

Action Plans

Action Plan Sheet

I. General		Sheet No.	AP-1
Program	Program for Food Crop Production Increase		
Sub-program	Food Security SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA (HQ)	DRDS
		RNR-RC, NRTI	Program Director
		DSC	Regional Managing Director
	Dzongkhag	Lhuntse and Mongar Dzongkhags	DAOs of both Dzongkhag Agriculture - EAs of Gewogs
Gewog	Gup, Food Crop Working Group *		
Beneficiaries	Farmers		

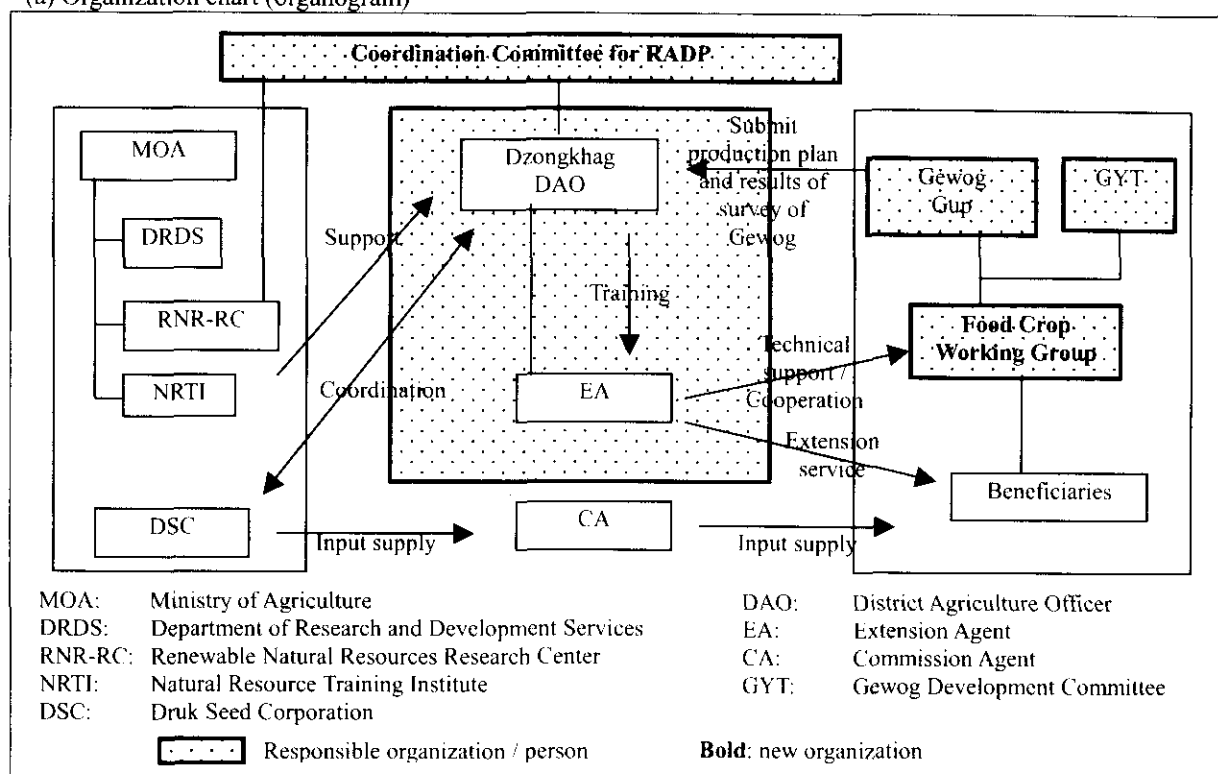
* Food Crop Working Group: Target oriented working groups such as food crop, cash crop and livestock, will be established under GYT aiming to strengthen administrative functions of Gewog, to promote beneficiaries' participation, and to assist EA's activities.

II. Program/Sub-program

Target	<ul style="list-style-type: none"> • To attain food sufficiency and maintain food security at Gewog level (target of per capita milled grain production: 200 -230 kg) • To improve productivity and efficiency of food crop production
Activities	<ul style="list-style-type: none"> • Training of EAs on: <ul style="list-style-type: none"> - improvement of food crop management, - improvement of extension system, - analysis of food security including survey on present and potential of yield, planted area and production • Preparation of crop management manual on food crops for EA and farmers, • Preparation of cereal production plan of Dzongkhag at the target year (2012) • Preparation of extension improvement plan of Dzongkhag, • Support to establishment of "Food Crop Working Group" in each Gewog, • Budget allocation of seed distribution and activities.
Input	Distribution of subsidized improved / HYV cereal seeds
Output	<ul style="list-style-type: none"> • Food sufficiency is attained / maintained in each Gewog, • EAs will have sufficient capability for extension activity of food crop, • Food production plan is prepared based on more accurate information, • Beneficiaries are involved in extension activities through Food Crop Working Group.
Period	<ul style="list-style-type: none"> • EA training (3 times of one week training) 7. 2003 – 5. 2004 • Organizing of "Food Crop Working Groups" in Gewog and capacity building for them 8. 2003 – 9. 2003 • Survey, analysis and preparation of production plan on food crops 9.2003 – 12. 2003 • Preparation of food production and extension improvement plans 9.2003 – 12.2003 • Budget arrangement 12. 2003 – 6. 2004 • Implementation of improved extension activity (RADP- P4) 7. 2004 -
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • RADP-P4-SP1 Extension Strengthening for Food Crop Sub-program (Activities at Gewog level for food crop production is provided in this sub-program), • RADP-P1-SP2 Rice Production Sub-program (Paddy rice production plan is prepared in this sub-program)
Project Justification	<ul style="list-style-type: none"> • Environment: It is supposed that serious environmental impact will not be caused by the sub-program, • Consistency with Upper Plan: Food sufficiency will be attained / maintained by the sub-program. • Sustainability: Activities for capacity building of EA and Food Crop Working Group are included in the sub-program. Beneficiaries will be well involved in extension activity by EAs.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS and RNR-RC / NRTI	Technical support to DAO on: • Training of EAs • Improvement of extension system • Food security analysis • Preparation of guideline on crop management for EA and farmers
	DSC	Multiplication and distribution of improved / HYV seeds
Dzongkhag	DAO	• Overall coordination, • Training of EAs supported by concerning institutions, • Preparation of Dzongkhag plans on food crop production and production support based on the Gewog plans
	EA	• Survey and planning on food security in the Gewog in cooperation with Food Crop Working Group • Extension activity in the Gewog ((RADP- P4)
Gewog	Gup and Food Crop Working Group	Survey and planning on food security in cooperation with EA

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1. Preparation of training program	DAO	DAO should prepare the training program. The training program will be scheduled 3 times (around one week for a session) including seminar / workshop, study tour and field investigation / trials. Major subjects of training will consist of: - improvement of crop management - characteristics and suitability of HYV - improvement of agriculture land management - improvement of extension system (Farmers Field School, Demonstration plot, farmers participation to extension activities, function of food crop working group of GYT, etc.) - food security analysis including production survey / monitoring

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RADP, Program for Food Crop Production
Food Security SP

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
		and planning of production and production support).
2 Training of EAs on food crops	DAO	DAO should provide EA training on food crops supported by RNR-RC and NRTI according to above program.
3 Organizing of Food Crop Working Group	DAO / EA	DAO and EA should support establishment of the Working Group in Gewog.
4 Agricultural survey of Gewog level	DAO / EA	DAO should support / coordinate agriculture survey carried out by EAs in cooperation with Food Crop Working Group (land use, farmland area, planted area, yield and production, development potential, etc.). The results submitted from Gewogs should be examined / compiled by DAO.
5 Food security analysis	DAO / EA	DAO should support / coordinate food security analysis carried out by EAs in cooperation with Food Crop Working Group (per capita production, population forecast). The results submitted from Gewogs should be examined / compiled by DAO.
6 Planning of food crop production to target year	DAO / EA	DAO should support / coordinate preparation of food crop production plan prepared by EAs in cooperation with Food Crop Working Group. DAO should prepare food crop production plan of Dzongkhag based on the Gewog plans.
7 Extension strengthening plan	DAO / EA	DAO should support / coordinate preparation of extension improvement plan prepared by EAs in cooperation with Food Crop Working Group. DAO should prepare extension plan of Dzongkhag based on the Gewog plans.
8 Input distribution plan	DAO	DAO should support / coordinate preparation of input distribution plan prepared by EAs in cooperation with Food Crop Working Group. DAO should prepare input distribution plan of Dzongkhag based on the Gewog plans and coordinate with DSC on distribution schedule of required inputs.
9 Budget allocation	DAO	DAO should reviews budget plan submitted from Gewogs, and request to MOA the budget plan for subsidized seed distribution after the approval of DYT.
10 Seed distribution	DAO	DAO should request seed distribution to DSC according to the approved budget and distribute to beneficiaries through Geog.
11 Annual review and plan on food crop production at every cropping season	DAO / EA	DAO and EA should review the results of crop production of the previous cropping season and prepare production plan of the next season of Dzongkhag and each Gewog.
12 Preparation of recommended crop management manual	DAO	DAO should prepare recommended standard management by crops and agro-ecological zones supported by RNR-RC.
13 Preparation and publication of manual for EA	DAO	DAO should prepare booklet on extension manual for EA supported by RNR-RC.
14 Preparation and publication of guideline for farmers	DAO	DAO and EA should prepare illustrated booklet on cereal crop farming guideline for farmers.

