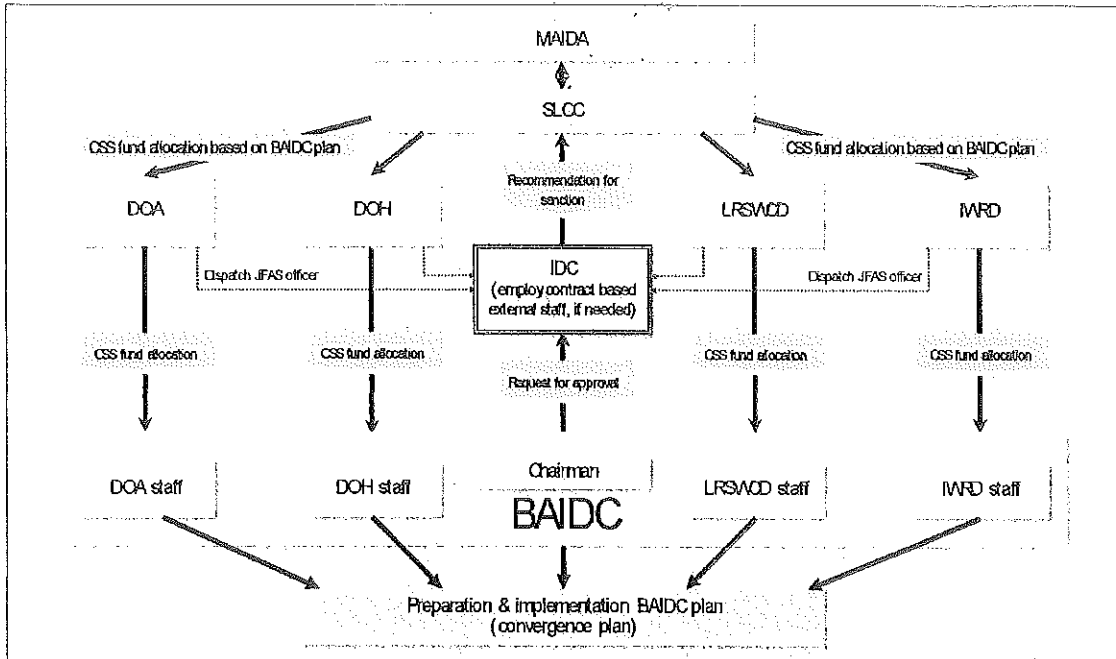
II. The Plans in brief:

1. As was discussed in the meeting of the JCC, there are two institutional arrangements that was put before the meeting. These are as under:

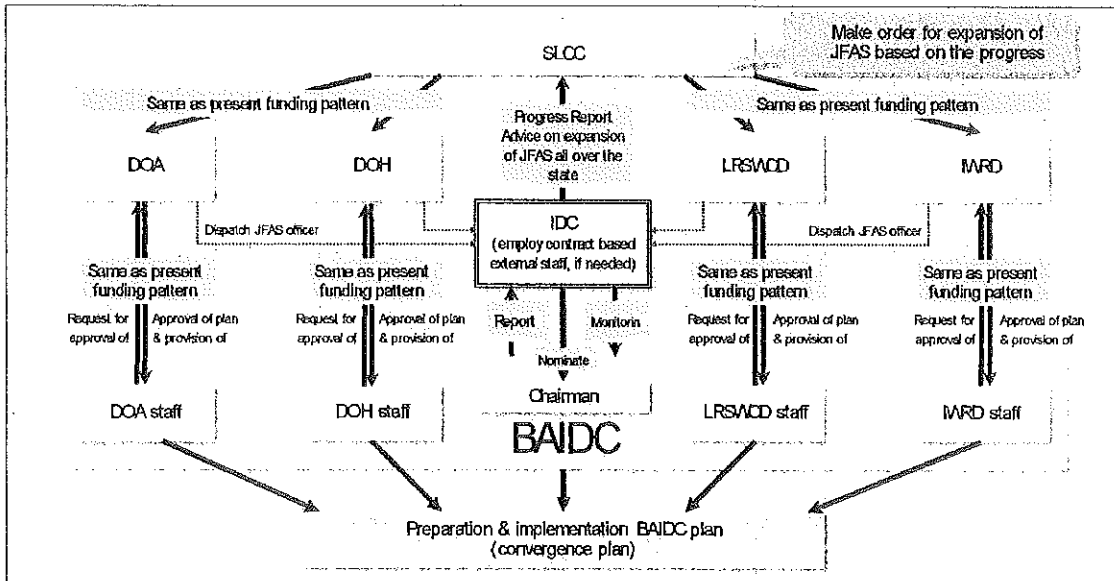
OFFICE OF CHIEF ENGINEER
IRRIGATION & WATER RESOURCES DEPT.

Receipt No 1357
Date 6/9/22

JIFAS Structure (Plan-A)



JIFAS Structure (Plan-B)



2. From the above two diagrams, the comparison of the two Plans is as under:

Summary of Plan A & B	
Plan A	Plan B
<p>BAIDC Establishment of BAIDC for 28 RD blocks for implementation of the system</p> <ul style="list-style-type: none"> ● Preparation / modification of BAIDC annual activity plan and obtain the endorsement from IDC ● Explanation of BAIDC annual activity plan to the villagers ● Implement government activities based on BAIDC annual activity plan ● Monitoring the activities ● Conduct the BAIDC monitoring meeting ● Conduct feedback meeting with farmers ● Record above activity and upload on MIS 	<p>BAIDC Establishment of BAIDC for 28 RD blocks for implementation of the system</p> <ul style="list-style-type: none"> ● Preparation / modification of BAIDC annual activity plan and obtain the approval from each department ● Explanation of BAIDC annual activity plan to the villagers ● Implement government activities based on BAIDC annual activity plan ● Monitoring the activities ● Conduct the BAIDC monitoring meeting ● Conduct feedback meeting with farmers ● Record above activity and upload on MIS
<p>IDC Nominate BAIDC chairman among 4 departments</p> <p>Refine BAIDC annual activity plan and recommend sanction to SLCC</p>	<p>Nominate BAIDC chairman among 4 departments</p> <p>Supervision and expansion of BAIDC</p>
<p>SLCC Approve and sanction of the fund based on IDC recommendation through departments</p>	<p>Supervision and expansion of BAIDC</p>
<p>MAIDA Approve and allocate fund based on SLCC recommendation</p>	

3. As can be seen from the above, Plan A wants to achieve complete convergence of agricultural activities in the state primarily through the convergence of Centrally Sponsored Schemes (CSS) on account of the centrality of the role that will be played by the Inter-Departmental Committee (IDC) in streamlining the BAIDC annual activity plan, the sanctioning power of the State Level Coordination Committee (SLCC) and the allocating power of the Mizoram Agriculture & Irrigation Development Authority (MAIDA). In short, it aims to bring about convergence of agriculture activities through planning which is coordinated at the very top level including the political leadership. It may be noted that in the proposal, IDC will be chaired by Secretary, Irrigation & Water Resources Department, SLCC will be chaired by Hon'ble Minister, Irrigation & Water Resources Department and MAIDA will be chaired by Hon'ble Chief Minister.

4. On the other hand, Plan B reflects the current system under which BAIDC system has been carried out at selected blocks. In this system, the BAIDC annual activity plan created at the block level by the participating Departments (Agri, Horti, I&WR, LRS&WC) are put up to their respective Departments for approval. Accordingly, plan of action of CSS and fund allocation gets approved at the Departmental level while considering the BAIDC annual activity plan. The role of the IDC is mainly that of monitoring the activities and advising the SLCC on its expansion.

III. Comments and recommendations:

1. From the feedback of the farmers at Sailam, the technical input that they received such as new techniques of WRC, better varieties of seed, half moon terracing in orange plantation etc have enabled them to increase their productivity. The coming together of four departments viz Irrigation & Water Resources, Land Resources, Soil & Water Conservation, Agriculture and Horticulture Departments in the field as a unified force to increase the productivity of the farmers was well appreciated by the farmers and it is in this regard that this convergence at the field level is worth replicating across Mizoram especially in the high potential areas in order to bring about convergence of schemes and introduction new technology to enhance the productivity of the farmers.

2. On the issue of whether Plan A or Plan B is to be adopted when the BAIDC system is scaled up, in the meeting with the stakeholder Departments and the JICA team as it was difficult to arrive at a conclusion immediately, they were requested to examine the matter and submit their recommendation. Besides the issue of Plan A and Plan B, they were also asked to comment on: (a) Which Department would be the Nodal Department for the BAIDC system, (b) Whether involvement of more Departments concerning Agriculture and allied activities such as AH&Vety, Fisheries Department as well as Commerce & Industry Department (for marketing), Cooperation and LESDE would be advisable (c) Whether the involvement of District Commissioners in the system would be beneficial. Submissions in this regard have been received and the same is summarised as under:

Land Resources, Soil & Water Conservation Department	Topic	Comment
	Nodal Department	I&WR
PLAN A/B	Plan A	
Inclusion of Other Departments	Fisheries, Sericulture, AH & Vety may be included	
Involvement of DC	Preferred	
Agriculture Department	Topic	Comment
	Nodal Department	I&WR
	PLAN A/B	Indecisive
	Inclusion of Other Departments (C&I, Cooperation, LESDE)	Not required
Involvement of DC	Should be involved	
Irrigation & Water Resources Department	Topic	Comment
	Nodal Department	I&WR till TCP. Nodal Department may be designated to other Deptt after TCP as I&WR is a small

		Deptt.
	PLAN A/B	Plan A
	Inclusion of Other Departments	May be considered after the system is fully functional
	Involvement of DC	Not necessary
JICA Team	Topic	Comment
	Nodal Department	I&WR with help from Planning Deptt
	PLAN A/B	Plan B
	Inclusion of Other Departments	Not necessary
	Involvement of DC	Should be involved
Horticulture Department	Topic	Comment
	Nodal Department	I&WR
	PLAN A/B	Plan B
	Inclusion of Other Departments	AGRI & Allied, C&I, LESDE To be included
	Involvement of DC	Not Necessary

3. From the above table, it can be seen that the opinion is divided as to whether Plan A or Plan B would be more suitable. In this regard, the undersigned is of the opinion that we may start with Plan B and as the system matures, we can look into the feasibility of moving into Plan A. This is because of the following reasons:

(a) In the site visit at Sailam, the feedback from the field officials was that officials across the participating Departments were able to work together to arrive at the BAIDC annual activity plan as well as implement and monitor the activities. However, the issue that was flagged was differences in the timing of release of funds under the various CSS's that the system wants to leverage due to which planned activities could not be carried out in a synchronised manner. Now with the current system of release of funds under CSS, it is opined that the release of funds to the Implementing Departments would be more prompt and funds can be made available at the field level in a more coordinated manner.

(b) Plan B could work effectively if IDC plays a pivotal role. Besides the existing role, it can be a body which provides guidance to the Block Agriculture & Irrigation Development Committee (BAIDC) before the preparation of the BAIDC Annual activity plan in terms of the fund availability under various schemes, the timelines that can be followed, the focus that are require to be given etc. In this regard, it may be good that this Committee (IDC) is headed by the Secretary of the Nodal Department and the

Head of Departments of the participating Departments as members. It may be beneficial to have officers from the Planning Department in this committee on account of the role played by the Department in coordinating development works / projects across Departments and that a society under it namely MISTIC has been carrying out research and scientific interventions to enhance the livelihood of rural Mizoram and another society MIRSAC has been taking up remote sensing projects related to agricultural and horticultural activities such as mapping of WRC potential areas.

(c) If the BAIDC system is to be rolled out across all Blocks even under Plan B, it is recommended that the system be discussed and approved at the highest level such that all Departments are on-board and are fully committed to the success of the system. As mentioned earlier, BAIDC system is a framework which could enable convergence of schemes and activities at the ground level and through it bring about optimal allocation of resources leading to increased productivity. Accordingly, BAIDC system should be designed to play a central role in the allocation of funds and the plan of action of the CSS's implemented by the concerned Departments.

4. On the issue of the Nodal Department, it is suggested that Irrigation & Water Resources Department continue to be so considering the expertise they have acquired over the years through the technical cooperation with JICA. It is duly noted that I&WR Department may not have offices at all the districts but this need not be a limiting factor if the role of the Nodal Department is designed accordingly and if Agriculture Department can fill in the gaps wherever needed. Accordingly, it is suggested that the Secretary of I&WR Department who could be the Chairman of the IDC also continue to hold the charge of Agriculture Department.

5. It is recommended that the District Commissioners (DC's) of the districts should also be brought into the Block Agriculture & Irrigation Development Committee (BAIDC) so as to enhance their effectiveness. Each DC's heading the BAIDC of the Blocks under their jurisdiction could be thought of. This is in line with the expectations that the Government has on the DC's wrt their roles in development initiatives as can be seen in the way the Aspirational District Programme is designed.

6. Considering that farmers in Mizoram mix agriculture / horticulture with animal husbandry or fishing, a thought arise as to whether it would be beneficial to have the concerned Departments on board in the BAIDC system. In this regard, it is opined that it may be premature to include all these Departments at this stage as BAIDC system is mainly concerned with enhancing the productivity of crops. However, once the system matures, including more Departments into the system

based on the learnings from the system could be looked into as convergence of all activities concerning the rural economy could be beneficial for all stakeholders.

7. Increasing the productivity of crops under Agriculture, Horticulture and LRS&WC Departments should lead to increased income for the farmers for which access to a remunerative market is crucial. Therefore, the participation of Commerce and Industries Department and marketing institutions such as MIZOFED in the BAIDC system is recommended. Accordingly, they may be included in the IDC and it is opined that their active participation would be beneficial for the entire system.

IV. The above comments and recommendations are being given following the directions given in the referred meeting of the JCC and are submitted for kind consideration. In short, what is being recommended is Plan B with slight adjustments with a view to strengthen the system. Same may be discussed at the JCC level so as to arrive at a final decision.

Yours faithfully,

- Sol -

(LALMALSAWMA PACHUAU)
Secretary to the Government of Mizoram
Planning & Programme Implementation Department

Memo No. G.12011/2/JICA/2020-PLG(RDB)

Dated Aizawl, 06.09.2022

Copy to: -

1. The Secretary, Irrigation & Water Resource Department
2. The Secretary, Agriculture Department
3. The Secretary, Horticulture Department
4. The Secretary, Land Resources, Soil & Water Conservation Department
- ✓ 5. The Chief Engineer, Irrigation & Water Resource Department
6. Guard file



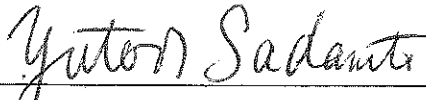
(LALMALSAWMA PACHUAU)
Secretary to the Government of Mizoram
Planning & Programme Implementation Department

MINUTES OF MEETINGS
BETWEEN
THE STATE GOVERNMENT OF MIZORAM
AND
JAPAN INTERNATIONAL COOPERATION AGENCY
ON
THE TERMINAL EVALUATION
ON THE PROJECT ON CAPACITY ENHANCEMENT FOR SUSTAINABLE
AGRICULTURE AND IRRIGATION DEVELOPMENT IN MIZORAM

Japan International Cooperation Agency (hereinafter referred to as "JICA") conducted the terminal evaluation survey on the Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram (hereinafter referred to as "the Project") in the Republic of India (hereinafter referred to as "India") from 30th January to 15th February 2023 for the purpose of evaluating the progress and achievements of the Project.