V. Schedule

Required Action (WHAT)	Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 Preparation of training program	5. 2003 – 6. 2003		□									
2 Training of EAs on food crops (3 sessions x one week)	7. 2003, 11. 2003 and 5. 2004		□									
3 Organizing of Food Crop Working Group in Gewogs	8. 2003 – 9. 2003		□									
4 Agricultural survey of Gewog level	9.2003 – 10.2003		□									

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Action Plan Sheet

Required Action (WHAT)		Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
5	Food security analysis	10. 2003 – 12. 2003		<input type="checkbox"/>									
6	Planning of food crop production to target year	10. 2003 – 12. 2003		<input type="checkbox"/>									
7	Extension strengthening plan	10. 2003 – 12. 2003		<input type="checkbox"/>									
8	Input distribution plan	10. 2003 – 12. 2003		<input type="checkbox"/>									
9	Budget allocation	12.2003 – 6. 2004		<input type="checkbox"/>									
10	Seed distribution	7. 2004 – 2012				<input type="checkbox"/>							
11	Annual review and plan on food crop production at every cropping season	Every year			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Preparation of recommended standard management	7.2005 – 9. 2005			<input type="checkbox"/>								
13	Preparation and publication of manual for EA	10. 2005 – 2. 2006				<input type="checkbox"/>							
14	Preparation and publication of guideline for farmers	10. 2005 – 2. 2006				<input type="checkbox"/>							

VI. Implementation and Monitoring System of Action Plan

Action	Plan
Progress Management of A/P	WHO: DAO
	WHEN: Before and after every cropping season by crops
	WHERE: Dzongkhag
	HOW: DAO reviews the progress of extension activity and results of production based on the report from Gewog prepared by Gup and EA.
Budget Management at Preparatory Stage	WHO: DAO
	WHEN: From 12. 2003 to 6. 2004
	WHERE: Dzongkhag
	HOW: DAO should review budget plan from Gewogs, submit it with Dzongkhag budget plan to MOA after approval by DYT.
Budget Management at Implementation Stage	WHO: DAO
	WHEN: Every year
	WHERE: Dzongkhag
	HOW: Budget for FYP and annual will be approved by DYT. Approved budget will be managed by DAO.
Budget Management at O&M Stage	WHO:
	WHEN:
	WHERE:
	HOW:
Problem Solving	WHO: DAO
	WHEN: Annual meeting and when problem occurs
	WHERE: Dzongkhag
	HOW: DAO, EAs and personnel concerned have a meeting for discussion of the problem and countermeasures.

Action Plan Sheet

I. General		Sheet No.	AP-2
Program	Program for Food Crop Production Increase		
Sub-program	Paddy-rice Production SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA (HQ)	DRDS
		RNR-RC	Program Officer
		DSC	Regional Managing Director
	Dzongkhag	Lhuntse and Mongar Dzongkhags	DAOs of both Dzongkhags, Agriculture - EAs of Gewogs
	Gewog	Gup, Food Crop Working Group of GYT*	
Beneficiaries	Farmers in Gewog		

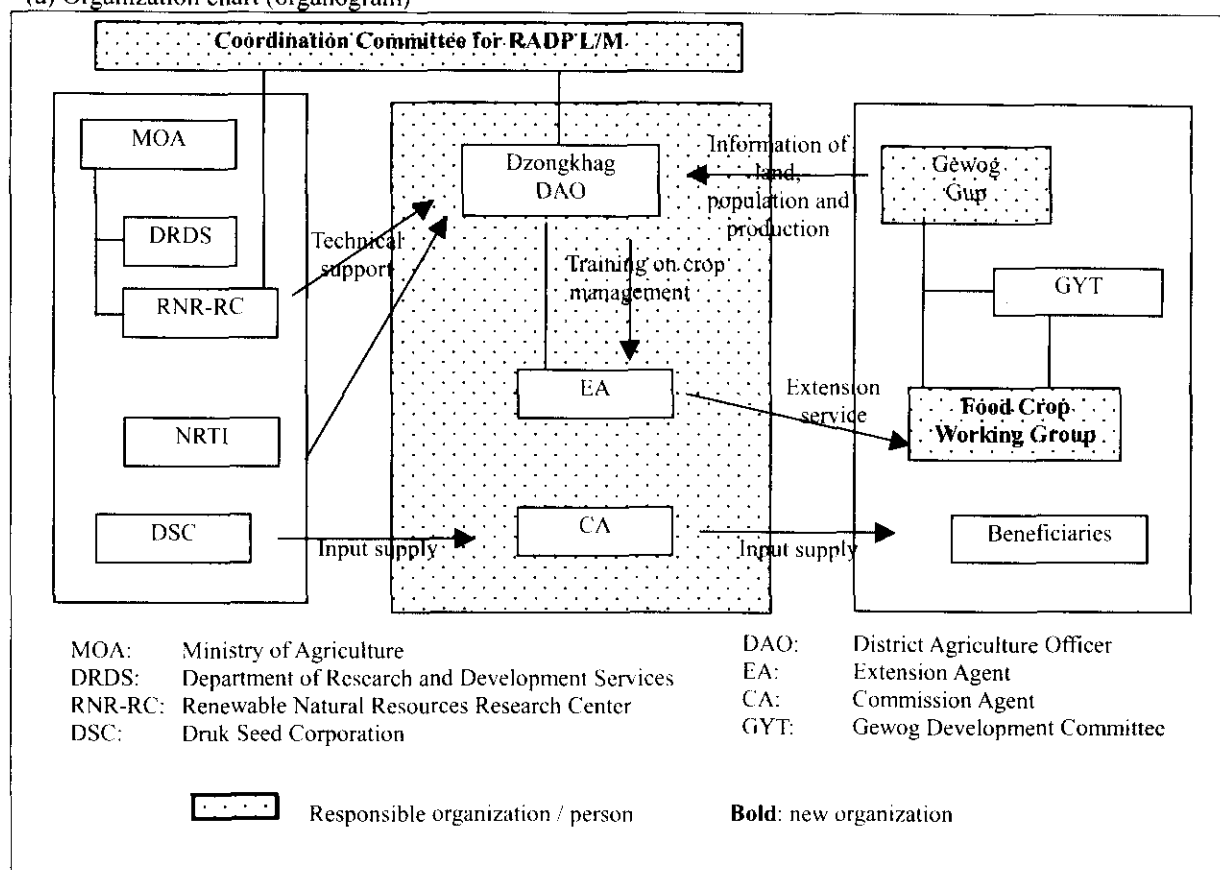
* Food Crop Working Group: Target oriented working groups such as food crop, cash crop and livestock, will be established under GYT aiming to strengthen administrative functions of Gewog, to promote beneficiaries' participation, and to assist EA's activities.

II. Program/Sub-program

Target	To improve self-sufficiency of rice for which demand & import is increasing
Activities	<ul style="list-style-type: none"> • EA training on crop management of paddy rice (nursery management, transplanting, pest management, fertilizer/manure application, mechanization, mater management, etc.), • Examination on potential of paddy production increase (potential area of wet land and irrigation development, rehabilitation of existing irrigation facility, anticipate yield level, expansion of HYV area and farmers intension to HYVs), • Improvement of crop management including EA training (Refer to P1-SP1), • Production plan of paddy to the target year, • Support plan of paddy rice production (extension service, Input distribution and irrigation).
Input	<ul style="list-style-type: none"> • Distribution of HYV seeds (Refer to P1-SP1), • Rehabilitation and construction of irrigation facilities (Refer to P1-SP3),
Output	<ul style="list-style-type: none"> • Increase of paddy production, • Improvement of share of paddy to total cereal production
Period	<ul style="list-style-type: none"> • Examination of potential of paddy production increase 2002.7 - 2012.6 • Production plan of paddy
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • P1-SP1 Food security SP (Production plan and EA training will be provided by this sub-program), • P4-SP1 Extension Strengthening for Food Crop SP (Activities in Gewog level will be executed by this sub-program), • P1-SP3 Irrigation Development SP (Rehabilitation and new development of wet land will be implemented by this sub-program).
Project Justification	<ul style="list-style-type: none"> • Environment: It is supposed that serious impact does not occur by the sub-program, • Consistency with Upper Plan/Program: Improvement of self-sufficiency rate of rice, and reduction of rice import

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS and RNR-RC / NRTI	Technical support to DAO and EAs
	DSC	Multiplication and distribution of improved / HYV paddy seeds
Dzungkhag	DAO	Overall coordination and training of EAs on paddy rice production
	DAO and EA	Examination on the information from Gewog
	EA	Survey and planning on potential of paddy production increase in the Gewog
Gewog	Gup and Food Crop Working Group of GYT	Survey and planning on paddy production

IV. Action Plan (sequent)

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	EA training on paddy production	DAO	Training of EA on paddy cultivation technology supported by RNR-RC and NRTI. It will be carried out by P1-SP1.
2	Examination on potential of paddy production	DAO / EA	Identification of areas for wet land and irrigation development, Examination of anticipated yield level and farmers aspiration to introduction of HYVs. It will be carried out by P1-SP1.
3	Preparation of paddy production plan	DAO / EA	DAO and EA will prepare production plan of paddy rice up to the target year based on the potential examination. It will be carried out P1-SP1.
4	Support plan of paddy production increase	DAO / EA	DAO and EA will prepare support plan for paddy production. It will be carried out by P1-SP1.
5	Distribution of improved / HYV seeds	DAO / DSC / EA	Trail / demonstration and promotion distribution of HYV seed. It will be carried out by P1-SP1.
6	Seed multiplication	DSC / EA / Seed growers	Seed grower farmers contracted with DSC produce paddy seed under technical guidance of EAs. It will be carried out by P1-SP1.

V. Schedule

Required Action (WHAT)		Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	EA training on paddy production	7. 2003, 11. 2003 and 5. 2004		□									
2	Examination on potential of paddy production	9.2003 – 10.2003		□									
3	Plan of paddy production	10. 2003 – 12. 2003		□									
4	Support plan of paddy production increase	10. 2003 – 12. 2003		□									
5	Distribution of improved / HYV seeds	7. 2004 – 2012				▬							
6	Seed multiplication	2006 -				▬							

VI. Implementation and Monitoring System of Action Plan

Action	Plan	
Progress Management of A/P	WHO	DAO
	WHEN	Before and after every cropping season by crops
	WHERE	Dzongkhag
	HOW	DAO reviews the progress of extension activity and results of production based on the report from Gewog prepared by Gup and EA.
Budget Management at Preparatory Stage	WHO	DAO
	WHEN	From 12. 2003 to 6. 2004
	WHERE	Dzongkhag
	HOW	DAO should review budget plan from Gewogs, submit it with Dzongkhag budget plan to MOA after approval by DYT.
Budget Management at Implementation Stage	WHO	DAO
	WHEN	Every year
	WHERE	Dzongkhag
	HOW	Budget for FYP and annual will be approved by DYT. Approved budget will be managed by DAO.
Budget Management at O&M Stage	WHO	
	WHEN	
	WHERE	
	HOW	
Problem Solving	WHO	DAO
	WHEN	Annual meeting and when problem occurs
	WHERE	Dzongkhag
	HOW	DAO, EAs and personnel concerned have a meeting for discussion of the problem and countermeasures.

Action Plan Sheet

I. General

Sheet No.	AP-3
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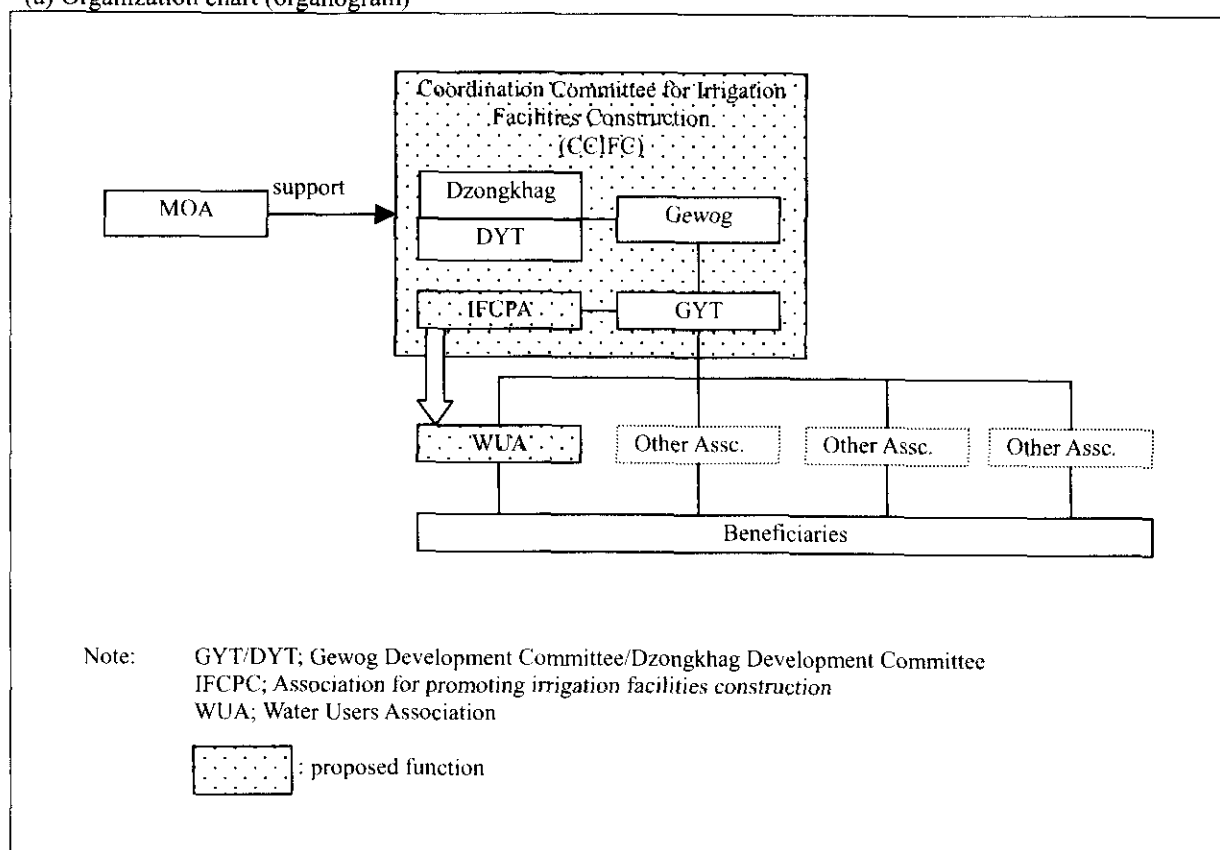
Program	Program for Food Crop Production Increase		
Sub-program	Irrigation Development SP (New)		
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA	SE, DRDS
	Dzongkhag	Lhuntse/ Mongar	DE DAO
	Gewog	GYT	Gup
	Beneficiaries	Tentative WUA	Head of Association

II. Program/Sub-program

Target	To increase food crop production, irrigated area=to be shown
Activities	<ul style="list-style-type: none"> • Survey, Design and Cost estimation • Training for operation and maintenance including bookkeeping • Construction of irrigation facilities • Maintenance by Water Users Association • Procurement of construction materials and tools • Financial arrangement • Establishment of organization
Input	<ul style="list-style-type: none"> • Surveyor (Dzongkhag) • Irrigation Engineer for Design (Dzongkhag) • Irrigation Engineer for Supervision (Dzongkhag) • Construction Materials (DRDS, MOA) • Skilled Labor (Mason, Carpenter etc.) • Unskilled Labor (WUA) • Project Cost Nu.: Unit cost Nu. 0.3 Mil. / km in canal length
Output	<ul style="list-style-type: none"> • Irrigation facilities are constructed to attain the food crop production increase, canal length=to be shown in km. • Through this construction water management will be improved.
Period(Tentative)	<ul style="list-style-type: none"> • Survey and Design :depends on construction scale • Construction :depends on construction scale • Operation & Maintenance :after completion
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Program for Food Crop Production Increase/ Food Security SP, Paddy-rice Production SP, Post-harvest Technology Training SP (They will be executed together with Irrigation Development SP) • Extension Strengthening Program/ Extension Strengthening for Food Crop SP (Extension will be executed to the beneficiaries of constructed irrigation facilities)
Project Justification	<ul style="list-style-type: none"> • Environment: IEE was conducted in the Master Plan. As this is construction of canal by farmers themselves, it will be enough to assess by only the routine environmental checking by NEC to be executed before the commencement of construction and an authorization issuance of NEC will be applied by Dzongkhag. • Efficiency: Reasonable range of construction cost of canal per km is about Nu. 300,000 estimated in 9th FYP in the maximum limitation. • Consistency with upper plan/program: This is based on the program of MOA. • Sustainability: The participation of beneficiaries, maintenance fund contribution and so on should be confirmed on the basis of the national irrigation policy procedural manual prepared by MOA

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS, MOA	Responsible for the program comprehensively in terms of finance, technical backstopping and coordination with other stakeholders.
Dzongkhag	Engineering Office/ Agriculture Office	Actually supervises WUA from its establishment to the construction and maintenance by WUA including accounting of the program.
Gewog	GYT	Formulate the Gewog development plan and evaluate the program in the plan, and based on this, made the official request letter and submit it to Dzongkhag.
Beneficiaries	WUA	Directly engages in the program and participate in the construction and maintenance from at the stage of preliminary survey as unskilled labor free of charge.

IV. Action Plan (sequent)

	Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Establishment of institution for irrigation facilities construction	Gewog/GYT	An association for promoting irrigation facilities construction (IFCPC) will be tentatively established based on the petition from EA and beneficiaries under Gup in GYT.
2	Consensus in GYT	GYT	The request of irrigation facilities construction from IFCPA will be discussed in GYT and the consensus will be submitted to Dzongkhag.
3	Official request (IRRIFORM.01) for implementation	GYT	The GYT member will prepare a request letter and the letter with the signature of Gup will be officially submitted to Dzongkhag with necessary information for evaluation (source of water, route, length, contribution by Gewogs or beneficiaries, etc.)
4	Preliminary Investigations (Module 1)	Dzongkhag / IRCPA	The preliminary Investigations will be executed to find out whether the proposed request meets the basic requirements for government assistance. Project identification report (IRRIFORM.02) will be made for further procedure.