After review and analysis of the activities and achievements of the Project and consultation with Department of Irrigation & Water Resources (hereinafter referred to as "IWRD"), Department of Agriculture (hereinafter referred to as "DOA"), Department of Horticulture (hereinafter referred to as "DOH"), Land Resources, Soil & Water Conservation Department (hereinafter referred to as "LRSWCD"), and the JICA Terminal Evaluation Team compiled the Terminal Evaluation Report as attached.

Mizoram, 15th February, 2023



Ms. Yutori Sadamoto

Team Leader

JICA Terminal Evaluation Team

Japan International Cooperation Agency
(JICA)



Dr. Renu Sharma, IAS

Chief Secretary

Govt. of Mizoram, India

ATTACHED DOCUMENT

1. Agree on the Joint Terminal Evaluation Report

Both sides agreed on the contents of the Joint Terminal Evaluation Report as Annex attached herewith. Main points are summarized as below.

(1) Summary

The Terminal Evaluation Team concluded that the expected Outputs and Project Purpose have been mostly achieved despite the negative impact due to the COVID-19 pandemic. In other words, the method for agricultural and irrigation development was created and a framework for joint implementation by the four concerned departments (IWRD, DOA, DOH, and LRSWCD) was established. In addition, the capacity of government officials was strengthened through the preparation of manuals and the implementation of training programs. In the future, it is expected to contribute to the spreading and sustainability of the JIFAS.

As for the results of the six evaluation criteria, the relevance of the Project is assessed as “High”, since the Project objective is highly consistent with the national policy and development needs of India. Coherence is assessed as “High” since the Project is in line with Japan’s aid policy. The effectiveness of the Project is deemed as “Moderate”, the indicators set in the PDM have not fully achieved and the timeline of the expected achievement is uncertain at this point. The efficiency is assessed as “Relatively High”. Even some of the inputs were insufficient, all the indicators of Outputs were achieved under the various limitations imposed by COVID-19. The Project’s impact is “Relatively High”. The foundation for achieving the Overall Goal was established. However, dissemination activities in the action plan are not progressing as planned at this point. The sustainability of the Project is assessed as “Relatively High”, due to financial issues such as delays in the release of funds.

(2) Recommendations

Recommendation for SLCC, IDC and BAIDC

【Ensuring JIFAS operation】

JICA Sustainable Farming System (JIFAS) was established for the development of sustainable agriculture and irrigation in Mizoram through the project. In order to achieve Overall Goal in the future, and to spread the project outcomes to the entire state, ensuring JIFAS operation in accordance with Operational Guideline is required. Based on the above, **the following recommendations are made.**

- Ensure input of annual plans and activities into the MIS (TRESSA)
- Continue monitoring and follow up of BAIDC activities by IDC and SLCC using MIS (TRESSA)
- Conduct annual evaluation of the effectiveness and efficiency of JIFAS by IDC and SLCC and revise the guidelines based on the evaluation results if necessary
- Ensure dissemination of BAIDC to 28 RD blocks according to the Action Plan

	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
1st batch	Preparation	Start operation	Continue		
2nd batch		Preparation	Start operation	Continue	

8

32

3rd batch			Preparation	Start operation	Continue
-----------	--	--	-------------	-----------------	----------

- Consider to assigning a facilitator by the IDC chairperson from officers of IWRD for coordination and management of JIFAS MIS activities, facilitation of IDC meeting, and inter-departmental communication.

【Utilize and update the Officers' Manual】

Three Officers' Manuals (Improving Agriculture Extension, Construction Management, and Strengthening of WUA for O&M of Irrigation Project) and DPR preparation guidelines were prepared by the project. For the sustainable development of agriculture and irrigation in Mizoram, **it is expected that these manuals be utilized, disseminated, and penetrated within each department, and that regular updates be made.**

It is also recommended that the above manuals and guidelines be uploaded to each Department's website so that BAIDC members can make use of the Officers' Manual.

【Utilize JIFAS to resolve issues existing within Government of Mizoram】

- Decreasing of the number of officials and budget

It is predicted that the number of officials will dramatically decreases since majority of officers reach retirement age by 2027, and that the budgets related to agriculture have been limited. JIFAS has a realistic planning function that takes into account the number of staff and the budget. Thus, JIFAS is effective in efficiently managing the assets that exist at that time. **It is expected that JIFAS will be used effectively to resolve issues that exist within state Government of Mizoram.**

- Delay of funds

Frequent delays in the release of funds have prevented activities in accordance with the plan prepared by the BAIDC, and it is found that has led to a decline in farmers' motivation. However, in some case, productivity had increased even without funding due to the awareness raising of farmers in the project. **BAIDC members are expected not to solely on funds, but to raise farmers' awareness while increasing their productivity.**

【Future Development】

- Expand state-level implementation structure

JIFAS is currently in the process of establishing a framework for joint implementation at the hlock level. However, the system is headed by the SLCC, and the four department approve BAIDC plans individually. For the further development of Mizoram in the future, MAIDA, a higher level of SLCC, including the minister, should be organized to establish a funding system for the entire agricultural and irrigation development.

- Expansion of departments involved

It is recommended that the Department of Fisheries, Department of Animal Husbandry and Veteriuary, Department of Sericulture and Commerce and Industries Department be involved ensure in the JIFAS system, in addition to the four department, as there remain problems that cannot be solved by four departments.

Recommendation for SAMETI

【Continued capacity building by SAMETI】

SAMETI offers capacity building trainings to BAIDC members. It was agreed to include a training course on JIFAS in SAMETI's annual training plan. The sustainability of the training program is important to secure the sustainability of JIFAS. Therefore, **it is recommended that SAMETI continues to implement JIFAS training in the future.**

Recommendation for SLCC, IDC

【Finding a sales channels to motivate farmers】

Farmer motivation is important for improving food self-sufficiency and livelihoods. Even if crop yields increase, if there are no sales channels, there is no incentive to produce more than the amount needed for self-sufficiency. In light of the above, **it is recommended that the Mizoram government create a crop purchase mechanism to create new sales channels, utilize government-owned rice milling and processing facilities, and promote information exchange and negotiations with traders by BAIDC members.**

END

Annex: Joint Terminal Evaluation Report



Joint Terminal Evaluation Report

on

**The Project on Capacity Enhancement for Sustainable
Agriculture and Irrigation Development in Mizoram**

Joint Terminal Evaluation Team

February 2023



Index

INDEX.....	I
PROJECT SITE MAP.....	III
ABBREVIATION	IV
1. OUTLINE OF THE TERMINAL EVALUATION	1
1-1 OBJECTIVES.....	1
1-2 SCHEDULE.....	1
1-3 MEMBERS	1
1-4 EVALUATION METHOD.....	1
1-4-1 <i>Criteria for Evaluation</i>	<i>2</i>
1-4-2 <i>Data Collection Method.....</i>	<i>2</i>
2. OUTLINE OF THE PROJECT	3
2-1 BACKGROUND.....	3
2-2 SUMMARY OF THE PROJECT	3
2-3 COOPERATION PERIOD	5
2-4 IMPLEMENTATION STRUCTURE	5
2-5 TARGET AREA	6
2-6 TARGET GROUP.....	6
3. RESULT OF THE SURVEY	7
3-1 INPUT	7
3-1-1 <i>Input by Japanese Side</i>	<i>7</i>
3-1-2 <i>Input by Indian Side.....</i>	<i>8</i>
3-2 PROGRESS OF THE ACTIVITIES	8
3-3 ACHIEVEMENT OF OUTPUTS.....	13
3-4 ACHIEVEMENT OF PROJECT PURPOSE	24
3-5 PROJECTION OF ACHIEVEMENT OF OVERALL GOAL.....	26
3-6-1 <i>Impact of COVID-19 pandemic.....</i>	<i>27</i>
3-6-2 <i>Extension of the project period.....</i>	<i>27</i>
3-6-3 <i>Communication among Project members</i>	<i>28</i>
3-6-4 <i>Promoting Factor and Inhibiting Factor</i>	<i>28</i>
3-6-5 <i>Relationship with other donor.....</i>	<i>30</i>

J.

S

4. EVALUATION BY THE SIX EVALUATION CRITERIA	31
4-1 RELEVANCE	31
4-2 COHERENCE.....	32
4-3 EFFECTIVENESS	33
4-4 EFFICIENCY	34
4-5 IMPACT	35
4-6 SUSTAINABILITY	36
4-6 CONCLUSION.....	38
5. RECOMMENDATIONS	40
5-1 RECOMMENDATION FOR SLCC, IDC AND BAIDC.....	40
5-2 RECOMMENDATION FOR SAMETI.....	41
5-3 RECOMMENDATION FOR SLCC AND IDC	41
6. LESSON AND LEARNED	43

ANNEX 1: Schedule of the Joint Terminal Evaluation

ANNEX 2: List of Key Informants

ANNEX 3: Project Design Matrix Version 3.0

ANNEX 4: Plan of Operation Version 11

ANNEX 5: List of Inputs

 5-1 List of experts

 5-2 List of Counterparts

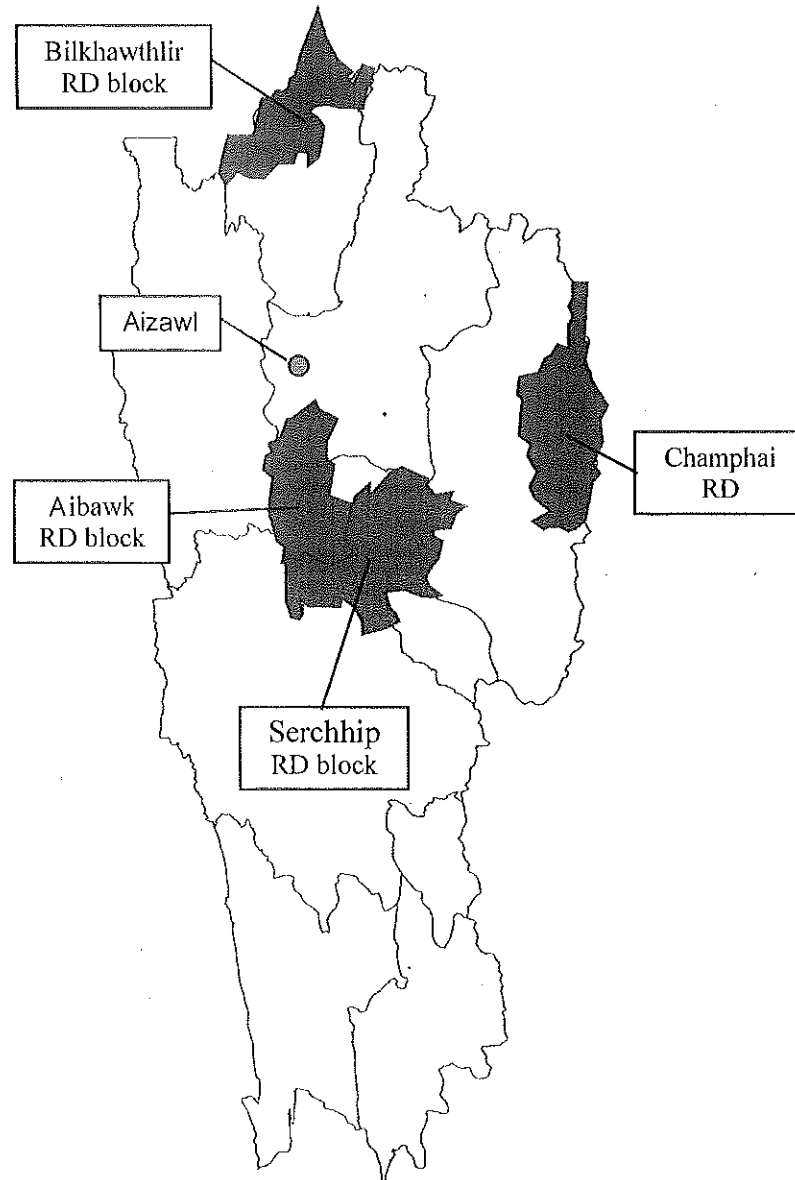
 5-3 List of Equipment

 5-4 List of Basic Trainings and Workshops

ANNEX 6: Evaluation Grid




Project site map
(Mizoram State, India)



Project site: All of Mizoram State

Pilot Rural Development (RD) blocks:

Bilkhawthlir RD block (Kolasib district : Area: 538 km², Population: 58,487)

Aibawk RD block (Aizawl District : Area: 530 km², Population: 17,128)

Champhai RD block (Champhai district : Area: 634 km², Population: 43,040)

Serchhip RD block (Serchhip district : Area: 827 km², Population: 43,242)

Handwritten signature and initials at the bottom left of the page.

Abbreviation

ATMA	Agriculture Technology Management Agency
BAIDC	Block Agriculture and Irrigation Development Committee
C/P	Counterpart
CSS	Centrally Sponsored Scheme
CTO	Core Training Officer
CUDBAS	A Method of Curriculum Development Based on Vocational Ability Structure
DAHV	Department of Animal husbandry and Veterinary
DOA	Department of Agriculture
DOF	Department of Fisheries
DOS	Department of Sericulture
DOH	Department of Horticulture
DPR	Detailed Project Report
FGD	Focus Group Discussion
FOCUS	Fostering Climate Resilient Upland Farming Systems in the North East Project
GIS	Geographic Information System
GOI	Government of India
GOM	Government of Mizoram
IDC	Inter-Departmental Committee
IFAD	International Fund for Agricultural Development
INR	Indian Rupee
IWRD	Irrigation and water resources department
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
JIFAS	JICA Sustainable Farming System
JPT	JICA Project team
JPY	Japanese Yen
KVK	Krishi Vigyan Kendra
LRSWCD	Land Resources, Soil and Water Conservation Department
MAIDA	Mizoram Agriculture & Irrigation Development Authority
MIDH	Mission for Integrated Development of Horticulture
MIP	Minor Irrigation Project
NABARD	National Bank for Agriculture and Rural Development
NAFC	National Adaptation Fund for Climate Change
NSFM	National Food Security Mission
OJT	On-The-Job Training
PDM	Project Design Matrix
PMT	Project Management Team
PO	Plan of Operation
PRA	Participatory Rural Appraisal
RD	Rural Development
R/D	Record of Discussion
RIDF	Rural Infrastructure Development Fund

TS

8

RKVY	Rashhtriya Krishi Vikas Yojana
SAMETI	State Agricultural Management and Extension Training Institute
SEDP	Socio-Economic Development Policies
SLCC	State Level Coordination Committee
TOT	Training of Trainers
WRC	Wet Rice Cultivation
WUA	Water Users Association

2

8

1. Outline of the Terminal Evaluation

1-1 Objectives

Japan International Cooperation Agency (JICA) launched a technical cooperation project “The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram” (herein after referred to as “the Project”) in July 2017 to support the Government of India. Since the Project is to be completed in March 2023, JICA dispatched a terminal evaluation team and conducted the joint terminal evaluation survey. The survey is carried out with the aim of reviewing and analyzing the achievement of project purpose and outputs, the implementation process, evaluating the Project in terms of six evaluation criteria and drawing lessons learned and recommendations.