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	Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
5	Budget allocation for Multi-disciplinary Feasibility Study (Module 2)	Dzongkhag	The budget for Multi-disciplinary Feasibility Study will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.
6	Multi-disciplinary Feasibility Study (Module 2)	Dzongkhag	Multi-disciplinary Feasibility Study will be executed to determine whether the proposed request is viable or not and how it can be implemented. Therefore not only engineering survey but also interview survey for agriculture and social aspects have to be done with Gup, GYT member and water users. The feasibility study report (IRRIFORM.03) with a detailed implementation plan, tentative designs and estimation of the project cost will be made.
7	Environmental study	Dzongkhag / NEC	Based on the feasibility study report, if environmental study is required, EIA will be executed.
8	Budget allocation for construction	Dzongkhag	The budget for construction of irrigation facilities will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.
9	Pre-construction Meeting 1 (Module 3)	Dzongkhag	Explanation of the need of group/cooperative for construction and maintenance of irrigation facilities and Water Users Association Committee (WUA Committee named in Module 3) to IFCPA will be executed. Formation of Water Uses Association (IRRIFORM.04) and Letter of Undertaking (IRRIFORM.05) will be prepared and reviewed.
10	Pre-construction Meeting 2 (Module 4)	WUA/ GYT	Water Users Association (WUA) is established and committee members (IRRIFORM.04) will be selected from WUA. Signing of agreements on labor contribution for construction, maintenance fund contribution and compensation of water guard in the letter of understanding (IRRIFORM.05) will be executed between WUA and the representative of Dzongkhag in the meeting.
11	Land acquisition	WUA	Land acquisition and expropriation along the canal will be carried out under the instruction of Dzongkhag.
12	Procurement of materials and tools	Dzongkhag	Supplying materials and tools including technical backstopping from Dzongkhag for construction of irrigation facilities will be arranged based on the requisition of Dzongkhag in Implementation.
13	Overall management of construction	Dzongkhag	The construction of irrigation facilities will be carried out under the management of Dzongkhag in Implementation.
14	Arrangement of unskilled labor	WUA	WUA shall provide free unskilled labor in accordance with the arrangement of the site in-charge.
15	Development of WUA constitution and bylaws (Module 5)	WUA	Water users improve the organization and management of their irrigation system through establishing suitable constitution and bylaws. WUA Constitution and Bylaws (IRRIFORM.06) will be made.
16	Banking and bookkeeping training (Module 6)	Dzongkhag	Irrigation staff of Dzongkhag should support WUA to open a bank account for the maintenance fund and train them how to operate it.
17	Scheme management training (Module 7)	Dzongkhag	The training is held for the water users to know the types of support that the RGOB can give to the WUA for operation and maintenance. Project Completion Report (IRRIFORM.07) and Certificate of Satisfactory Completion (IRRIFORM.08) will be prepared.
18	Completion and Handing over	Dzongkhag/ WUA	The irrigation facilities shall be handed over to WUA after signing the Project Completion Report (IRRIFORM.07) and the Certificate of Satisfactory Completion (IRRIFORM.08).
19	Reserving fund for maintenance works	WUA	For the following maintenance, the fund will be reserved in the system of WUA.
20	Routine maintenance	WUA	Routine maintenance like canal cleaning, weeding will be periodically and timely carried out under the guidance of the site

*Action Plan Sheet
RADP, Program for Food Crop Production
Irrigation Development SP (New)*

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
		in-charge.
21	WUA	Annual maintenance for natural calamity and unexpected disasters will be periodically carried out under the guidance of the site in-charge.
22	MOA/ WUA	Major repair will be executed using construction machinery to be arranged by CMU/MOA and Dzongkhag every five year, if necessary.
23	Dzongkhag	Inspection and evaluation of the irrigation system will be executed to monitor and evaluate the condition of the irrigation system, functioning WUA, crop productivity and assess the need for further Dzongkhag support in every 5 years.
24	Dzongkhag	This provides a forum where representatives of different WUAs can present and discuss progress, programs and problems. During the conference measures to overcome certain problems facing the WUAs can be framed jointly by the concerned WUA and the Dzongkhag irrigation sector.

Note: FORM and Module are procedure regulated for irrigation facilities development by MOA.

V. Schedule

← Commencement of construction

Required Action (WHAT)	Period	- 3	- 2	- 1	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
1	Establishment of institution for irrigation facilities construction		□									
2	Consensus in GYT		□									
3	Official request (IRRIFORM.01) for implementation		□									
4	Preliminary Investigations (Module 1)		□									
5	Budget allocation for Multi-disciplinary Feasibility Study (Module 2)		□									
6	Multi-disciplinary Feasibility Study (Module 2)			□								
7	Environmental study			□								
8	Budget allocation for construction			□								
9	Pre-construction Meeting 1 (Module 3)			□								
10	Pre-construction Meeting 2 (Module 4)			□								
11	Land acquisition				□							
12	Procurement of materials and tools			□								

Main Report
Action Plan Sheet

↙ Commencement of construction

Required Action (WHAT)		Period	-3	-2	-1	+1	+2	+3	+4	+5	+6	+7	+8
13	Overall management of construction	Within 3 years				[Bar from +1 to +3]							
14	Arrangement of unskilled labor	Within 3 years				[Bar from +1 to +3]							
15	Development of WUA constitution and bylaws (Module 5)	Beginning from construction			□								
16	Banking and bookkeeping training (Module 6)	Beginning from construction			□								
17	Scheme management training (Module 7)	End of construction						□					
18	Completion and Handing over	End of construction						□					
19	Reserving fund for maintenance works	Construction + about 6 months						[Bar from +3 to +8]					
20	Routine maintenance	After construction						[Bar from +3 to +8]					
21	Periodical maintenance	Every year after construction							□	□	□	□	
22	Periodical repair works	5 years after construction											□
23	Establishment period inspection visit (Module 8)	Every year after harvest							□	□	□	□	
24	Dzongkhag water users' association conference (Module 9)	After above inspection visit							□	□	□	□	

Note: Period will be varied depending on the construction scale.

VI. Implementation and Monitoring System

Action	Plan	
Progress Management of A/P	WHO	DE/DAO, Dzongkhag
	WHEN	Every three months
	WHERE	Dzongkhag Engineering/Agriculture Office
	HOW	Quarterly Report prepared by DE
Budget Management at Preparatory Stage	WHO	Superintending Engineer, DRDS, MOA
	WHEN	Every Financial Year
	WHERE	MOA Office, Thimphu
	HOW	As per Financial Manual of Royal Government of Bhutan
Budget Management at Implementation Stage	WHO	DAO, Dzongkhag
	WHEN	Monthly basis
	WHERE	Dzongkhag Agriculture Office
	HOW	As per Financial Manual of Royal Government of Bhutan
Budget Management at O&M Stage	WHO	Chairperson, WUA
	WHEN	Monthly basis
	WHERE	Accountant, WUA
	HOW	Constitution/Bylaws enacted in WUA

*Action Plan Sheet
RADP, Program for Food Crop Production
Irrigation Development SP (New)*

Action	Plan	
Problem Solving	WHO	<ul style="list-style-type: none"> • Budget arrangement: Superintending engineer, DRDS, MOA at preparatory stage/ DAO, Dzongkhag at implementation stage/ Chairperson, WUA at O&M stage. • Technical problems: DE, Dzongkhag • Accident, Participation, Dispute: Chairperson, WUA • Manpower: Superintending engineer, DRDS, MOA
	WHEN	As the problems happened.
	WHERE	<ul style="list-style-type: none"> • Budget arrangement: DRDS, MOA at preparatory stage/ Agriculture Office, Dzongkhag at implementation stage/ WUA Office at O&M stage. • Technical problems: Dzongkhag Engineering Office • Accident, Participation, Dispute: WUA Office • Manpower: DRDS, MOA
	HOW	<ul style="list-style-type: none"> • Budget arrangement: DRDS, MOA discusses with MOF at preparatory stage and implementation stage/ WUA discusses among the beneficiaries at O&M stage. • Technical problems: Dzongkhag Engineering Office discusses with the beneficiaries. • Accident, Participation, Dispute: WUA Office discusses among the beneficiaries and third party. • Manpower: DRDS, MOA discusses with the organization concerned.