1-2 Schedule

The terminal evaluation survey is conducted from 30 January to 15 February 2023. Details of the survey schedule are shown in Annex 1.

1-3 Members

(1) Indian Side

Name	Affiliation
Dr. James L. T. Thanga	Associate Professor, Department of Economics, Mizoram University
Mrs. Vanlalkhumtiri Chhange	Research Officer, Planning & Program Implementation Department

(2) Japanese Side

Name	Field	Affiliation
Ms. SADAMOTO Yutori	Team Leader	Deputy Director, Team 3, Agriculture and Rural Development Group 1 Economic Development Department
Mr. HIRAKI Takumi	Cooperation Planning	Team 3, Agriculture and Rural Development Group 1 Economic Development Department
Mr. OKANO Teppei	Evaluation Analysis	Consultant, ICONS Inc.

1-4 Evaluation Method

The terminal evaluation survey was conducted in accordance with the procedure of JICA Guideline for Project Evaluation. The project frameworks to be evaluated are the Project Design Matrix (PDM) version 3.0 revised on 18 February 2019 and the Plan of Operation (PO) version 11

revised on 15 December 2022

1-4-1 Criteria for Evaluation

The evaluation in this survey was conducted using the five evaluation criteria defined by the Organization for Economic Cooperation and Development (OECD) / Development Assistance Committee (DAC) shown in Table 1.

Table 1: Six evaluation criteria

Criteria	Descriptions
Relevance	Relevance is assessed and justified by the project purpose and overall goal in relation with the needs of the beneficiaries, policies of the Government of India and appropriateness of strategy or measures.
Coherence	Coherence is analyzed in terms of consistency with development assistance policies of the government of Japan and JICA, synergy with other projects and consistency with the global framework
Effectiveness	Effectiveness is assessed by evaluating the effect that the Project has achieved and contributed to the beneficiaries.
Efficiency	Efficiency is analyzed by focusing on the relationship between outputs and inputs/activities in terms of timing, quality and quantity.
Impact	Impact is identified and/or projected by referring to direct and indirect, positive and negative impacts caused by the Project.
Sustainability	Sustainability is assessed in political/institutional, organizational, financial and technical aspects by examining the extent to which the achievement of the Project will be sustained and/or expanded after the Project is completed.

1-4-2 Data Collection Method

The following information/data used for the evaluation.

- (1) Review of Documents (Progress report, End line survey report etc.)
- (2) Questionnaire Survey
- (3) Interview Survey
- (4) Direct observations



2. Outline of the Project

2-1 Background

In Mizoram, about 60% of the population is engaged in agriculture, and the rural poverty rate is as high as 35.4% compared to the Indian average of 25.7%. Although agriculture is the main industry in Mizoram, many crops are imported from other states due to low agricultural productivity. For example, rice is the staple food in Mizoram, but only one-third of the annual demand is produced in the state.

Under these circumstances, in response to the request from the Government of India, JICA conducted " the Study on Development and Management of Land and Water Resources for Sustainable Agriculture in Mizoram" from September 2013 to May 2015 and carried out the following activities: 1) formulating a long-term and comprehensive agricultural master plan covering the entire state, 2) developing a project plan for small-scale irrigation projects through inter-departmental collaboration, and 3) developing a project plan for small-scale irrigation projects. Proposed project planning procedures for small-scale irrigation projects. The formulated master plan was officially approved by the Chief Minister of the state in May 2015.

Although the master plan was successfully prepared and operationalized, it was found that the organizational capacity to implement the master plan was still low. Therefore, the Government of India has submitted another request for technical cooperation project "The Project on Capacity Enhancement for Sustainable Agriculture and Irrigation Development in Mizoram" to enhance the capacity of the state government for efficient and effective formulation of plans and implementation of model projects based on the master plan. The R/D were signed in October 2016 and the Project was launched in July 2017.

2-2 Summary of the Project

The project has been implemented based on PDM version 3.0 revised on 18 February 2019. And PO Version 11 revised on 15 December 2022. The outline of the Project is as follows.

(1) Overall Goal

Sustainable agriculture and irrigation development*¹ will be expanded in Mizoram

(2) Project Purpose

Organizational capacity of the Government of Mizoram to promote sustainable agriculture and

¹ Sustainable agriculture and irrigation development must be economically viable, socially responsible and ecologically sound. These shall be achieved by uplifting the farmers' income with due regard to environmental conservation through proper assessment of farmers' needs, available resources and market opportunities.

irrigation development is enhanced

(3) Output

1. Methods² for sustainable agriculture and irrigation development are developed.
2. Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced.
3. Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.

1. Activity

<Formulation of draft Methods in the first pilot villages>

- 1-1. Conduct baseline survey (Satellite image, GIS data, land use, farming situation, and socio-economic conditions) in order to understand the current situation of pilot RD blocks.
- 1-2. Collect and analyze existing guidelines, manuals and training materials in specific subjects and draft the methods.
- 1-3. Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation and monitoring at each pilot RD block.
- 1-4. Select one pilot village in each pilot RD block.
- 1-5. Conduct participatory rural appraisal (PRA) and elaborate land use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.
- 1-6. Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Project fund and resources.
- 1-7. Monitor and evaluate the progress and results of the activities by BAIDC.
- 1-8. Revise the methods for agriculture and irrigation development according to the results of activities.
- 1-9. Conduct follow-up activities.

<Verification and refinement of the methods in the second pilot villages>

- 1-10. Select two or three pilot villages in each pilot RD block.
- 1-11. Conduct PRA and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.

² Methods comprise implementing guideline, officers' manuals, and training materials for farmers. The methods will be refined through pilot activities.

- 1-12. Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Government fund and resources.
- 1-13. Monitor and evaluate the progress and results of the activities by BAIDC.
- 1-14. Finalize the methods.

<Capacity enhancement of the state government officials>

- 2-1. Assess the technical level of the counterpart (C/P) personnel and set up goals of capacity enhancement.
- 2-2. Conduct study tours to learn domestic and foreign advanced practices.
- 2-3. Conduct basic trainings to the state government field staff
- 2-4. Conduct on the job training (OJT) through activities in the pilot villages.
- 2-5. Verify the achievement of the goals set by C/P personnel.
- 2-6. Organize seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the Project.

<Establishment of collaborative implementation framework among the state government departments>

- 3-1. Prepare a collaboration and cooperation framework (institutional and organizational structure, budget allocation, decision-making process etc.) among state departments relating to agriculture and irrigation development in Mizoram based on the activity 1 and 2.
- 3-2. Elaborate an action plan to expand project outputs to all RD blocks in Mizoram.

2-3 Cooperation Period

July 2017 to March 2023 (Five years and Eight months)

2-4 Implementation Structure

Implementation Agency in the State of Mizoram, India

- Irrigation and Water Resources Department (IWRD)
- Department of Agriculture (DOA)
- Department of Horticulture (DOH)
- Land sources and Soil and Water Conservation Department (LRSWCD)

Other relevant Organization

- Rural Development Department (RDD),

- Commerce and Industries Department (C&ID),
- Department of Forest and Environment (DFE&CC),
- Department of Fisheries (DOF)

2-5 Target Area

- All of Mizoram State
- Pilot Rural Development (RD) blocks: Bilkhawthlir RD block (Kolasib district), Aibawk RD block (Aizawl District), Serchhip RD block (Serchhip district) and Champhai RD block (Champhai district)

2-6 Target Group

【Direct Beneficially】

- The state government officials (IWRD, DOA, DOH, LRSWCD)

【Indirect Beneficially】

- Farmers at the pilot RD blocks and other relevant organizations.



3. Result of the Survey

3-1 Input

3-1-1 Input by Japanese Side

Table 2 shows the comparison of the input planned in PDM version 3.0 revised in 18 February 2019 and the actual inputs from the Japanese side.

Table 2: Input by Japanese side

Plan (PDM version 3.0)	Actual (as of January 2022)										
1) Experts: - Chief Advisor/ Development Planning - Irrigation / O&M / Farmers' Organization (1) - Food Crop Cultivation Technologies and Farmers' Organization (2) - Cash Crop Cultivation Technologies (1) - Cash Crop Cultivation Technologies (2) - Marketing - Land Use and Resources Management - Environmental and Social Considerations - Project Coordinator/Training	[Japanese Experts] The following experts were dispatched (Total 157 P/M) - Chief Advisor / Development Planning - Irrigation / Operation & Maintenance (O&M) / Farmers' Organization (1) - Food Crop Cultivation Technologies and Farmers' Organization (2) - Cash Crop Cultivation Technologies (1) - Cash Crop Cultivation Technologies (2) - Marketing - Land Use and Resources Management - Environmental and Social Considerations - Design /Construction Management										
2) Equipment - Satellite image map (if necessary) - Machineries and equipment necessary for offices, surveys, activities in the pilot villages	[Equipment] Machinery and equipment such as Copying machines, Multifunction printers, Projectors, Video camera, Desktop PCs, Generators, Video conference equipment with a total cost of approximately 7,228,000 JPY were provided.										
3) Training - Training in other states India - Training in Japan	[Training in Japan] 18 counterpart personnel participated in the training in Japan. (8 people in 2018 and 10 people in 2019) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Title of Training</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>Capacity enhancement training on agriculture extension and irrigation development and management in hilly area</td> <td>Sep-Oct 2018</td> </tr> <tr> <td>Capacity enhancement training on agriculture extension, irrigation development and management and food crop cultivation in hilly area</td> <td>Sep 2019</td> </tr> </tbody> </table> One scheduled training in Japan was cancelled due to travel restrictions imposed by COVID-19.	Title of Training	Duration	Capacity enhancement training on agriculture extension and irrigation development and management in hilly area	Sep-Oct 2018	Capacity enhancement training on agriculture extension, irrigation development and management and food crop cultivation in hilly area	Sep 2019				
Title of Training	Duration										
Capacity enhancement training on agriculture extension and irrigation development and management in hilly area	Sep-Oct 2018										
Capacity enhancement training on agriculture extension, irrigation development and management and food crop cultivation in hilly area	Sep 2019										
4) Project operation cost	[Project operation cost] <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Period</th> <th>Amount (JPY)</th> </tr> </thead> <tbody> <tr> <td>July 2017 to July 2018:</td> <td>17,598,000</td> </tr> <tr> <td>August 2018 to August 2021:</td> <td>73,829,000</td> </tr> <tr> <td>October 2021 to March 2023:</td> <td>32,192,000</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total JPY 123,619,000 (INR 76,831,140)³</td> </tr> </tbody> </table>	Period	Amount (JPY)	July 2017 to July 2018:	17,598,000	August 2018 to August 2021:	73,829,000	October 2021 to March 2023:	32,192,000	Total JPY 123,619,000 (INR 76,831,140) ³	
Period	Amount (JPY)										
July 2017 to July 2018:	17,598,000										
August 2018 to August 2021:	73,829,000										
October 2021 to March 2023:	32,192,000										
Total JPY 123,619,000 (INR 76,831,140) ³											

³ INR 1= JPY 1.608970 / JICA Monthly exchange rate in January 2023

(Source: Project report)

3-1-2 Input by Indian Side

Table 3 shows the comparison of the input planned in PDM version 3.0 revised in 18 February 2019 and the actual inputs from the Indian side.

Table 3: Input by India side

Plan (PDM version 3.0)	Actual (as of January 2023)										
1) Personnel - Counterpart (C/P) personnel of related departments	[Allocation of Counterpart Personnel] A total of 61 counterpart personnel since 2017 - IWRD :15 people - DOA :16 people, - DOH :17 people, - LRSWCD :13 person The breakdown of the above C/P members is Project Management Team (PMT):15 people, Core Training Officer (CTO):8 people, Aibawk BAIDC member 15 people, Camphai BAIDC member:11 people and Bilkhawthlir BAIDC member:12 people. 50 of these personnel are active as of January 2023.										
2) Equipment/facilities - Office space at MID Aizawl, Kolasib, Serchhip and Champhai	[Project Office and necessary Equipment] Office space with furniture for Japanese experts and BAIDC in 5 locations as follow - JICA Project Team office : Aizawl city - Bilkhawthlir BAIDC : Kolasib town - Serchhip BAIDC : Serchhip town - Champhai BAIDC : Champhai town - Aibawk BAIDC: Aizawl city										
3) Others - Travel expenses and allowances for C/P personnel	[Other expenses] Necessary expenses and allowance are provided.										
4) Counterpart budget	[Budget for the project activities] <table border="1"><thead><tr><th>Period</th><th>Amount (INR)</th></tr></thead><tbody><tr><td>July 2017 to July 2018:</td><td>138,000</td></tr><tr><td>August 2018 to August 2021:</td><td>11,537,491</td></tr><tr><td>October 2021 to March 2023:</td><td>4,634,644</td></tr><tr><td colspan="2">Total INR16,310,135 (JPY 26,242,518)⁴</td></tr></tbody></table>	Period	Amount (INR)	July 2017 to July 2018:	138,000	August 2018 to August 2021:	11,537,491	October 2021 to March 2023:	4,634,644	Total INR16,310,135 (JPY 26,242,518) ⁴	
Period	Amount (INR)										
July 2017 to July 2018:	138,000										
August 2018 to August 2021:	11,537,491										
October 2021 to March 2023:	4,634,644										
Total INR16,310,135 (JPY 26,242,518) ⁴											

(Source: Project report)

3-2 Progress of the Activities

The project was originally planned as five-years project, from July 2017 to July 2022. However, due to various restrictions on traveling and meeting, etc. caused by COVID-19 pandemic since March 2020, it was difficult to implement the activities on schedule. As a result of discussions among the JICA Project Team (JPT), PMT, and JICA, the project period has been extended by eight months to March 2023. During the extended period, the Project focus on the activities related to

⁴ INR 1= JPY 1.608970/JICA Monthly exchange rate in January 2023

Output2 and Output 3, to expand the coverage area by disseminating the BAIDC system (JIFAS).

Table 4 shows the progress of the activities.