Action Plan Sheet

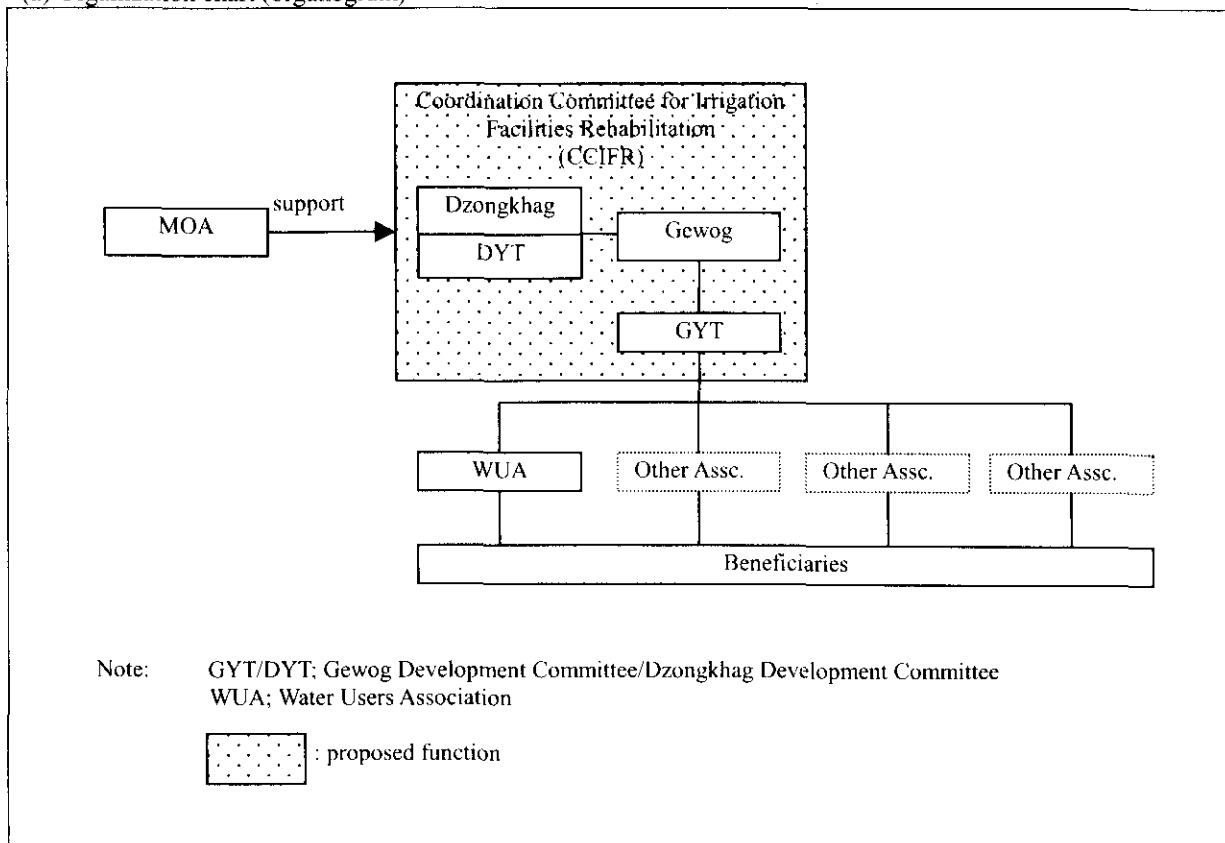
I. General		Sheet No.	AP-4
Program	Program for Food Crop Production Increase		
Sub-program	Irrigation Development SP (Rehabilitation)		
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA	SE, DRDS
	Dzongkhag	Lhuntse/ Mongar	DE DAO
	Gewog	GYT	Gup
	Beneficiaries	WUA	Head of Association

II. Program/Sub-program

Target	To increase food crop production, irrigated area=to be shown
Activities	<ul style="list-style-type: none"> • Survey, Plan and Cost estimation • Rehabilitation of irrigation facilities • Maintenance by Water Users Association • Procurement of construction materials and tools • Financial arrangement
Input	<ul style="list-style-type: none"> • Surveyor (Dzongkhag) • Irrigation Engineer for Rehabilitation Plan (Dzongkhag) • Irrigation Engineer for Supervision (Dzongkhag) • Construction Materials (DRDS, MOA) • Skilled Labor (Mason, Carpenter etc.) • Unskilled Labor (WUA) • Project Cost Nu.: Unit cost Nu. 0.132 Mil. /km in canal length • Maintenance by Water Users Association
Output	<ul style="list-style-type: none"> • The existing irrigation facilities are rehabilitated to attain the food crop production increase, canal length=to be shown in km. • Through this rehabilitation water management will be improved.
Period (Tentative)	<ul style="list-style-type: none"> • Survey and Plan :depends on rehabilitation scale • Rehabilitation :depends on rehabilitation scale • Maintenance :after completion
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Program for Food Crop Production Increase/Food Security SP, Paddy-rice Production SP, Post-harvest Technology Training SP(They will be executed together with Irrigation Development SP) • Extension Strengthening Program/Extension Strengthening for Food Crop SP(Extension will be executed to the beneficiaries of rehabilitated irrigation facilities)
Project Justification	<ul style="list-style-type: none"> • Environment: IEE was conducted in the Master Plan. As this is actually rehabilitation of irrigation facilities, it will be enough to assess by only the routine environmental checking by NEC to be executed before the commencement of rehabilitation and an authorization issuance of NEC will be applied by Dzongkhag. • Efficiency: Reasonable range of rehabilitation cost of canal per km is about Nu. 132,000 estimated in 9th FYP in the maximum limitation. • Consistency with upper plan/program: This is based on the program of MOA. • Sustainability: The participation of beneficiaries, maintenance fund contribution and so on should be confirmed on the basis of the national irrigation policy procedural manual prepared by MOA.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS, MOA	Responsible for the program comprehensively in terms of finance, technical backstopping and coordination with other stakeholders.
Dzyongkhag	Engineering Office/ Agriculture Office	Actually supervises WUA from rehabilitation and maintenance by WUA including accounting of the program.
Gewog	GYT	Formulate the Gewog rehabilitation plan and evaluate the program in the plan, and based on this, made the official request letter and submit it to Dzyongkhag.
Beneficiaries	WUA	Directly engages in the program and participate in the rehabilitation and maintenance from at the inspection of facilities as unskilled labor free of charge.

IV. Action Plan (sequent)

	Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Consensus in GYT	GYT	The request of irrigation facilities rehabilitation from WUA will be discussed in GYT and with the consensus will be submitted to Dzyongkhag.
2	Official request (IRRIFORM.01) for rehabilitation	GYT	The GYT member will prepare a request letter and the letter with the signature of Gup will be officially submitted to Dzyongkhag with necessary information for evaluation (required works, contribution by Gewogs or beneficiaries, etc.)
3	Inspection of facilities to be rehabilitated	Dzyongkhag/ WUA	The inspection will be executed to find out whether the proposed request meets the basic requirements for government assistance. The rehabilitation identification report will be made for further procedure referring to Module 1.
4	Budget allocation for rehabilitation survey	Dzyongkhag	The budget for rehabilitation survey will be arranged in MOF after scrutinizing the request from Dzyongkhag by MOA and distributed to Dzyongkhag directly.

**Main Report
Action Plan Sheet**

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
5	Survey and plan for rehabilitation	Dzongkhag	Rehabilitation survey will be executed to determine whether the proposed request is reasonable and necessary or not. The rehabilitation survey report with a detailed rehabilitation plan, countermeasures for the problems and estimation of the rehabilitation cost will be made referring to Module 2.
6	Budget allocation for rehabilitation	Dzongkhag	The budget for rehabilitation of irrigation facilities will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.
7	Procurement of materials and tools	Dzongkhag	Supplying materials and tools including technical backstopping from Dzongkhag for rehabilitation of irrigation facilities will be arranged based on the requisition of Dzongkhag in Implementation.
8	Overall management of rehabilitation	Dzongkhag	The rehabilitation of irrigation facilities will be carried out under the management of Dzongkhag in Implementation.
9	Arrangement of unskilled labor	WUA	WUA shall provide free unskilled labor in accordance with the arrangement of the site in-charge.
10	Reserving fund for maintenance works	WUA	For the following maintenance, the fund will be reserved in the system of WUA as same as the proposed irrigation scheme.
11	Routine maintenance	WUA	Routine maintenance like canal cleaning, weeding will be periodically and timely carried out under the guidance of the site in-charge after rehabilitation.
12	Periodical maintenance	WUA	Annual maintenance for natural calamity and unexpected disasters will be periodically carried out under the guidance of the site in-charge after rehabilitation.
13	Periodical repair works	MOA/ WUA	Major repair will be executed using construction machinery to be arranged by CMU/MOA and Dzongkhag every five year after rehabilitation, if necessary.
14	Establishment period inspection visit	Dzongkhag	Inspection and evaluation of the irrigation system will be executed each year during the establishment period (in five years after the rehabilitation) to monitor and evaluate the condition of the irrigation system, functioning WUA, crop productivity and assess the need for further Dzongkhag support in accordance with Module 8.
15	Dzongkhag water users' association conference	Dzongkhag	This provides a forum where representatives of different WUAs can present and discuss progress, programs and problems. each year during the establishment period(in five years after the rehabilitation) During the conference measures to overcome certain problems facing the WUAs can be framed jointly by the concerned WUA and the Dzongkhag irrigation sector in accordance with Module 9.

Note: FORM and Module are procedure regulated for irrigation facilities development by MOA, the irrigation facilities rehabilitation program will follow this procedure as well.

V. Schedule

↖ Commencement of construction

Required Action (WHAT)		Period	- 3	- 2	- 1	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
1	Consensus in GYT	Before official request		□									
2	Official request (IRRIFORM.01) for rehabilitation	Keep 1 year more before rehabilitation		□									
3	Inspection of facilities to be rehabilitated	After above official request		□									
4	Budget allocation for rehabilitation survey	After above consensus		□									

*Action Plan Sheet
RADP, Program for Food Crop Production
Irrigation Development SP (Rehabilitation)*

Required Action (WHAT)		Period	- 3	- 2	- 1	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
5	Survey and plan estimation for rehabilitation	About 10 months			□	↙ Commencement of construction							
6	Budget allocation for rehabilitation	After above survey and plan			□								
7	Procurement of materials and tools	About 3 months			□								
8	Overall management of rehabilitation	Within 3 years				▬							
9	Arrangement of unskilled labor	Within 3 years				▬							
10	Reserving fund for maintenance works	Rehabilitation + about 6 months							▬				
11	Routine maintenance	After rehabilitation							▬				
12	Periodical maintenance	Every year after rehabilitation							□	□	□	□	
13	Periodical repair works	5 years after rehabilitation											□
14	Establishment period inspection visit	Every year after harvest							□	□	□	□	
15	Dzongkhag water users' association conference	After above inspection visit							□	□	□	□	

Note: Period will be varied depending on the construction scale.

VI. Implementation and Monitoring System

Action	Plan	
Progress Management of A/P	WHO	DE/DAO, Dzongkhag
	WHEN	Every three months
	WHERE	Dzongkhag Engineering/Agriculture Office
	HOW	Quarterly Report prepared by DE
Budget Management at Preparatory Stage	WHO	Superintending Engineer, DRDS, MOA
	WHEN	Every Financial Year
	WHERE	MOA Office, Thimphu
	HOW	As per Financial Manual of Royal Government of Bhutan
Budget Management at Implementation Stage	WHO	DAO, Dzongkhag
	WHEN	Monthly basis
	WHERE	Dzongkhag Agriculture Office
	HOW	As per Financial Manual of Royal Government of Bhutan
Budget Management at O&M Stage	WHO	Chairperson, WUA
	WHEN	Monthly basis
	WHERE	Accountant, WUA
	HOW	Constitution/Bylaws enacted in WUA

Main Report
Action Plan Sheet

Action	Plan	
Problem Solving	WHO	<ul style="list-style-type: none"> • Budget arrangement: Superintending engineer, DRDS, MOA at preparatory stage/ DAO, Dzongkhag at implementation stage/ Chairperson, WUA at O&M stage. • Technical problems: DE, Dzongkhag • Accident, Participation, Dispute: Chairperson, WUA • Manpower: Superintending engineer, DRDS, MOA
	WHEN	<ul style="list-style-type: none"> • As the problems happened.
	WHERE	<ul style="list-style-type: none"> • Budget arrangement: DRDS, MOA at preparatory stage/ Agriculture Office, Dzongkhag at implementation stage/ WUA Office at O&M stage. • Technical problems: Dzongkhag Engineering Office • Accident, Participation, Dispute: WUA Office • Manpower: DRDS, MOA
	HOW	<ul style="list-style-type: none"> • Budget arrangement: DRDS, MOA discusses with MOF at preparatory stage and implementation stage/ WUA discusses among the beneficiaries at O&M stage. • Technical problems: Dzongkhag Engineering Office discusses with the beneficiaries. • Accident, Participation, Dispute: WUA Office discusses among the beneficiaries and third party. • Manpower: DRDS, MOA discusses with the organization concerned.

Action Plan Sheet

I. General

	Sheet No.	AP-5	
Program	Program for Food Crop Production Increase		
Sub-program	Backyard Animal Husbandry SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	PPBC	Regional Manager of PPBC-Lingmithang
	Dzongkhag	Lhuntse and Mongar Dzongkhags	DAHO, Veterinary hospital, Livestock - EA of Gewog
	Gewog		Gup Livestock Working Group *
Beneficiaries	Farmers in the Gewog		

* Livestock Working Group: The working groups for subjects such as Livestock, Cash crop, and Food crop, will be established in GYT of Gewog aiming to strengthen administrative functions of Gewog, participate in community activities by residents, and assist EA's activities. The groups carry out the action plan under the responsibility of Gup.

II. Program/Sub-program

Target	<ul style="list-style-type: none"> To increase household income through backyard animal husbandry <p>Target of Nos. of backyard animals</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Pig</th> <th colspan="3">Poultry (Chicken)</th> </tr> <tr> <th>a *</th> <th>b *</th> <th>c *</th> <th>a *</th> <th>b *</th> <th>c *</th> </tr> </thead> <tbody> <tr> <td>Present (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 (B)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: Assuming that households increase to 128% during 10 years (→) a*: Nos. of animals, b*: Ratio of rearing farmers, c*: Average nos. of rearing animals</p> <ul style="list-style-type: none"> To improve efficiency of animal husbandry using surplus cereals to animal feed 		Pig			Poultry (Chicken)			a *	b *	c *	a *	b *	c *	Present (A)							2012 (B)																	
	Pig			Poultry (Chicken)																																			
	a *	b *	c *	a *	b *	c *																																	
Present (A)																																							
2012 (B)																																							
Activities	<ul style="list-style-type: none"> EA training on backyard animal husbandry promotion, Establishment of Livestock Working Group in Gewog, Preparation of backyard animal promotion plan including extension service and input distribution, Request of budget allocation for distribution of subsidized piglets and chicks, Distribution of piglets and chicks, Implementation of Farmers Field School (FFS)* during 2 years, and Implementation of Demonstration Farm** (each 2 piglets and/or each 10 chicks per household during 8 years). 																																						
Input	<ul style="list-style-type: none"> Distribution of subsidized backyard animals: ___ farmers, ___ piglets per farmer, during ___ years (farmers buy) ___ farmers, ___ chicks per farmer, during ___ years (farmers buy) 																																						
Output	<ul style="list-style-type: none"> Backyard animal husbandry is activated in Gewog, Income of farm household increase, Average income per household by backyard animals <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Pig</th> <th colspan="3">Chicken</th> <th rowspan="2">Total (Nu./hh)</th> </tr> <tr> <th>a *</th> <th>b *</th> <th>c *</th> <th>a *</th> <th>b *</th> <th>c *</th> </tr> </thead> <tbody> <tr> <td>Present (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 (B)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>a*: average nos. of animals, b*: production value (Nu./animal/year) c*: production value (Nu./hh)</p> <ul style="list-style-type: none"> Rural people are improved in nutritious condition, Good FYM is provided using animal dung, Surplus maize is used value-adding production through animal husbandry, Livestock productivity and animal health are improved through improvement of feeding and animal shed, and Livestock Working Group is encouraged through joint working with EA, and farmers are involved in extension activities. 		Pig			Chicken			Total (Nu./hh)	a *	b *	c *	a *	b *	c *	Present (A)								2012 (B)								(B) / (A)							
	Pig			Chicken			Total (Nu./hh)																																
	a *	b *	c *	a *	b *	c *																																	
Present (A)																																							
2012 (B)																																							
(B) / (A)																																							
Period	<ul style="list-style-type: none"> Training of EAs and planning of on Backyard Animal husbandry 8. 2003.8 – 12. 2003 FFS, Demonstration Plot, FST, Piglet/chick distribution 7. 2004 - 2012 																																						

Main Report
Action Plan Sheet

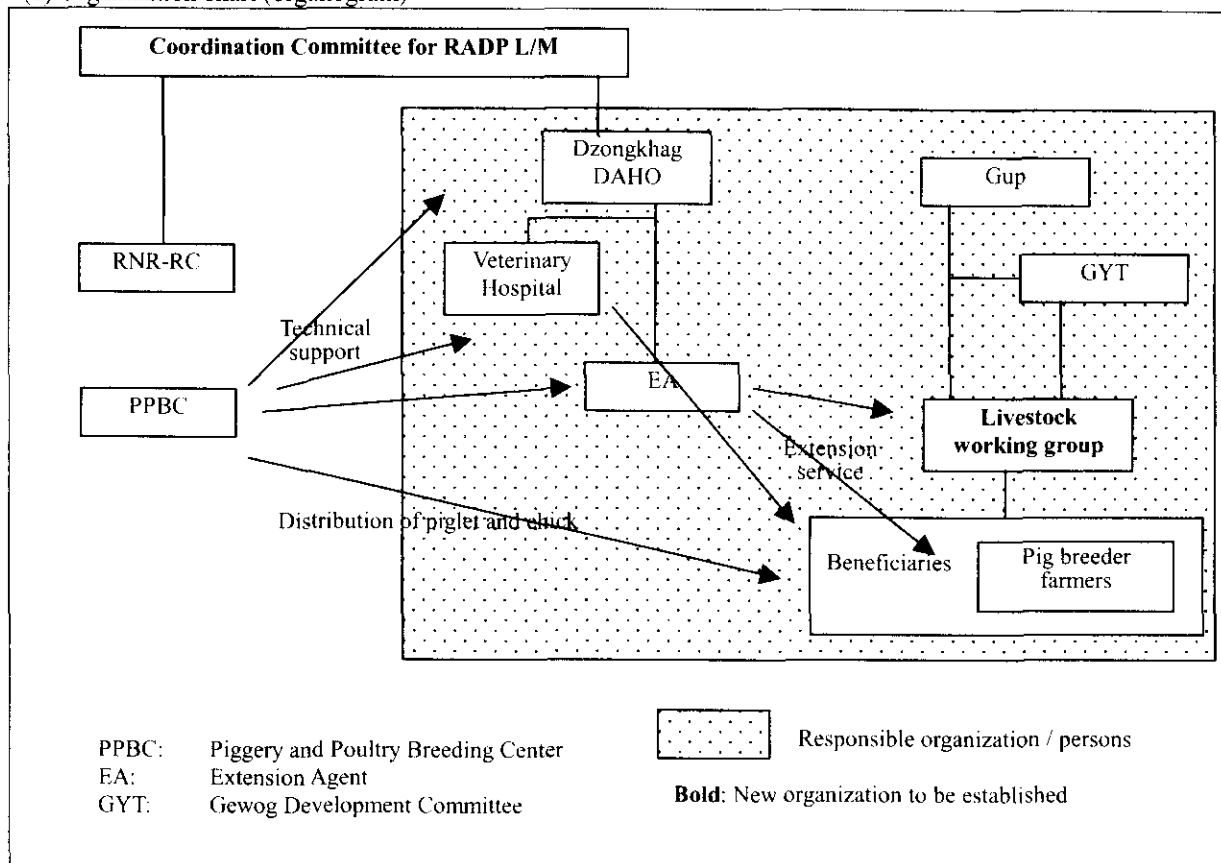
Related Program / Sub-program (How)	
Project Justification	<ul style="list-style-type: none"> • Environment: attention should be paid to water pollution by excretions of animals. The excretions should be used for preparation of FYM. • Financial variability: • Capacity building of EA and Food Crop Working Group, farmers participation to extension activities.