Table 4: Progress of activity

Activity	Progress
<Formulation of draft Methods in the first pilot villages>	
1.1 Conduct baseline survey (Satellite image, GIS data, land use, farming situation, and socio-economic conditions) in order to understand the current situation of pilot RD blocks.	<p>【Completed】</p> <ul style="list-style-type: none"> • GIS data analysis was carried out to understand hydrological and geographical condition of pilot RD blocks • Pre baseline survey and base line survey were conducted by the Mizoram University and necessary socio economic and agriculture data by village were collected and compiled.
1.2 Collect and analyze existing guidelines, manuals and training materials in specific subjects and draft the methods.	<p>【Completed】</p> <ul style="list-style-type: none"> • The working groups were formed to help the PMT for discussion and drafting the Method with the aspect of crop production, farmers' organization, irrigation and overall implementation procedure. • Following drafts of Methods were compiled under this activity. <ul style="list-style-type: none"> ➤ Implementation guideline ➤ Officers' Manual <ul style="list-style-type: none"> - Construction Management - Strengthening of Water Users Association (WUA) for O&M of Minor Irrigation Project - Manual for Improving Agricultural Extension ➤ Training Material
1.3 Establish Block Agriculture and Irrigation Development Committee (BAIDC) which will coordinate the project planning, implementation and monitoring at each pilot RD block.	<p>【Completed】</p> <ul style="list-style-type: none"> • 4 BAIDC are established in pilot RD blocks • PMT was established in State level • BAIDC Serchhip was dissolved based on the recommendation made by the JICA Review Mission in 2019
1.4 Select one pilot village in each pilot RD block.	<p>【Completed】</p> <ul style="list-style-type: none"> • 4 pilot villages were selected with discussion among BAIDC and approved by PMT. <ul style="list-style-type: none"> ➤ Buhchangphai (Bilkhawthlir RD Block) ➤ Sailam (Aibawk RD Block) ➤ Serchhip II (Serchhip RD Block) ➤ Hnahlan (Champhai RD Block)
1.5 Conduct participatory rural appraisal (PRA) and elaborate land use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.	<p>【Completed】</p> <ul style="list-style-type: none"> • PRA workshops were conducted with BAIDC member for 4 pilot villages as follows. <ul style="list-style-type: none"> ➤ 11 Dec. 2017 Buhchangphai ➤ 17 Nov. 2017 Sailam ➤ 21 Nov. 2017 Serchhip II ➤ 1 Dec. 2017 Hnahlan
1.6 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Project fund and resources.	<p>【Completed】</p> <ul style="list-style-type: none"> • BAIDC Annual Activity Plan 2018 were prepared for 4 villages. Total 20 projects were listed in the plan. • 19 projects out of 20 projects listed on the BAIDC Annual Activity Plan 2018 were implemented including DPR preparation in infrastructure related activities. • The BAIDC Annual Activity Plan for 2019 including 10

	<p>projects in 4 villages were formed in February 2019 and implemented accordingly.</p>
1.7 Monitor and evaluate the progress and results of the activities by BAIDC.	<p>【Completed】</p> <ul style="list-style-type: none"> • Feedback meeting at 4 pilot villages were conducted in Feb. 2019. • The progress review meeting for BAIDC Annual Activity Plan 2019 was held every two months. • Feedback meeting with farmers and BAIDC member was conducted in 1st pilot villages. • The overall wrap up meeting for 1st pilot was carried out with concern government official on 21 May 2020.
1.8 Revise the methods for agriculture and irrigation development according to the results of activities.	<p>【Completed】</p> <ul style="list-style-type: none"> • The Implementation Guidelines and Officers' Manual were revised by the Core Training Officers appointed to the JPT and PMT. • On-line test was conducted for officers' manual as follows. <u>Manual for Improving Agricultural Extension"</u> • The online test was conducted in May to June 2020 • 17 BAIDC members joined in the online test and 15 BAIDC members who obtained 90% or above of the total score were eligible to receive the certificate • <u>Manual for "Construction Management" and "Strengthening of WUA for O&M of MIP"</u> • The online test was conducted on July 2020 • 13 BAIDC members joined in the online test and 13 BAIDC member who obtained 90% or above of the total score were eligible to receive the certificate.
1.9 Conduct follow-up activities.	<p>【Completed, but inefficient implementations】</p> <ul style="list-style-type: none"> • The follow-up activities were carried out by BAIDC from May 2020 for the following villages with 7 projects. <ul style="list-style-type: none"> ➢ Buhchangpai (3 projects) ➢ Sailam (2 projects) ➢ Hnahlan (2 projects) • Agriculture Technology Management Agency (ATMA) and JPT conducted on-site training on the preparation of Organic Manure 'Bokashi' to the WRC farmers from 2nd Pilot village Lamchhip in July 2022. • To enhance and facilitate the activities of WUA from the 1st and 2nd Pilot Villages, checking the conditions of the Irrigation facilities were carried out during July 2022. • To enhance and facilitate the cultivation activities of WUA from the 1st and 2nd Pilot Villages, farmers were provided with seeds in October 2022. • The follow-up activities in 1st pilot village were not carried out as planned due to the travel and meeting restrictions caused by COVID-19 pandemic.
<p><Verification and refinement of the methods in the second pilot villages></p>	
1.10 Select two or three pilot villages in each pilot RD block.	<p>【Completed】</p> <ul style="list-style-type: none"> • With recommendation of operational instruction survey by JICA HQ, the number of pilot villages reduced to one per RD block. • The following three villages were selected by BAIDC and approved by PMT. <ul style="list-style-type: none"> ➢ Bilkhawthlir North (Bilkhawthlir RD Block)

	<ul style="list-style-type: none"> ➤ Lamchhip (Aibawk RD Block) ➤ Tlangsam (Champhai RD Block)
1.11 Conduct PRA and elaborate land-use plan, resource management plan, village farming plan and village irrigation plan in each pilot village.	<p>【Completed】</p> <ul style="list-style-type: none"> • Core Training Officers supervised and BAIDC conducted the activities. • The awareness meeting on sustainable land use and resources management with the discussion of village agriculture development vision were carried out in three villages. <ul style="list-style-type: none"> ➤ Bilkhawthlir North (18 Oct. 2019) ➤ Lamchhip (15 Oct. 2019) ➤ Tlangsam (22 Oct. 2019)
1.12 Prepare an implementation plan for each department and implement prioritized activities based on the above plans in each pilot village by utilizing the Government fund and resources.	<p>【Completed】</p> <ul style="list-style-type: none"> • Core Training Officers supervised and BAIDC conducted the activities. • After joint field survey, BAIDC have prepared BAIDC annual activity plan 2020 for 3 villages. <ul style="list-style-type: none"> ➤ Bilkhawthlir North (4 Nov. 2019) ➤ Lamchhip (15 Nov. 2019) ➤ Tlangsam (19 Nov. 2019) • The annual activity plans were submitted to PMT in November 2019 and PMT made comments for refining. • The plan was officially approved and the necessary budget for implementation of BAIDC annual activity plan 2020 and 2021 are provided. • The fund allocation to irrigation works was delayed due to COVID-19 pandemic
1.13 Monitor and evaluate the progress and results of the activities by BAIDC.	<p>【Completed, but inefficient implementations】</p> <ul style="list-style-type: none"> • Due to the travel restriction of Japanese expert to India, monitoring of the activities was carried out by national expert of JPT in the field. • Inefficient implementations are observed due to the travel and meeting restrictions caused by COVID-19 pandemic. • The Japanese and national expert were conducting video-conferencing every week and confirm the progress, schedule and issues. Although there is delay in some activities due to lockdown and delay in budget arrangement, 89% of the activities are carried by BAIDC member. • OJT and Off-JT for agriculture extension and construction management are in the process.
1.14 Finalize the methods.	<p>【Completed】</p> <ul style="list-style-type: none"> • Implementation guideline and officers' manual were finalized and print. • Since some aspects of the verification in the 2nd pilot activity were found to be insufficient, it was decided to revise it periodically in the future.
Activity 2	
<Capacity enhancement of the state government officials>	
2.1 Assess the technical level of the counterpart (C/P) personnel and set up goals of capacity enhancement.	<p>【Completed】</p> <ul style="list-style-type: none"> • Conduct Curriculum Development Based on Vocational Ability Structure (CUDBAS) workshop and follow up workshop with PMT and BAIDC member on 8 August and 31 October 2017 respectively.

	<ul style="list-style-type: none"> • Total 41 personnel prepared their skills development target based on the assessment of their technical level during the workshop. • Questionnaire is given to each BAIDC member to self-grade their technical skill in the priority items they themselves have selected, which is assessed annually by JPT.
2.2 Conduct study tours to learn domestic and foreign advanced practices.	<p>[Completed]</p> <ul style="list-style-type: none"> • “Capacity enhancement training on agriculture extension and irrigation development and management in hilly area” was carried out in Tokushima Prefecture in Japan for 12 days in September and October 2018. Eight officers participated in the training. • “Capacity enhancement training on agriculture extension, irrigation development & management and food crop cultivation in hilly area” 15 days in September 2019. Ten officers participated in the training. • Wrap-up meeting were held to share the experiences in training in Japan.
2.3 Conduct basic trainings to the state government field staff	<p>[Completed]</p> <ul style="list-style-type: none"> • Basic trainings and workshops were implemented during the project period as shown in Annex5-4. • Core Training Officers (CTO) were assigned and trained to ensure that Mizoram personnel proactively continue to strengthen their skills. • During COVID-19 period, on-line trainings were provided to counterparts but it is not effective due to poor connectivity • Additional training was also provided to officials in all RD blocks to implement the Action Plan. However, timely implementation was difficult due to COVID-19.
2.4 Conduct on the job training (OJT) through activities in the pilot villages.	<p>[Completed, but inefficient implementations]</p> <ul style="list-style-type: none"> • OJT, through pilot activities in the 1st pilot villages and 2nd pilot villages were conducted. • Due to the travel restriction of Japanese experts to India, the opportunities of OJT in 2nd pilot village were limited.
2.5 Verify the achievement of the goals set by C/P personnel.	<p>[Completed]</p> <ul style="list-style-type: none"> • The technical level is self-evaluated, and a score of 1 to 5 is given, and the field of capacity enhancement and the technical level were evaluated every year. • Initially, monitoring of this technical level was started for 76 people, but due to frequent changes of BAIDC members, 22 people have been able to continue monitoring since 2017. • The evaluation was carried out during endline survey period. Compare to self-rating score between 2017 and 2021, 80% of PMT increase the skills
2.6 Organize seminars for the state government field staff working for agriculture and irrigation development in the state to disseminate the outputs of the Project.	<p>[Completed]</p> <ul style="list-style-type: none"> • The 1st seminar to share the achievements and JIFAS was carried out with the presence of Minister / Secretary of DOA and IWRD on 6 January 2022. • The 2nd seminar was held in 31 January 2023.
Activity 3	
3.1 Prepare a collaboration and cooperation framework (institutional and	<p>[Completed]</p> <ul style="list-style-type: none"> • Necessary actions for establishment of collaboration and

<p>organizational structure, budget allocation, decision-making process etc.) among state departments relating to agriculture and irrigation development in Mizoram based on the activity 1 and 2.</p>	<p>cooperation framework were discussed in the PMT meeting on 28 May 2019.</p> <ul style="list-style-type: none"> • The road map for institutionalization of “method” and “BAIDC functions” including establishment of collaboration and cooperation framework was prepared by PMT and approved by the 4th JCC on 22 November 2019. • Sensitization workshop was conducted in four departments. • Based on the recommendation of sub-committee headed by Planning Secretary, the Inter Departmental Committee (IDC) and State Level Coordination Committee (SLCC) for JIFAS operation are officially established in November 2022.
<p>3.2 Elaborate an action plan to expand project outputs to all RD blocks in Mizoram.</p>	<p>【Completed】</p> <ul style="list-style-type: none"> • Based on the approved action plan, BAIDC in 6 RD blocks in 1st batch were formed and BAIDC annual activity plan for 2022/23 for 25 villages were prepared in May 2022 • Progress Review Meeting were conducted with the 1st Batch in the 6 RD blocks. During the meeting, BAIDC members were also presented and reiterated the various manuals. • Guidelines for Irrigation Project, Manual for Improving Agricultural Extension. Progress review meeting were conducted in each RD blocks in October 2022. • Preparation of BAIDC Annual Activity Plan 2023-24 (Batch-2) was conducted for 10 RD Blocks in October 2022. BAIDC members selected their priority villages and prepared the BAAP based on the availability of CSS and SSS. • Ratification of BAAP 2023-24 (Batch-2) for 10 RD Blocks were conducted from November to December 2022. BAIDC members from 2nd Batch each explain and provided information to the village leaders and farmers. • Sensitization program was conducted in 4 departments

(Source: Project report)

3-3 Achievement of Outputs

The activities of the Project were implemented in line with the PO, and the all indicators set for Outputs 1, 2 and 3 were achieved. Table 5 shows the status of the achievement of outputs.

Table 5: Status of achievement of Output

	Verifiable Indicator	Status of achievement
Output 1	1-1 Production of food crop is increased by 12.5% in pilot farmers in the first pilot villages.	Achieved
	1-2 Farm income of cash crop is increased by 12.5% in the pilot farmers (excluding orchard or plantation farmers) in first stage pilot villages.	Achieved
	1-3 50% of the technologies practiced in the pilot farmers are disseminated to other farmers in the first pilot villages	Achieved
	1-4 More than 80% of village plan are implemented in the first pilot villages.	Achieved
	1-5 Activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian	Achieved

	central/Mizoram gov.	
Output 2	2-1 More than 60% of the nominated counterparts achievement goal set by them.	Achieved
	2-2 More than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development	Achieved
Output 3	3-1 Action plan to expand project output to all RD blocks in Mizoram is prepared by PMT	Achieved

(1) Achievement of Output 1

Output 1. Methods for sustainable agriculture and irrigation development are developed.

Indicator 1-1: Production of food crop is increased by 12.5% in pilot farmers in the first pilot villages.

[Achieved]

- The average yield for 3 years for 12 WRC pilot farmers in 3 villages are achieved 4,455 kg/ha which is **60.4% higher** than productivity of controlled farmers' average of 2,777 kg/ha

The 1st pilot villages subject to indicator 1-1 are the following 4 villages in 4 BAIDC. The activity plan for each pilot village is shown in the table below.

Table 6: The activity plan in 1st Pilot Villages.