* Farmers Field School (FFS): FFS aims to encourage and train leader farmers for dissemination of improved backyard animal husbandry through their voluntary extension activities after the school. Around 15 - 20 progress farmers selected from villagers will participate to FFS. FFS will be held one to two times every month at Demonstration Farm, community school and other facilities. EA provides technical guidance to participants.

** Demonstration Farm: Demonstration Farm is set up at farm household with backyard animals in order to demonstrate improved animal husbandry. The location will be moved every 2 years for opportunity beneficiaries. EA periodically visits the farm for technical guidance. Subsidized animals will be supplied to the farmer.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	PPBC-East	<ul style="list-style-type: none"> • Breeding of pig and poultry for distribution, • Technical support for EA training and farmers
Dzongkhag	DAHO	Overall coordination and support of extension service, training of EAs
	Veterinary hospital	Animal health service,
	Livestock EA	Technical guidance and extension service to farmers; Involving farmers in FFS, Demonstration farm
Gewog	Gup / Livestock Working Group	Cooperation and participation in extension activities of EA, and organizing farmers group activities
Beneficiaries		Participation in extension activities of EA

IV. Action Plan (sequent)

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Preparation of training program	DAHO	DAHO prepares the training program. The training program will be scheduled with 2 sessions (one week for a session) including seminar / workshop and field investigation / trials, and study tour. Major subjects of training will consist of: - improvement of animal husbandry including animal shed improvement, - pig breeding, - improvement of animal health control, - preparation of FYM using animal dung - improvement of extension system (Farmers Field School, Demonstration farm, farmers participation to extension activities, activities of livestock working group of GYT, etc.), - preparation of backyard animal promotion plan.
2	Training of EAs on backyard animal husbandry	DAHO	DAHO provides EA training on animal husbandry supported by PPBC according to above program.
3	Organizing of livestock working group	Gup / GYT	Gup and GYT in cooperation with EA should organize Livestock Working Groups in GYT. The working group coordinates and supports EA's activity in Gewog.
4	Preparation of backyard animal promotion plan	Livestock Working Group	Livestock working group in cooperation with EA prepares the promotion plan including animal distribution plan.
5	Request of budget allocation for animal distribution	Gup	Gup requests DAHO for the required budget for subsidized animal distribution after the approval of GYT.
6	Breeding plan of piglet and chick	DAHO	DAHO discusses with PPBC on breeding/distribution plan of animals based on the Grwog plan.
7	Allocation of budget	DAHO	DAHO reviews budget plan submitted from Gewogs, and requests MOA for the budget plan for subsidized animal distribution with action plan after the approval of DYT.
8	Distribution of subsidized piglet and chick	Gup / Livestock Working Group	Gup request distribution to PPBC through animal distribution according to the approved budget plan, Livestock Working Group distributes them to beneficiaries.
9	Implementation of Demonstration Livestock Farm	EA and Livestock Working Group	Livestock Working Group select Demonstration Farm for backyard animal husbandry consisting of each 2 households for pig and poultry. The demonstration farm will be shifted to other farm households at every 2 years. EA regularly (every month) visit the farm and give technical guidance to the farmer.
10	Implementation of Farmers Field School (FFS)	EA and Livestock Working Group	EA and livestock working group organize 10 to 20 participants to FFS for animal husbandry. EA give technical guidance to participants in FFS held at Demonstration farm and other facility. The participants work voluntarily to disseminate improved livestock husbandry to villagers in the Gewog.

V. Schedule

Required Action (WHAT)		Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	Preparation of training program	7. 2003 – 8. 2003		<input type="checkbox"/>									
2	Training of EAs on backyard animal husbandry	8. 2003, 1. 2004		<input type="checkbox"/>									
3	Organizing of livestock working group	8. 2003 – 9. 2003		<input type="checkbox"/>									

Main Report
Action Plan Sheet

Required Action (WHAT)		Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4	Preparation of backyard animal promotion plan	10.2003 – 12. 2003		<input type="checkbox"/>									
5	Request of budget allocation for animal distribution	12. 2003		<input type="checkbox"/>									
6	Breeding plan of piglet and chick	12. 2003		<input type="checkbox"/>									
7	Allocation of budget	12.2003 – 6. 2004		<input type="checkbox"/>									
8	Distribution of subsidized piglet and chick	2005 -			<input type="checkbox"/>								
9	Implementation of Demonstration Livestock Farm	2005 -			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
10	Implementation of Farmers Field School (FFS)	1. 2007 – 6. 2008			<input type="checkbox"/>								

VI. Implementation and Monitoring System of Action Plan

Action	Plan	
Progress Management of A/P	WHO	DAHO for Dzongkhag, Gup for Gewog
	WHEN	Every 3 months during 2003 – 2005, and annually from 2006
	WHERE	Dzongkhag
	HOW	DAHO reviews quarterly the progress based on the report of progress and monitoring from Gup.
Budget Management at Preparatory Stage	WHO	Gup for Gewog, DAHO for Dzongkhag
	WHEN	From 12. 2003 to 6. 2004
	WHERE	Gewog to DAHO, and Dzongkhag to MOA
	HOW	Gup should request the budget to DAHO, and Dzongkhag presents it MOA after approval by DYT
Budget Management at Implementation Stage	WHO	DAHO
	WHEN	Every year
	WHERE	Dzongkhag
	HOW	Budget for FYP and annual will be approved by DYT. Approved budget will be managed by DAO
Budget Management at O&M Stage	WHO	
	WHEN	
	WHERE	
	HOW	
Problem Solving	WHO	DAHO
	WHEN	Annual meeting and when problem occurs
	WHERE	Dzongkhag
	HOW	DAHO, EAs and personnel concerned have a meeting for discussion of the problem and countermeasures

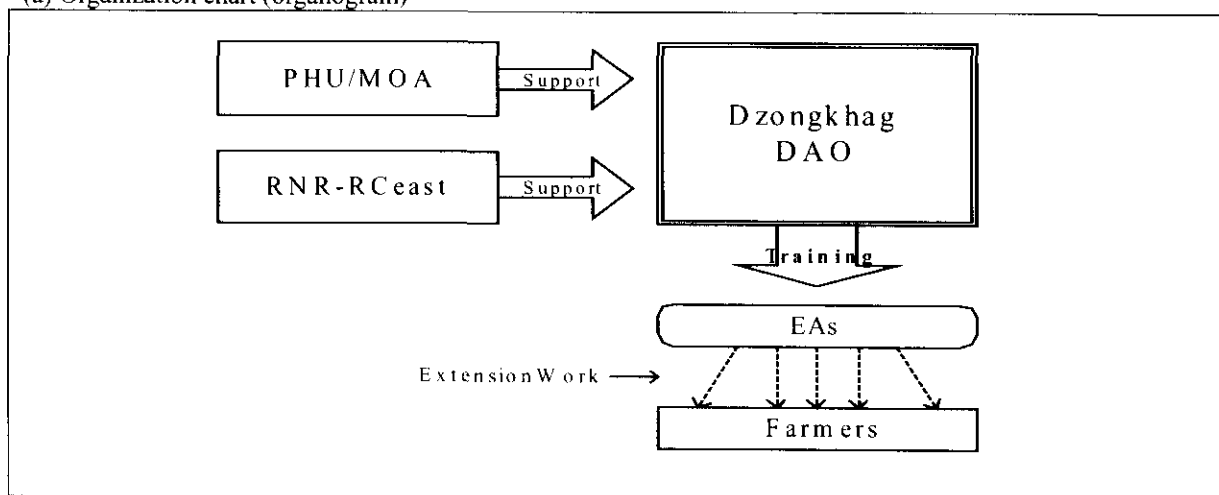
Action Plan Sheet

I. General			Sheet No.	AP-6
Program	Program for Food Crop Production Increase			
Sub-program	Post-harvest Technology Training SP			
Stakeholders	Level	Organization / Name		Contact Person
	National	PHU/MOA, RNR-RC		
	Dzongkhag	DAO, EAs		Tel: 545127 (Lhuntse) Tel: 641181 (Mongar)
	Gewog			
	Beneficiaries	All producers		

II. Program/Sub-program	
Target	To disseminate improved post-harvest processing technology for food crop and reduce losses and improve the condition of food self-sufficiency.
Activities	<ul style="list-style-type: none"> • Creation of P/H processing technology training program with collaboration from the PHU, covering the fields of drying, threshing and storage in farmer's level. • Carrying out the training of the agricultural extension officers (EAs).
Input	Provision of trainers and experts by PHU and RNR-RC.
Output	<ul style="list-style-type: none"> • Reduction of post-harvest loss. • Improvement of quality and rising value.
Period	From 2004
Related Program / Sub-program (How)	This sub-program will support the Program for Food Production Increase.
Project Justification	It is said that serious losses are occurred in post-harvest processing stage especially in storage in lowland area with high temperature and humidity. However, loss assessment study has not been carried out yet and numerical target for loss reduction cannot be estimated even though this program will reduce losses and support to food security.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

	Stakeholder	General Role and Responsibility
National	PHU / MOA, RNR-RC	Support for preparation of training program and training of EAs.
Dzongkhag	DAO, EAs	DAO will be responsible for implementation of the program and provide the training for EAs.
Gewog	-	-
Beneficiaries	Farmers	Farmers will be the final beneficiaries through the extension activity carried out by EAs.