Village	Target Area	IN No.	Name of Project	Department in charge
Buhchangphai	Settled Slope	BU-01	Improvement of areca nuts productivity	DOA / KVK
		BU-02	Improvement of bloom grass productivity	LRSWCD
	WRC	BU-03	Improvement of WRC area productivity	DOA IWRD
Sailam	Settled Slope	SA-02	Support for transition from Jhum to settled farming	DOH
		SA-03	Improvement of orange productivity	DOH
	WRC	SA-05	Improvement of WRC area productivity	DOA DOA IWRD
Sechhip II	WRC	SE-03	Rehabilitation of Lumtui MIP	IWRD
Hnahlan	Jhum	HN-01	Improvement of Jhum cultivation	LRSWCD DOA
	Settled Slope	HN-02	Promotion of vegetable cultivation in grape field	DOH IWRD
	WRC	HN-04	Improvement of WRC area productivity	DOA DOH

(Source: Project report)

Some of these pilot activities aim to increase food production in the Wet Rice Cultivation (WRC) through sustainable cultivation and irrigation techniques. For this reason, "Production of food crop" set in this indicator is measured by the amount of increase in rice production by WRC in 1st pilot villages. The base figure for "the increase" in the indicator is the production of rice of randomly selected "control farmer" in the endline survey. The comparison between the "controlled farmers" and "pilot farmers" confirms the result of the intervention on the target farmers. Note that BAIDC Serchipp was not included in the endline survey because it is no longer in the target area of the activity. Therefore, comparisons were made on the changes in yields in 3 villages. The result shows that the average yield for 3 years for 12 WRC pilot farmers in 3 villages are achieved 4,454.99 kg/ha which is 60.4% higher than productivity of controlled farmers' average of 2,777.10 kg/ha. Thus, the indicator 1-1 has been achieved.

Table 7: Production in the WRC in 1st Pilot Villages.

Year	Pilot (A)		Controlled (B)		Difference b/w A and B (%)
	No. of cases	Average production (kg/Ha)	No. of cases	Average production (kg/Ha)	
2018-2019	11	4250.46	12	2676.51	58.8
2019-2020	12	4961.75	12	2830.45	75.3
2020-2021	12	4135.72	12	2824.33	46.4
3years		4454.99		2777.10	60.4

(Source: Endline survey report)

Indicator 1-2: Farm income of cash crop is increased by 12.5% in the pilot farmers (excluding orchard or plantation farmers) in first stage pilot villages.

[Achieved]

- The cash income of pilot farmers and controlled farmers are INR121,433 and INR88,917 respectively in average. The income of pilot farmers is **36.5% higher** than the one of controlled farmers.

Indicator 1-2 measures the extent to which farm income is improved by cash crop production. Pilot farmers grow cash crops and other crops together, making it difficult to estimate the amount of cash crop production on cultivated land. Therefore, the endline survey team analyzed the data on the increase in farm income from cash crop production. For the purpose, farm income from the sale of cash crops grown by the pilot farmers was studied, and an equal number of other cash crop growers were sampled for comparison. The cash crops surveyed included, Sweet Corn, French Bean, Tomato, Mizo Chili, Mustard Leaf, Mock Tomato, Chana, Potatoes, and Cowpea leaf. Crops which have been grown prior to the start of the Project, such as Oranges, Arecanuts, and Bloom, were excluded from

the analysis, as it was considered difficult for the project activities to have an immediate impact on production. The table below shows that the income of the pilot farmers is 36.5% higher than that of the control farmers.

Table 8: Annual income from Cash crops in 1st Pilot Villages.

in Rupees

	2018-2019		2019-2020		2021-2022		3 years average	
	Control	Pilot	Control	Pilot	Control	Pilot	Control	Pilot
Annual Income by Cash Crop	104,050	203,650	95,550	103,150	67,150	57,500	88,917	121,433
Difference	95.7%		7.9%		-14.3%		36.5%	

Cash Crop: Broom, Sweet Corn, French Bean, Tomato, Mizo Chili, Mustard Leaf, Mock Tomato, Chana, Potatoes, Cowpea leaf

(Source: Endline survey report)

It can be seen from the table that the income of the pilot farmers has decreased in 2020-2021. According to the pilot farmers, the reasons are restriction caused by COVID-19 pandemic and natural factors such as insect infestation. In the meantime, at the Focus Group Discussion (FGD) meeting held on 21 November 2021, it was noted that cash crop production has improved significantly due to the implementation of the JICA project. The productivity of the varieties introduced by JPT was also highly appreciated. Therefore, it is assumed that the Project had a positive impact on increasing farmers' income from cash crops.

Indicator 1-3: 50% of the technologies practiced in the pilot farmers are disseminated to other farmers in the first pilot villages

【Achieved】

- Out of 21 major skills provided to pilot farmers, 14 skills (66.7%) are disseminated to others in cultivation technologies.
- Out of 42 skills in total provided in 3 pilot villages, 26 skills (61.9 %) are rooted in WUA

This indicator measures the extent to which the technologies transferred by the Project have been disseminated from the pilot farmers to other farmers. According to the endline survey, 14 out of a total of 21 technologies for cultivation were reported to have been disseminated to other farmers. Among 42 key technologies (14 technologies / village) transferred to the WUA, 26 key technologies achieved at least 75% of their planned targets, indicating that the technologies are being adopted and utilized.

The survey was conducted to determine whether pilot farmers learned the new technology and disseminated it to other farmers through FDG. The results are shown in the table below. Technologies that had not been disseminated to other farmers tended to be less well understood by the pilot farmers. The results showed that the technologies related to “Promotion of vegetable cultivation in grape fields” in Hnahlan and “Improvement of WRC area productivity” in Buhchangphai have not been widely disseminated to other farmers.

Table 9: List of technology introduced in 1st Pilot Villages.

ID	Activity		Technology	Dissemination to other farmers
HN-03	Improvement of WRC area productivity	1	Nursery Management (shifting from Jhum type nursery)	Yes
		2	Line transplanting	Yes
		3	Weeding at the proper time	Yes
HN-02	Promotion of vegetable cultivation in grape fields	4	Selection of marketable vegetable	No
		5	Raising of vegetable seedlings	No
		6	Proper fertilizer application	No
BU-03	Improvement of WRC area productivity	7	Nursery Management	No
		8	Line transplanting	No
		9	Weeding at the proper time	No
BU-01	Improvement of arecanut productivity	10	Nursery preparation for raising healthy arecanut seedlings	Yes
		11	Inter crop cultivation (banana)	Yes
		12	Construction of half-moon terrace	Yes
BU-02	Improvement of Broom Grass productivity	13	Selection of Phiahpui variety to meet a market need	Yes
		14	Proper time of harvesting to sell Grade 1 quality products	Yes
		15	Contour line planting	No
SA-04	Improvement of WRC area productivity	16	Nursery Management	Yes
		17	Line transplanting	Yes
		18	Weeding at the proper time	Yes
SA-03	Improvement of orange productivity	19	Pruning and training	Yes
		20	Construction of half-moon terrace	Yes
		21	INM and IPM	Yes

(Source: Endline survey report)

Regarding technology transfer to WUAs, 14 key technologies were transferred to WUAs in the three regions. The status of the establishment of each technology is shown in the table below.

Table 10: List of technology introduced in 1st Pilot Villages.

WUA	Key Activities		Key Technologies	Achievement
Water User Association	Water User Association (WUA)	1	Establishment and registration of WUA	100%
		2	Awareness of role and responsibilities of WUA	75%
		3	Financial management and book keeping	100%

	Community Managed Consutraction Work	4	Management of manpower, machinery & material supply	75%	
		5	Quality control of construction works	100%	
		6	Monitoring and recording of the works	100%	
		7	Financial management and book keeping	100%	
	Operation of Irrigation Facilities	8	Water distribution plan	50%	
		9	Normal operation and emergency measures	75%	
		10	Water management at on-farm level	75%	
		11	Measurement and recording	50%	
	Maintenance for irrigation system	12	Preparation of maintenance plan	50%	
		13	Maintenance activities, cleaning and repair works	75%	
		14	Collection of water fee and budget allocation	50%	
	2. Tukhurlui MIP, Water User Association – Buhchangphai	Water User Association (WUA)	15	Establishment and registration of WUA	100%
			16	Awareness of role and responsibilities of WUA	100%
			17	Financial management and book keeping	100%
Community Managed Consutraction Work		18	Management of manpower, machinery & material supply	50%	
		19	Quality control of construction works	75%	
		20	Monitoring and recording of the works	75%	
		21	Financial management and book keeping	75%	
Operation of Irrigation Facilities		22	Water distribution plan	75%	
		23	Normal operation and emergency measures	50%	
		24	Water management at on-farm level	75%	
		25	Measurement and recording	50%	
Maintenance for irrigation system		26	Preparation of maintenance plan	75%	
		27	Maintenance activities, cleaning and repair works	75%	
		28	Collection of water fee and budget allocation	50%	
3. Dihnui, Water User Association – Hnahlan	Water User Association (WUA)	29	Establishment and registration of WUA	100%	
		30	Awareness of role and responsibilities of WUA	75%	
		31	Financial management and book keeping	100%	
	Community Managed Consutraction Work	32	Management of manpower, machinery & material supply	75%	
		33	Quality control of construction works	50%	
		34	Monitoring and recording of the works	50%	
		35	Financial management and book keeping	50%	
	Operation of Irrigation Facilities	36	Water distribution plan	75%	
		37	Normal operation and emergency measures	50%	
		38	Water management at on-farm level	75%	
		39	Measurement and recording	25%	
	Maintenance for irrigation system	40	Preparation of maintenance plan	50%	
		41	Maintenance activities, cleaning and repair works	50%	
		42	Collection of water fee and budget allocation	25%	

(Source: Endline survey report)

1-4 More than 80% of village plan are implemented in the first pilot villages.

[Achieved]

- Out of 82 activities under 7 following up 1st pilot projects, 79 activities (96%) are implemented

Indicator 1-4 measures the implementation of the pilot project activities implemented in the 1st pilot village. For each of the activities planned in the seven projects implemented, the survey asked

whether they were implemented or not. The results showed that out of a total of 82 activities, 79 activities were implemented as planned (96.3%).

Of the three activities that were not implemented, "Field Investigation, topographic survey for development of terraces and construction" on HN-02 was due to lack of funds; "Evaluation" on BU-01 was due to difficulties in assessing the areca nuts harvest, which takes 5-7 years; and "Make strategy on above subject" on BU-03 was assumed to be due to the fact that the WRC cultivation did not proceed as they had expected.

Table 11: Implemented activities in 7 following up 1st pilot projects

		Pilot Project	Planned Activities	Implemented	Activities NOT implemented
Hnahlan	HN-02	Promotion of vegetable cultivation in grape field	11	10	Field Investigation, topographic survey for development of terraces and construction
	HN-04	Improvement of WRC area productivity	15	15	
Sailam	SA-03	Improvement of orange productivity	7	7	
	SA-05	Improvement of WRC area productivity	15	15	
Buhchangphai	BU-01	Improvement of Arecanut productivity	7	6	Evaluation
	BU-02	Improvement of broom grass productivity	9	9	
	BU-03	Improvement of WRC area productivity	18	17	Development of strategy
			82	79	

(Source: Endline survey report)

1-5 Activities are commenced based on BAIDC annual plan in the second stage pilot villages by utilizing the budget of Indian central/Mizoram gov.

【Achieved】

- According to the endline survey report, 77 activities under 11 pilot projects were implemented by BAIDC in the second pilot villages with funding support from the state and central government.

The 2nd pilot villages assessed by this indicator are the following 3 villages in the 3 BAIDC. The activity plan for each pilot village is shown in the table below. These pilot projects in the 2nd pilot village are planned to be implemented with the budgets of state and central budgets government. According to the endline survey, the Action plan for each BAIDC was implemented through the Central Sponsored Scheme (CSS), the allocation of funds from the State's Socio-Economic

Development Policies (SEDP) and Rural Infrastructure Development Fund (RIDF), which is the GOM's loan from National Bank for Agriculture and Rural Development (NABARD). The major CSS integrated into the activities were, National Food Security Mission (NFSM), Mission for Integrated Development of Horticulture (MIDH), National Adaptation Fund for Climate Change (NAFC), Rashhtriya Krishi Vikas Yojana (RKVY).

Table 12: The activity plan in 2nd Pilot Villages.

Village	Target Area	IN No.	Name of Project	Funding sources
Bikhawthlir North	WRC	BN-01	Increase production of paddy and productivity of WRC area	CSS
		BN-02	Improvement of vegetables productivity	CSS
		BN-03	To control and reduce stream bank erosion and protect the cropland from huge loss of fertile soil.	CSS, SEDP
		BN-04	Rehabilitations and Extensions of Lungzawn M.I Project	
Lamchhip	Settled Slope	LC-01	Achieve sustainable vegetable cultivation	IWRD, RIDF, CSS, SEDP
	WRC	LC-02	Enhance paddy production	DOA, CSS, SEDP
		LC-03	Promote Rabi crops	CSS, SEDP
Tlamsam	Settled Slope	TL-01	Increase vegetable production in Kharif	JICA, DOH, RSWCD, CSS, SEDP
		TL-02	Promotion of vegetables cultivation in Rabi	DOH, CSS, SEDP
	WRC	TL-03	Improvement of WRC area productivity	IWRD RIDF, DOA, SEDP, CSS
		TL-04	Introduction of Rabi crops	DOA, DOH, SEDP, IWRD RIDF, CSS

(Source: Project report)

A total of 108 activities were planned for the 2nd pilot village, of which 92 were implemented with funding support from the state and central government. Since approximately 85% of the planned activities have been implemented, this indicator is judged to have been achieved.

Some of the pilot activities that were not implemented were due to the lockdown and the lack of funds and delays caused by COVID-19. In particular, most of the planned activities by LC-03, "Promote Rabi crops" were not able to be implemented due to lack of funds.

Table 13: Implemented activities in the 2nd pilot projects

	Pilot Project	Planned	Done	Major activities NOT implemented (as of Jan-Feb 2022)	
Bikawrhitr North	BN-01	Increase production of paddy and productivity of WRC area	15	15	Evaluation
	BN-02	Improvement of vegetables productivity	7	7	
	BN-03	To control and reduce stream bank erosion and protect the cropland from huge loss of fertile soil.	5	4	
	BN-04	Rehabilitations and Extensions of Lungzawn M.I Project	6	6	
Lamchhip	LC-01	Achieve sustainable vegetable cultivation	10	9	Prepare DPR Construct Irrigation facilities Monitor the cultivation and collect field data Conduct yield and profitability survey
	LC-02	Enhance paddy production	8	6	
	LC-03	Promote Rabi crops	6	1	
Tlangsam	TL-01	Increase vegetable production in Kharif	13	10	Conduct training Construct terrace Monitor and collect data Conduct yield survey Provide irrigation facilities Discuss and prepare next year program
	TL-02	Promotion of vegetables cultivation in Rabi	7	7	
	TL-03	Improvement of WRC area productivity	9	7	
	TL-04	Introduction of Rabi crops	9	5	
			95	77	

(Source: Endline survey report)

(2) Achievement of Output 2

Output 2: Capacity of the state government officials, in planning and implementation of sustainable agriculture and irrigation development, is enhanced.

More than 60% of the nominated counterparts achieve the goal set by them.

【Achieved】

- Compare to self-rating score between 2017 and 2021, 80% of PMT increase the skills level and 100% of BAIDC member acquire some knowledge to improve their services.

Indicator 2-1 measures the extent to which counterpart members have achieved the goals set based on their self-assessment. However, continuous monitoring of capacity building has been difficult due to frequent turnover of counterpart officials, thus an online self-assessment test on technical and management skills was conducted to measure the achievement of the indicator. The table below shows the number of participants in the test from each department.

Table 14: Number of the participants of online test

Department	PMT	BAIDC	Total
DOA	2	5	7
DOH	3	5	8
LRSWCD	2	5	7
IWRD	3	6	9
	10	21	31

(Source: Endline survey report)

The test involves more than 97 questions to be answered by 22 officials from DOA, DOH and LRSWCD and 84 questions by 9 officials from IWRD. The result of the test, it was confirmed that all members (100%) acquires some skill and knowledge to improve their service. According to the analysis by endline survey team, the score of self-perception of skill acquisition, PMT members of DOA, DOH, and LRSWCD improved by 24.9% and BAIDC members by 27.2%; for PMT members of IWRD improved by more than 80% and BAIDC members by more than 28%.

Although it has not a direct measurement of the indicator set in the PDM, indicator 2-1 can be considered as achieved since all counterparts perceive that their capacities have improved.

2-2 More than 50% of BAIDC and PMT members acquire necessary skills for implementation of sustainable agriculture and irrigation development

【Achieved】

- 88.9 % of BAIDC and PMT member understand the more than 50% of the contents of extension manual and the operational guideline developed through project activities
- 77.8% of BAIDC and PMT member understand the more than 75% of the contents of the operational guideline.

Indicator 2- 2 assesses the extent to which PMT and BAIDC members have acquired the knowledge and skills. The online tested was conducted on the content of the Extension Manual and Operational Guideline which developed through the project activities. Among 31 counterparts who participate a test related to indicator 2-1, a total 18 person submitted the response. The results showed that more than 88 % of BAIDC and PMT member understand the more than 50% of the contents of extension manual and 77% of the members understand the 75%-of the contents of the operational guideline.

Table 15: Result of the online test

Subject of online test	Score		
	<50%	50-75%	>75%
Extension Manual	11.1	89.9	0
Implementation Guidelines	11.1	11.1	77.8

(Source: Endline survey report)

Table 16: Number of the participants of online test

Department	PMT	BAIDC	Total
DOA	0	5	5
DOH	2	4	6
LRSWCD	0	5	5
IWRD	1	1	2
	3	15	18

(Source: Endline survey report)

Although the number of people taking the test is limited, it is possible to determine overall trends given that BAIDC members of 3 RD blocks and PMT member submitted the test. Also 4 departments participated to the online test. Based on the above, it can be judged that indicator 2- 2 has been achieved.

(3) Achievement of Output 3

Output 3: Collaborative implementation framework among the state government departments, in the field of sustainable agriculture and irrigation development, is established.

3-1 Action plan to expand project output to all RD blocks in Mizoram is prepared by PMT
[Achieved]
➤ Action plan to expand JIFAS was prepared and approved by JCC.
➤ BAIDC, SLCC and IDC was officially established for the implementation of the action plan

Indicator 3-1 has been achieved since the collaborative implementation framework has been established and action plan to expand the system was approved by 6th JCC.

The road map to institutionalize the new methods, was prepared and finalized under the initiative of PMT. The role of PMT and JCC members are clearly decided and the Project had taken necessary actions accordingly. Although it was challenging to achieve the milestones set in the roadmap on schedule due to COVID-19, the action plan was prepared by PMT and approved on 6 December 2021.

In the action plan, the expansion of JIFAS is planned in a period of 6 years from 2021-22 to 2026-27. BAIDC will be established in all 28 RD Blocks (11 districts) in 3 batches. BAIDC activities are planned as a three-year plan, with the first-year plan is focusing on training, the second-year plan is limited to activities mainly in the WRC, and the third-year plan is implementation of overall activities. The budget for 2022/2023 is estimated INR2,056,000.

- 2021-22 – 1st Batch (6RD Blocks)
- 2022-23 – 2nd Batch (10 RD Blocks)

➤ 2023-24 – 3rd RD Batch (10 RD Blocks)

In addition, the status of achievement of Output 3 is supplemented as follows: TOR of BAIDC was partly approved at the 5th JCC on 15 December 2020 and operational rules and institutional set up was approved at the 6th JCC on 6 December 2021. IDC and SLCC were officially launched in November 2022 with a notification by Under Secretary of IWRD. Subsequently, the roles of each department were clarified through PMT meetings. Moreover, a monitoring system of operation of

3-4 Achievement of Project Purpose

Project Purpose: Organizational capacity of the Government of Mizoram to promote sustainable agriculture and irrigation development is enhanced.

1. The methods are approved by JCC, and officialized
【Mostly achieved】
<ul style="list-style-type: none"> ➤ The operational guideline for JIFAS is approved at 6th JCC meeting ➤ JIFAS has been approved at 8th JCC meeting ➤ Notification for JIFAS will be issued after endorsement by Chief Minister

According to PDM, "methods" include an implementation guideline, officer's manuals, and training materials for farmers. The methods have been refined through pilot activities and incorporated into "Operational guideline for JICA sustainable farming system (JIFAS)". The guideline was approved at 6th JCC meeting and related 3 officers' manuals and DPR preparation guideline for irrigation project have been finalized.

JIFAS was also approved at the 8th JCC meeting. Two plans of JIFAS, Plan-A and Plan-B, had been considered. Through a series of discussions among stakeholders, it was decided to approve Plan-B, which was considered more practical. The differences between the two plans are shown in the table below. Plan-B, which has a simpler structure, was chosen to achieve institutionalization in a timely manner.

JIFAS Structure (Plan-A)	JIFAS Structure (Plan-B)
<ul style="list-style-type: none"> ● Achieving convergence planning at block level and state level ● IDC has responsibility to recommend the sanction based on BAIDC plan ● SLCC endorse the BAIDC plan and make sanction ● MAIDA allocate the fund accordingly 	<ul style="list-style-type: none"> ● Achieving convergence planning at block level but in state level ● Each Department approve the BAIDC plan separately with maintain the present funding system ● SLCC, IDC and MAIDA monitor the implementation of JIFAS and responsible to expand JIFAS all over Mizoram

At 8th JCC meeting, IWRD was appointed as a nodal department and Planning & Programme Implementation Dept (PPID) was decided to be included in IDC. JCC also decided that other

departments such as Department of Fisheries (DOF), Department of Sericulture (DOS) and Department of Animal husbandry and Veterinary (DAHV), and the District Commissioners (DCs) would be included in JIFAS, when the system matures.

Although, official gazette is not issued yet, JIFAS will be approved by the notification after endorsement by Chief Minister. The notification and the gazette have equivalent legal effect. Thus, this indicator is expected to be achieved at the same time with Indicator 3.

2. At least 2 activities based on collaborative implementation framework in each block are implemented by BAIDC in the 2nd pilot project

【Achieved】

- 11 pilot projects in 2nd pilot villages were implemented by BAIDC under collaborative implementation framework.

Indicator 2 was achieved since 11 pilot projects have been implemented by BADIC in 2nd pilot villages, namely Bikhawthlir North, Lamchhip and Tlangsam since 2020. Continuous follow up and monitoring have been carried out using MIS introduced by the Project. The details of the activities are mentioned in “Table 13: Implemented activities in 2nd pilot projects” in the previous section.

In addition, activities have already been initiated for 6 blocks of the 1st batch villages and preparation has started in 10 RD blocks in 2nd batch villages according to JIFAS plan B as of December 2022. Therefore, it can be concluded that this indicator has been achieved.

3. Action plan to expand project output to all RD blocks and the Methods are endorsed by Chief Minister

【Mostly achieved】

- Action plan was Approved by JCC members at 6th JCC meeting.
- The endorsement by Chief Minister have not issued yet.

The indicator has not been fully achieved yet. The action plan was approved at 6th JCC meeting on 6 December 2021 and the activities are already started according the action plan. However, the endorsement by Chief Minister has not yet issued.

At this point, the project has prepared the necessary materials for the presentation and is working on the coordination. In addition, in 10 February 2023, Chief Representative of JICA India Office visited Mizoram and met with Chief Minister. The importance of JIFAS was discussed during the meeting and the Chief Minister expressed his appreciation of JIFAS. Therefore, it is considered that the Project is in the final step to achieve the indicator, however, at the time of the terminal evaluation, it is not clear when the endorsement will be issued.

3-5 Projection of achievement of Overall Goal

Overall Goal: Sustainable agriculture and irrigation development will be expanded in Mizoram.

<p>Projects for sustainable agriculture and irrigation development are commenced in more than additional 4 blocks in Mizoram</p> <p>[On track to achieve the overall goal]</p> <ul style="list-style-type: none"> ➤ JIFAS was decided to be institutionalized as a state guideline in the 6th JCC. ➤ An action plan for the expansion of JIFAS was approved in the JCC and is planned to be expanded to 28 blocks with 3 batches. ➤ 1st batch (6 blocks) has been already started implementation and 2nd batch (10 blocks) is under preparation.

In the Action plan, which approved through the activities of Output 3, total 28 BAIDCs will be established in 3 batches by 2027. Each BAIDC implement activities based on 3 years plan. If these activities are implemented as planned, the numerical target of this indicator is expected to be achieved. Thus, it can be judged that the Project is on track to achieve the indicator of overall goal. The timeline of the plan is as follow.

	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
1st batch	Preparation	Start operation	Continue		
2nd batch		Preparation	Start operation	Continue	
3rd batch			preparation	Start operation	Continue

As of January 2023, the progress of the activities of BADIC in each batch is shown in bellow

1st batch	Awareness meeting, Selection of target village, Develop Annual Activity plan (2022/23), Discussion with Farmers, Operation and Training on MIS, Implementation of the activities listed in BAIDC annual activity plan with government fund and conduct feedback meeting
2nd batch	Awareness meeting, Selection of target village, Develop Annual Activity plan (2023/24), Discussion with Farmers, Operation and Training on MIS, Follow up training on BAIDC system
3rd batch	Awareness meeting, training on MIS and follow up training on BAIDC system,

On the other hand, the overall goal of the Project is the expansion of the sustainable bottom-up system at the state level, including the involvement of decision makers in the state level. While there is a high probability of achieving the numerical target of this indicator, continued efforts by SLCC, IDC, and other stakeholders will be required to mature the system for more effective implementation.

3-6 Implementation Process

The project has launched in July 2017 as a five-year project. Although the Project was scheduled to complete in July 2022, the project period has been extended for eight months, due to the impact of COVID-19 pandemic.

3-6-1 Impact of COVID-19 pandemic

Since the first infected case was confirmed in Mizoram on 25 March 2020, the government of Mizoram has taken restrictive measures, including a strict lockdown of the area and restrictions on travel and meetings. Not only did travel restrictions make it difficult for BAIDC members to reach the field, but farmers in pilot villages also requested that the frequency and duration of stay of external visitors be reduced as much as possible. In addition, there was temporary closure of the Project / IWRD office in 2020 due to the confirmation of infected cases of relevant personnel.

These restrictions imposed by COVID-19 were a major constraint, especially since it occurred at a time when the motivation of stakeholders was improving, with the timing of the start of the second pilot activities and receipt of the recommendations from the survey by JICA Headquarters. Under these circumstances, discussions and communication among project members were continued using online conference/communication tools. Although no fatal delays occurred due to the effort by the project members, some activities have been behind the schedule. In particular, follow-up/monitoring in the field, OJT of C/Ps, and discussions among stakeholders were not able to be conducted as planned. Furthermore, with regard to the institutionalization of JIFAS, it was difficult for JPT to conduct outreach activities to high-level officials remotely from Japan. These difficulties caused by COVID-19 have affected the delay in achieving the indicators of the project purpose.

3-6-2 Extension of the project period

As mentioned above, some activities could not be fully implemented due to the impact of COVID-19. Even though the indicators set in the PDM were generally achieved, the activity period was extended to ensure the achievement of the overall goal. The main activities during the extended period were 1) Brushing up operation system, 2) Further Capacity enhancement and 3) Public relations. For 1) Brushing up operation system, JIFAS was extended to additional RD blocks and manuals / procedures were simplified to encourage the involvement of BAIDC members. Also,

the monitoring system, TRESSA, has been introduced and related training has been provided. For 2) Strengthening staff capacity, the capacity building program was developed and implemented in collaboration with State Agricultural Management and Extension Training Institute (SAMETI). For 3) Public relations, the PR activities were conducted through SNS such as Facebook. TV advertisement is also planned to be broadcast.

3-6-3 Communication among Project members

The Joint Coordination Committee (JCC) meeting was held 8 times and functioned as a coordination body for decision making and information exchange related to the project activities.

	Date	Main topic
1	8 August 2017	· Confirmation of work plan and implementation structure
2	5 July 2018	· Report on progress and challenges of 1st pilot activities · Report on the draft of new method
3	18 February 2019	· Approval of 1st pilot activities · Report on survey by JICA HQ and recommendations
4	22 November 2019	· Approval of Roadmap for institutionalization · Discussion on implementation of 2nd pilot activities
5	15 December 2020	· Approval of the framework for the method and system · Discussion on implementation of 2nd pilot activities
6	6 December 6, 2021	· Approval of action plan for JIFAS
7	24 May 2022	· Report on the result of end-line survey · Approval of JIFAS · Discussion on extension of project period
8	21 September 2022	· Discussion on institutionalization of JIFAS
9	15 February 2023	· Report on the terminal evaluation survey

In addition, PMT meetings and BAIDC meetings were held regularly and information sharing has been conducted using the group-talk function of WhatsApp in regular communication.

3-6-4 Promoting Factor and Inhibiting Factor

【Promoting Factors】

Collaboration with SAMETI

The project has been working with SAMETI on capacity building. SAMETI is an autonomous state-level institute with a mandate to conduct capacity building programs for extension workers in the state. Capacity building in collaboration with such institute can provide efficient training and has an advantage in terms of ensuring sustainability. The project and SAMETI have discussed and agreed to include a course on JIFAS in SMETI's annual training plan. In addition, awareness training for 4 departments and BAIDC members, including new staff, was provided. Public relations activities to promote understanding of JIFAS were also conducted in collaboration with SAMETI.

Introduction of Management Information System (MIS)

The operational monitoring system, MIS (TRESSA), was introduced to reduce the burden on field staff. With the system, the progress of each pilot project can be monitored by all concerned officials via smartphone or PC. Since collecting information from farmers at the field level takes a lot of time and effort, a simplified process using digital technology is expected to increase the participation of IDC members in the activities.

Coordination by Local staff under COVID-19 restrictions

Local staff employed by the project have acquired skills and experiences through project activities. Their performance contributed to the smooth implementation of the project activities. In particular, during periods of travel restrictions for Japanese experts imposed by COVID-19, the local staff have maintained frequent contact with the JPT and coordinated among the various levels of stakeholders to ensure the continuity of activities. Through the contribution of local staff, delays in activities were minimized.

Collaboration with external experts

A team of external experts have supported the project activities and contributed to the effective implementation of the project activities according to the characteristics of Mizoram. Especially, experts from Mizoram University played a key role in the Project. They provided necessary advice and guidance for the implementation of activities and supported capacity building of counterparts, such as Training of Trainers (TOT) for CTO. The baseline survey and endline surveys were also conducted by the experts from Mizoram University.

【Inhibiting Factors】

Shortage of manpower

There was a lack of personnel from the state level to the local level who could be continuously involved in project activities. In addition, PMT members are extremely busy with their own duties and it makes the Project members difficult to schedule regular meetings. The BAIDC members are also not fully involved in some RD blocks because the project activities have been the additional work to their regular duties. Due to shortages of field staff, monitoring and follow-up activities could not be carried out as planned in some cases.

Turnover of C/P personnel

The replacements and transferring of C/P personnel have occurred several times during the project period. When trained personnel are transferred or resign, the skills would be lost and additional costs

are incurred to train and update newly assigned personnel. To address this issue, the Project has appointed CTOs. However, some of these officers were also replaced due to unavoidable reasons. At this point, PMT assigned 7 CTOs and the Project provided training to enhance their skills and knowledge to expand JIFAS.

Delays in the release of funds

2nd pilot activities and 1st batch activities experienced delays in the release of CSS funding. Due to these delays, some activities could not be implemented. In addition, a limited state government budget resulted in shortages of manpower in each level.

Collaboration between 4 departments

At the central level, there are officers with sufficient capabilities, and interdepartmental cooperation takes place through regular meetings. On the other hand, it is reported that the activities are often carried out under the direction of their line Ministries. A number of interviewees in the endline survey pointed out the need to strengthen cooperation between the 4 departments.

In the terminal evaluation survey, it was observed that there was smooth cooperation among the officers at both PMT and BAIDC levels. Some commented that there was a change in mindset regarding the convergency through the implementation of the project activities. This suggests that a joint implementation system among the 4 departments is gradually improving through the implementation process.

3-6-5 Relationship with other donor

IFAD support the project, Fostering Climate Resilient Upland Farming Systems in the North East (FOCUS)⁵ to increase agricultural income of farmers and to enhance their resilience to climate change in Mizoram and Nagaland state. Some personnel in DOA, DOH and LRSWCD were assigned as project memembr in Project Directors' office of International Fund for Agricultural Development (IFAD). Although there is no collaboration in the project activities, C/P and JPT have been in constant communication with FOCUS for information sharing.

⁵ The overall goal of FOCUS is to increase agricultural income of 201,500 households, and to enhance their resilience to climate change. Target area is 4 districts in Mizoram state and 8 districts in Nagaland state. The project period is 2017-2024. Total cost is estimated at USD 168.47 million for the two states. The cost would be financed by an IFAD loan of USD 75.5 million, and, parallel financing using CSS, State funds etc. Beneficiaries are a total of 201,500 households, including 64,500 households in Mizoram. DOA is the nodal agency in Mizoram



4. Evaluation by the Six Evaluation Criteria

The results of the evaluation by six evaluation criteria are explained in this chapter. The results are presented in five-point scale: “High”, “Relatively High”, “Moderate”, “Relatively Low”, and “Low”.

4-1 Relevance : High

The Project Purpose and the Overall Goal are consistent with the strategy of the agricultural sector of India and Mizoram. The project aimed at strengthening the organizational capacity of government staff to provide efficient services for the targeted farmers. The approach is appropriate to the needs of target beneficiaries.

(1) Political Priority (+)

In 12th Five Year Plan (2012- 2017) of India, irrigation development was one of the pillars that contribute to increasing farmers' income by expanding agricultural production. Although the 13th Five-Year Plan has not been formulated since the Planning Commission of India was dissolved, its successor organization, NITI Aayog emphasized increasing agricultural productivity to accelerate growth of the nation. Also, GOI is aiming to transform Indian agriculture for sustainable and inclusive growth by improving farmers' nutrition and income and through technological innovation.

In Mizoram, agriculture has been identified as a priority sector in the 12th Five Year Plan of Mizoram state (2012-2017), which includes 1) promotion of horticulture, 2) post-harvest handling / processing, 3) improvement of grain production / productivity, and 4) irrigation development. Also, Mizoram Agriculture Development Vision 2035, which is a master plan of agriculture sector in Mizoram sets targets of 1) 4% annual growth in the agriculture sector and 2) 50% of self-sufficiency of paddy. The project was designed and implemented to contribute to the achievement of the target.

The project supports these plans and policy mentioned above through enhancing capacity for sustainable agricultural and irrigation development. Thus, the Project is consistent with the policies of the Government of India.

(2) Needs of target area and beneficiaries (+)

In Mizoram, about 60% of the population is engaged in agriculture and the rural poverty rate is higher than the Indian average. Increasing the income and productivity of farmers is one of the primary needs of GOM. However, the agricultural and irrigation development projects implemented in the past were dependent on the central government for both budget and project content. As a result, state government officials do not have sufficient capacity for planning, implementation, and interdepartmental coordination at the field level. In order to improve this situation, the Project

supports strengthening the organizational capacity of the GOM and establishing a sustainable bottom-up system to assist farmers. Therefore, the Project is in line with needs of target area and beneficiaries.

(3) Appropriateness of the project approaches (+)

The direct target of the Project is C/P personnel and the indirect targets are the local farmers/other related organizations. The approach of the Project is designed to benefit these targets. The project supports to establish appropriate method and mechanisms for C/P to assist farmers. At the same time, it supports enhancement of C/P capacities and to institutionalization of the bottom-up structure. Though two phases of pilot projects, the Project established JIFAS and now it is institutionalized and on the way to expansion to other districts in the state. This approach encourages the GOM to shift to bottom-up and interdepartmental collaboration structure from a vertical administrative structure. Also, through implementation of JIFAS, actual needs of farmers can be refracted to the development plan in these areas.

4-2 Coherence: High

Coherence of the Project is deemed as High since the Project is in line with the policies of the Japanese government and JICA. It will also contribute to the achievement of the targets of Sustainable development goals (SDGs).

(1) Consistency with the policies of the Japanese government and JICA (+)

Japan's "Country Assistance Policy for India (March 2016)" states that the GOJ will work on programs to increase the incomes of the poor (including improvement of small-scale infrastructure, enhancement of agricultural productivity, and establishment of food value chains) which contributes to poverty reduction and social sector development in the section (3) "Support for Sustainable and Inclusive Growth". Also, JICA identifies "Inclusive growth in rural areas" as a development issue in India to be addressed by JICA in "JICA Country Analysis Paper (2018)"

(2) Specific synergies and interconnections with other JICA projects (+)

JICA applied a participatory approach in "The Study on Development and Management of Land and Water Resources for Sustainable Agriculture in Mizoram" in India, and the results of the study were highly appreciated by C/P of the Project. Therefore, the same method was adopted in this project.

(3) Consistency with international frameworks (+)

Sustainable Development Goal 2 is "End hunger, achieve food security and improved nutrition

and promote sustainable agriculture”. The project is in line with the targets of the goal 2, specifically “double the agricultural productivity and incomes of small-scale food producers” in 2.3, “ensure sustainable food production systems and implement resilient agricultural practices” in 2.4 and “Increase investment, including through enhanced international cooperation” in 2.a. The outcome of the Project is expected to contribute the achievement of the SDG targets.

4-3 Effectiveness : Moderate

Judging from an interview conducted by the joint terminal evaluation team, and the result of the end-line survey, Effectiveness is deemed as Moderate. Although the indicators of the Project Purpose are likely to be achieved, 2 indicators out of 3 indicators has not yet been fully achieved at the final stage of the Project. The causal relationship between the Project Purpose and each Output is properly set.

(1) Achievement of the Project Purpose (-)

1 out of 3 indicators has been already achieved and remaining 2 indicators have been mostly achieved and are expected to be achieved in the near future.

The possibility of achieving Indicator 1 is high as JIFAS was approved at the 8th JCC meeting and the issuance of the notification to institutionalize JIFAS is in the final step. However, the endorsement of the Chief Minister is required to continue the process and the indicator is expected to be achieved after the issuance of the endorsement. As for Indicator 2, it has been achieved by implementing 11 pilot projects in 3 RD blocks in 2nd pilot villages. Regarding Indicator 3, the action plan to extend JIFAS and the methods are institutionalized by JCC but have not yet endorsed by Chief Minister. Although the indicator is likely to be achieved, it is not yet certain when the endorsement will be issued.

The difficulty in conducting high-level outreach due to COVID-19 may be one of the reasons why the indicators have not yet achieved as scheduled. However, it is important to ensure the institutionalization by the endorsement in order to promote further expansion of JIFAS, since top-down institutionalization will be the basis of JIFAS in parallel with a bottom-up approach in the field level.

(2) Promoting and Hindering Factors in Effectiveness (±)

COVID-19 pandemic occurred at the same time that 2nd pilot activity was just launched. This situation had a significant impact on the implementation of the project activities. Due to the restriction imposed by the pandemic, sufficient follow-up and monitoring could not be carried out in the pilot villages. In addition, the lack of funds and human resources made the implementation of some activities difficult. Although activities were continued using online tools, there were not

enough opportunities for discussion among project members and capacity building through OJT / Study tour. These issues led to difficulties in creating mutual understanding and awareness of stakeholders.

On the other hand, it is worth noting that even under these challenging circumstances, the indicators of Outputs have been achieved and Project Purpose have been almost achieved.

(3) Cause and Effect Relations (+)

The project is designed to enhance the organizational capacity of the government of Mizoram (Project Purpose) by developing and refining the methods through pilot activities (Output 1), implementing capacity enhancement of the state government officials for planning and implementation of collaborative activities (Output 2), and institutionalizing of the bottom-up system to support farmers (Output 3). Each output, the appropriate methods, the capacity to implement the methods, and the institutional support to ensure the implementation are all essential to achieving the Project Purpose. Therefore, the causal relationship between Project Purpose and Outputs is appropriately set.

4-4 Efficiency : Relatively High

Inputs by Japanese side were generally adequate, although the dispatch of Japanese expert and training in Japan was cancelled during COVID-19 restriction, the intended results were achieved to some extent. On the Indian side, the budget allocation was sufficient, but there were shortage of personnel and delays in the release of funds for some pilot activities. Note that the impact of COVID-19 is unavoidable and will be taken into account in the evaluation as an external condition.

(1) Efficiency of Input by Japanese side (\pm)

Due to COVID-19, Japanese experts were unable to travel to India. As a result, many of the experts' activities were conducted remotely from Japan. For the reason, there were some delays in activities such as OJT, monitoring and follow up and discussions with C/Ps. In addition, training in Japan that was planned to be carried out in 2020 were cancelled. Although these inputs were not provided as planned, other inputs by Japanese side, such as the allocation of funds for 1st pilot projects, equipment, training and other necessary expenses were adequately provided. In addition, during the extension period, the MIS was introduced and related trainings were provided.

(2) Efficiency of Input by Indian side (-)

All departments have been fully committed to the Project, however, allocation of human resources for project activities was not adequate due to shortage of personnel. In particular, at BAIDC level, it was difficult to assign adequate number of competent personnel. Also, during the

period affected by COVID-19, there were delays and shortages in funds for pilot activities. Other input such as office space and budget allocations for pilot projects were generally adequate. In particular, the assignment of 8 CTOs was an effective input to the smooth implementation of the Project.

(3) Important assumption of output (+)

Important assumption of output set in the PDM is “Majority of IWRD, DOA, DOH, LRSWCD staff who acquire the technologies under the Project are not transferred or resigned.”. For some unavoidable reasons, personnel turnover has occurred several times. Thus, the important assumption has not been fully satisfied. Also, various limitations caused by COVID-19 is considered as an external condition. Under these challenging situations, all the indicators of Outputs were achieved through effective utilization of limited inputs.

(4) Collaboration with other projects (+)

JICA had conducted the study for agriculture development in Mizoram from September 2013 to May. The Master plan was developed through the study and it is the basis of the Project. In addition, the study demarcated the Mizoram State into seven agriculture zones based on present agriculture characteristics, available resources, and market opportunities. The information was utilized when PMT and JPT prepared the selection criteria of pilot villages. The DPR Preparation Guideline for Minor Irrigation Project prepared in the Master Plan in 2015 has been reviewed and updated according the result of the study.

4-5 Impact : Relatively High

The foundation for achieving the Overall Goal was established. To achieve the overall goal within 3 to 5 years after completion of the Project, budget execution according to DPR of each village, proper operation of TRESSA, and ongoing evaluation of JIFAS by IDC and SLCC are essential.

(1) Prospect on achievement of the Overall Goal (\pm)

Through the achievement of the Project Purpose, the basis for achieving the Overall Goal was established. The action plan for the expansion of JIFAS was approved in the JCC and activities to expand JIFAS to other RD blocks have been started with 3 batches. However, project activities in batch 1 village are not progressing as planned due to delay of release of funds. There is concern that this delay discourages the participation of farmers.

On the other hand, in order to disseminate JIFAS throughout the state within several years, continuous capacity enhancement of stakeholders and implementation of activities according the action plan with adequate budget execution by GOM are essential. In addition, periodical

assessments of BAIDC activity and continuous updating of operational guidelines need to be carried out by IDC and SLCC. It is also necessary to continue to utilize TRESSA to monitor the progress of the activities in the fields. With institutional support and the active commitment of the personnel, the indicator of Overall goal “Projects for sustainable agriculture and irrigation development are commenced in more than additional 4 blocks in Mizoram” is expected to be achieved with continued and proactive engagement of stakeholders in Mizoram.

(2) Cause and Effect Relations (+)

The Project Purpose is to enhance organizational capacity of the GOM to operate JIFAS for sustainable agricultural and irrigation development. The aims of the Overall Goal is to expanded the system throughout Mizoram. In order to apply the system to other blocks in the state, institutional support and implementation of activities according to the action plan are required. And these requirements are to be accomplished through project purpose. Thus, the causal relationship between the Project Purpose and the Overall Goal is appropriate.

(3) Other impact (+)

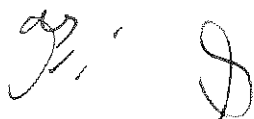
The institutionalization of JIFAS, as a platform of inter-departmental collaboration through project activities is a major achievement. It is expected that the quality of services provided to farmers will be greatly improved once the bottom-up mechanism is expanded and matured. It is also noted that the institutionalization of the new system has changed the mindset of government officials. Collaboration among departments and the exchange of information and experiences between field staff are expected to enable more effective support for farmers.

4-6 Sustainability : Relatively High

In terms of political aspect, there are no critical factors that constrain the sustainability of the Project. Technical and organizational sustainability also expected to be secure with proactive effort by C/P. On the other hand, some issues remain from financial aspect.

(1) Political aspect (+)

The agriculture is one of the priority sectors in Mizoram and sustainability from political aspect is considered to be assured unless election in November 2023 bring a major change in policy. The master plan of agricultural sector targets 4% annual growth and an increase in the self-sufficiency rate to 50% by 2035. The project is in line with the master plan and JIFAS is expected to contribute the achievement of targets. At the same time GOM emphasize the promotion of convergence, which is the important concept of JIFAS. Since the inter-departmental cooperation will be enhanced through the implementation, the outcome of the Project is expected to be utilized even after



completion of the Project. Therefore, sustainability from political aspect is secured, and it will be more certain once the institutionalization of JIFAS is fully completed.

(2) Organizational aspect (±)

(2)-1 Implementation Structure

With the approval of the Operational Guideline, the implementation structure of JIFAS has been clearly identified. In the structure, SLCC is the responsible body for system expansion and hold SLCC meetings twice a year. IDC is in charge of approving the BAIDC annual plan, appointing BAIDC chairperson / members, conducting monitoring and evaluation, and capacity building of BAIDC members. BAIDC is the main implementer of activities and is responsible for preparing activity plans for each village, including funding plans. These committees are all composed of several departments, and it is expected that inter-departmental coordination will be promoted. It is a positive factor for organizational sustainability that these roles and responsibilities are clearly identified in the guidelines.

(2)-2 Human resources

Delays in activities due to shortage of manpower were observed during the project period. In some cases, sufficient activities were not carried out due to availability of filed staffs. The shortage of resources due to lack of funds will not be improve in short period of time and some concerns remain in terms of sustainability. However, the institutionalization of BAIDC would enable each department to implement JIFAS as part of its regular operations, rather than as an additional task.

(3) Financial aspect (-)

In pilot projects, funding has often been delayed despite the approval of the DPR, which includes the funding plan. Some activities of 2nd pilot project were cancelled or postponed due to lack of fund. With respect to 1st batch, 59 out of the 118 projects have encountered delays in funding. During the field visit of terminal evaluation survey, many farmers commented that the timing of support is particularly important. For farmers, especially those who have just started their activities, delays in support due to funding may lead to a loss of reliability of JIFAS and sense of participation. When funds cannot be disbursed in a timely manner, alternative measures should be prepared. If the current delays in CSS funding are not improved, the financial sustainability is considered questionable.

(4) Technical aspect (+)

(4)-1 Capacity enhancement

Ongoing training of personnel is essential to the statewide dissemination of the system. In the

event of personnel changes appropriate handover and training should be provided. To address these issues, the Project collaborated with SAMETI and agreed to incorporate JIFAS training courses in SAMETI's annual training plan. This is a significant advantage in ensuring technical sustainability. In addition, the operational guideline stipulates the assignment of two or more CTOs from each of the four departments to strengthen the capacity of BAIDC members. Thus, technical sustainability would be ensured through the collaboration with SAMETI and proactive engagement of CTO.

(4)-2 Guidelines and Manuals

The project prepared the guideline for JIFAS, 3 officers' Manuals and DPR preparation guidelines. These were printed and distributed to PMT, CTO, and BAIDC members. The project also prepared various training materials. These materials are expected to be updated and utilized as needed,

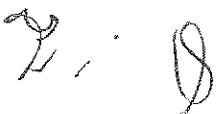
The individual techniques of sustainable agriculture and irrigation developed through the pilot activities in each village have been compiled in 3 officers' manuals. As mentioned in "Achievement of Output 1, Indicator 1-3," more than 60% of skill have been transferred among farmers. Since these techniques are recognized as beneficial to farmers, it is expected that the dissemination will be carried out by BAIDC members using the manuals.

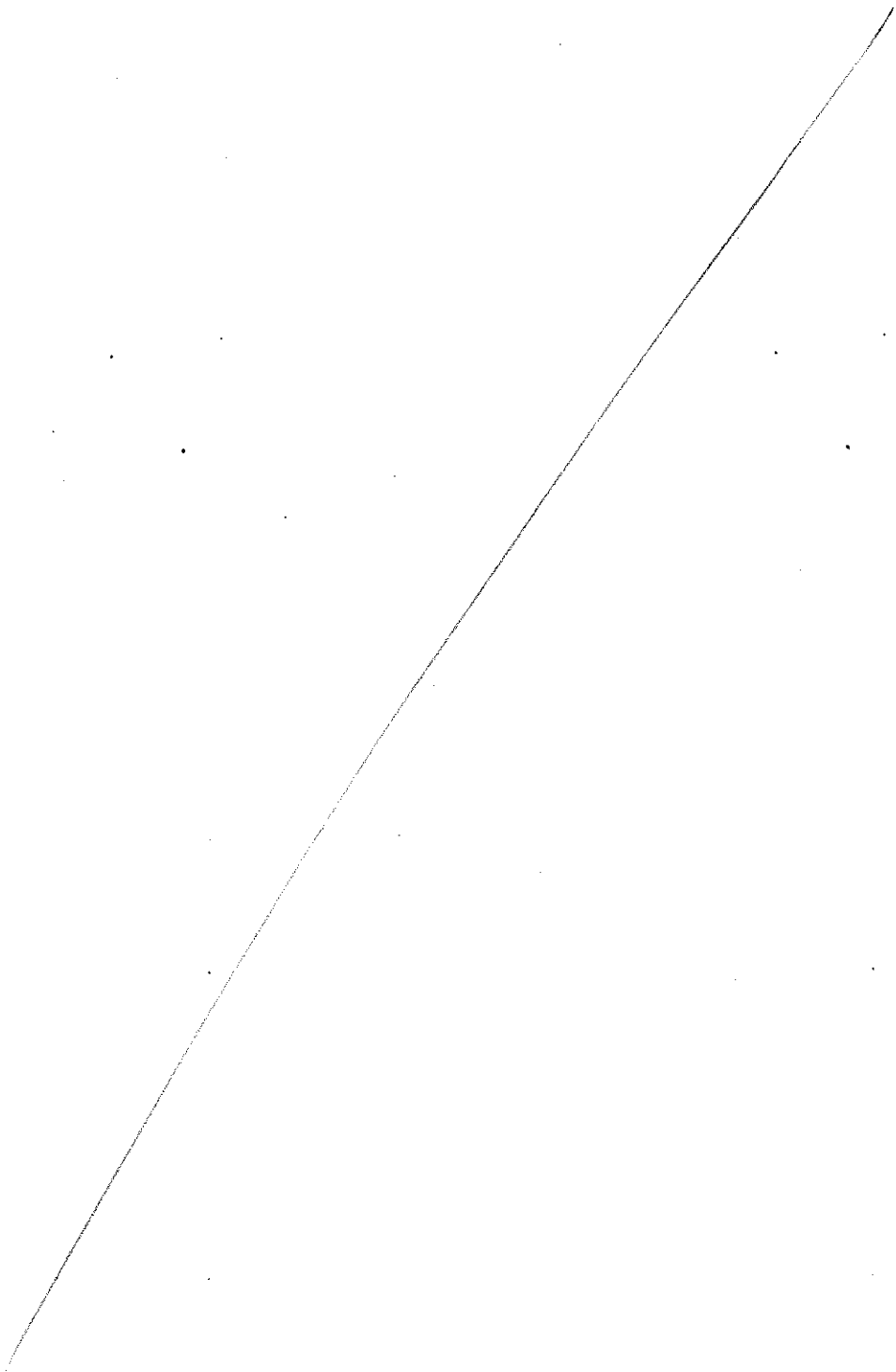
(4)-3 Monitoring system

MIS has been introduced for efficient monitoring of BAIDC activities and is now in operation in 1st Batch. Since MIS reduces the burden on the field and helps effective information sharing, it is expected to be used on a continuous basis in the future. The administrative costs of the server required for MIS operation will be covered by IWRD. Ongoing training is also planned to be provided to BAIDC members by SAMETI.

4-6 Conclusion

From the perspective of the six evaluation criteria, the relevance of the Project is assessed as "High", since the Project objective is highly consistent with the national policy and development needs of India. Coherence is assessed as "High" since the Project is in line with Japan's aid policy. The effectiveness of the Project is deemed as "Moderate", the indicators set in the PDM have not fully achieved and the timeline of the expected achievement is uncertain at this point. The efficiency is assessed as "Relatively High". Even some of the inputs were insufficient, all the indicators of Outputs were achieved under the various limitations imposed by COVID-19. The Project's impact is "Relatively High". The foundation for achieving the Overall Goal was established. However, dissemination activities in the action plan are not progressing as planned at this point. The sustainability of the Project is assessed as "Relatively High", due to financial issues such as delays in the release of funds.





A small, handwritten scribble or signature is located in the bottom right corner of the page. It consists of several loops and curves, resembling a stylized letter or a mark.




5. Recommendations

5-1 Recommendation for SLCC, IDC and BAIDC

【Ensuring JIFAS operation】

JICA Sustainable Farming System (JIFAS) was established for the development of sustainable agriculture and irrigation in Mizoram through the project. In order to achieve Overall Goal in the future, and to spread the project outcomes to the entire state, ensuring JIFAS operation in accordance with Operational Guideline is required. Based on the above, the following recommendations are made.

- Ensure input of annual plans and activities into the MIS (TRESSA)
- Continue monitoring and follow up of BAIDC activities by IDC and SLCC using MIS (TRESSA)
- Conduct annual evaluation of the effectiveness and efficiency of JIFAS by IDC and SLCC and revise the guidelines based on the evaluation results if necessary
- Ensure dissemination of BAIDC to 28 RD blocks according to the Action Plan

	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
1st batch	Preparation 	Start operation	Continue		
2nd batch		Preparation 	Start operation	Continue	
3rd batch			preparation 	Start operation	Continue

- Consider to assigning a facilitator by the IDC chairperson from officers of IWRD for coordination and management of JIFAS MIS activities, facilitation of IDC meeting, and inter-departmental communication.

【Utilize and update the Officers' Manual】

Three Officers' Manuals (Improving Agriculture Extension, Construction Management, and Strengthening of WUA for O&M of Irrigation Project) and DPR preparation guidelines were prepared by the project. For the sustainable development of agriculture and irrigation in Mizoram, it is expected that these manuals be utilized, disseminated, and penetrated within each department, and that regular updates be made.

It is also recommended that the above manuals and guidelines be uploaded to each Department's website so that BAIDC members can make use of the Officers' Manual.

【Utilize JIFAS to resolve issues existing within Government of Mizoram】




- Decreasing of the number of officials and budget

It is predicted that the number of officials will dramatically decrease since majority of officers reach retirement age by 2027, and that the budgets related to agriculture have been limited. JIFAS has a realistic planning function that takes into account the number of staff and the budget. Thus, JIFAS is effective in efficiently managing the assets that exist at that time. It is expected that JIFAS will be used effectively to resolve issues that exist within state Government of Mizoram.

- Delay of funds

Frequent delays in the release of funds have prevented activities in accordance with the plan prepared by BAIDC, and it is found that has led to a decline in farmers' motivation. However, in some cases, productivity had increased even without funding due to the awareness raising of farmers in the project. BAIDC members are expected not to solely on funds, but to raise farmers' awareness while increasing their productivity.

【Future Development】

- Expand state-level implementation structure

JIFAS is currently in the process of establishing a framework for joint implementation at the block level. However, the system is headed by the SLCC, and the four department approve BAIDC plans individually. For the further development of Mizoram, MAIDA, a higher level of SLCC including the minister, should be organized to establish a funding system for the entire agricultural and irrigation development.

- Expansion of departments involved

It is recommended that the Department of Fisheries, Department of Animal Husbandry and Veterinary, Department of Sericulture, and Commerce and Industries Department be involved ensure in the JIFAS, in addition to the four department, as there remain problems that cannot be solved by four departments.

5-2 Recommendation for SAMETI

【Continued capacity building by SAMETI】

SAMETI offers capacity building trainings to BAIDC members. It was agreed to include a training course on JIFAS in SAMETI's annual training plan. The sustainability of the training program is important to secure the sustainability of JIFAS. Therefore, it is recommended that SAMETI continues to implement JIFAS training in the future.

5-3 Recommendation for SLCC and IDC

【Finding a sales channels to motivate farmers】

Farmer motivation is important for improving food self-sufficiency and livelihoods. Even if crop

yields increase, if there are no sales channels, there is no incentive to produce more than the amount needed for self-sufficiency. In light of the above, it is recommended that the Mizoram government create a crop purchase mechanism to create new sales channels, utilize government-owned rice milling and processing facilities, and promote information exchange and negotiations with traders by BAIDC members.



6. Lesson and Learned

- **Irrigation Development with Community Participation**

The project was able to complete a high-quality product by establishing irrigation facilities through the participation of residents. In addition, if the project is based on resident participation, it is expected to improve the capacity of BAIDC members since there are many processes involved in planning, procurement, and establishment. Based on the above, it is recommended the community participation approach for the establishment of irrigation facilities, taking advantage of the results of the project.

- **Cooperation of local experts**

Mizoram has a unique culture and geography compared to other states in India. This project was greatly facilitated by cooperation in line with Mizoram's unique characteristics. In particular, Mizoram University professors conducted baseline and endline surveys, and CTOs received training to develop facilitators by professors. In the future, when implementing projects in special environments, it will be important to involve local experts.

- **Farmers' mindset change**

Since farmers are based on subsistence farming and slash-and-burn farming, it is difficult to significantly change their techniques and attitudes toward commercial agriculture through training. However, the pilot activities showed that by introducing model farmers and organizations and sharing case studies, farmers are more motivated and more likely to convert to commercial farming. Based on the above, it is useful to create a mechanism for sharing case studies among farmers be created in order to improve farmers' capacities.

- **Use of digital technology**

Noting that more farmers owned smart phones, communication via WhatsApp was taken. This produced positive outputs when they were forced to work remotely by COVID-19. In addition, efficiency was improved by the introduction of the MIS. Thus, the positive implementation of new technologies helped to expand the results.

- **Relationship with High Level**

This project had to be implemented jointly with the four department. The daily involvement of a responsible person in a position to give instructions to the four Departments should have facilitated smooth decision-making on the project and coordination among the departments.



- **Set targets in line with Mizoram Agriculture Development Vision 2035**

Deployment and secure operation of the JIFAS will contribute significantly to achieving the Mizoram Agriculture Development Vision 2035. It is believed that the JIFAS has been utilized more by all departments by setting specific indicators for agricultural promotion in line with “Vision 2035”.

9
18