IV. Action Plan (sequent)

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Preparation of training program	PHU/MOA RNR-RC	PHU and RNR-RC will prepare the training program and materials such as textbook for improvement of P/H processing of food crops.
2	Training of EAs	PHU DAO, EAs	Staff of PHU and/or RNR-RC will train EAs.
3*	Training implementation	EAs	EAs will train farmers through their agricultural extension work on field.

* Repeated routine activity

V. Schedule

Required Action (WHAT)		Period	03	04	05	06	07	08	09	10	11	12
1	Preparation of training program	4 Months		□								
2	Training of EAs	2 days X 4		□								
3	Extension work*	2004 ~		□								

VI. Implementation and Monitoring System

Action	Plan	
Progress Management of A/P	WHO	DAO, Dzongkhag
	WHEN	Monthly basis (2004)
	WHERE	DAO office
	HOW	Monthly report prepared by PHU.
Budget Management at Preparatory Stage	WHO	PHU, MOA
	WHEN	Previous year for budget allocation.
	WHERE	MOA, Thimphu
	HOW	As per financial regulation after receipt of the request letter from Dzongkhag.
Budget Management at Implementation Stage	WHO	DAO, Dzongkhag
	WHEN	in 2004 only.
	WHERE	DAO office
	HOW	As per financial regulation.
Budget Management at O&M Stage	WHO	None
	WHEN	None
	WHERE	None
	HOW	None
Problem Solving	WHO	DAO
	WHEN	Quarterly
	WHERE	DAO Office, Dzongkhag
	HOW	EAs will prepare the quarterly reports for DAO regarding progress of P/H technology promotion for farmers.

Action Plan Sheet

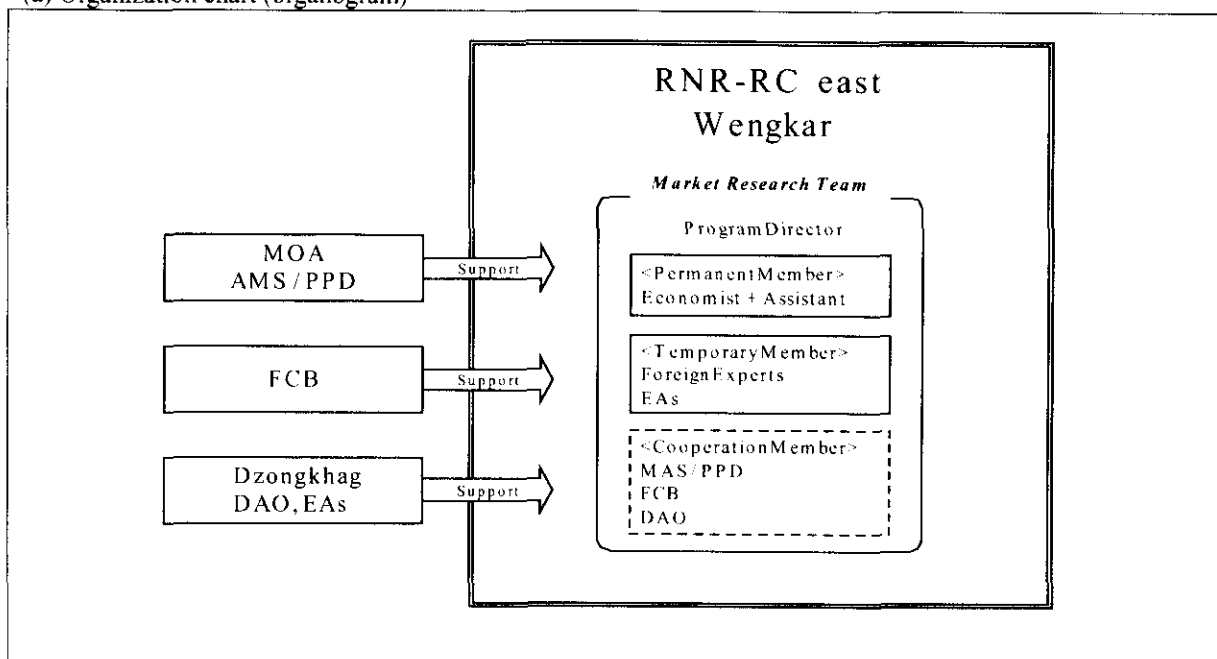
I. General		Sheet No.	AP-7
Program	Program for Cash Crop Production Strengthening		
Sub-program	Market Research SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	AMS/PPD, RNR-RC east, FCB	Program Director, RNR-RC Tel: 04-535132
	Dzongkhag	DAO, EAs	Tel: 545127 (Lhuntse) Tel: 641181 (Mongar)
	Gewog	-	-
	Beneficiaries	All producers	-

II. Program/Sub-program

Target	<ul style="list-style-type: none"> • To ensure income increase of farmers through the integrated development of selected crops and plants which are expected to have high marketability, competitiveness and profitability in the market. • Target number of items: At least 3 for each Dzongkhag for the foreign market.
Activities	<ul style="list-style-type: none"> • Organizing the study team. • Permanent members of the team will carry out the market research of local market, in collaboration with EAs, and feed back and reflect the result to the cash crop development strengthening program. • Permanent members will carry out the market research in neighboring Dzongkhags and Thimphu, and feed back and reflect the result to the cash crop development strengthening program. • Team leader will form the study team of foreign market, carry out the market research, select 5 to 10 target potential crops by analysis of the survey result and prepare the integrated development and action plan of each crop. • Foreign experts will provide OJT training to local staffs.
Input	1) Provision of foreign experts being familiar with market research and international market.
Output	<ul style="list-style-type: none"> • Demonstration effect of market research. • Identification of the comparative advantage condition of selected crops / plants produced in the Study Area. • Maintaining the sustainable circumstance for income increase of farmers in the Study Area.
Period	2003~
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Cash Crop Production Strengthening Program will focus on the selected crops and plants identified by this market research. • Market System Development Program and Extension Strengthening Program will also support the production and marketing of the selected crops and plants.
Project Justification	Under the situation of the Study Area being in a disadvantaged position to foreign market through Samdrup Jongkhar, this program is indispensable to find out expected marketable crops and plants in the foreign market as well as local market and to ensure income increase of farmers with dissolving the disadvantage.

IV. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	MOA AMS / PPD, FCB	MOA will provide budget and recruit foreign experts for implementation of the program. AMS / PPD, FCB will provide cooperation members to the market research team.
	RNR-RC east	Implementation body of the program.
Dzongkhag	DAO, EA	Participation in the market research team.
Gewog	-	-
Beneficiaries	Farmers	-

IV. Action Plan (sequent)

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Budget allocation for research	MOA	MOA will initiate procedures and allocate budget for the research.
2	Organizing research Members	RNR-RC east	Program Director of RNR-RC east will organize the Research Team with collaboration from PPD of MOA, FCB and Dzongkhags. Team leader: Program Director of RNR-RC east <Permanent member> Economist (1) Assistant (1) in RNR-RC east <Temporary member> Foreign experts (2) EAs <Cooperation member> Staff of AMS/PPD (1) Staff of FCB (2) DAO (2)
3	Market research of local market	RNR-RC east DAO, EA	<ul style="list-style-type: none"> Permanent members will carry out the market research of local market of the Study Area, in collaboration with AMD/PPD and EAs. To prepare the questionnaire for research. To carry out interview survey in markets and shops in downtown of each Gewog. To assess the capacity and potential of local market by items and quantity.

Action Plan Sheet
RADP, Program for Cash Crop Production Strengthening
Market Research SP

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
			<ul style="list-style-type: none"> To feed back and reflect the result to the cash crop development strengthening program.
4	Market research in neighboring Dzongkhags and Thimphu	RNR-RC east AMD/PPD DAO, EA	<ul style="list-style-type: none"> Permanent members will carry out the market research in neighboring Dzongkhags and Thimphu. To prepare the questionnaire for research. To carry out interview survey in major markets of Bumthang and Trashigang Dzongkhags in collaboration with EAs. To carry out interview survey in major markets of Thimphu in collaboration with staffs of AMD/PPD. To assess the marketable capacity and potential of local products by items and quantity. To feed back and reflect the result to the cash crop development strengthening program.
5-1	Forming the study team of foreign market	RNR-RC east	<ul style="list-style-type: none"> Team leader will form the study team of foreign market and carry out the market research for potential of local products. Expected members are as follows: <ul style="list-style-type: none"> - Program Director of RNR-RC east - Economist + Assistant - Foreign expert (2) - Staff of AMD (1) - Staff of FCB (1) To Divide two groups in charge of markets in India + Southeast Asia and in Europe.
5-2	Inventory survey of local products	RNR-RC east	Economist + Assistant will carry out the preliminary analysis on general information and prepare the long list of the potential crops in collaboration with staffs of RNR-RC east.
5-3	Participation of foreign experts	MOA	MOA will provide foreign experts in market research and international market.
5-4	Preparation of inception report	RNR-RC east	Economist + Assistant will coordinate all members and prepare the inception report including questionnaire, check list and itinerary, in consultation with foreign experts.
5-5	Market research study	RNR-RC east	Study team will carry out the market study in India + Southeast Asia and Europe separately.
5-6	Analysis of survey results	Study members	Team members will analyze collected information and discuss among them for making decision of target products (crops and plants) and for formulating the action plan to promote the target crops and plants effectively in two Dzongkhags.
5-7	Preparation of Final Study Report including Action Plan	RNR-RC east	Economist + Assistant will coordinate and prepare the study report including target of potential products and action plan for promotion of target crops and plants that will be considered comprehensively and prepared by each administrative level such as AMS, RNR-RC east, Dzongkhag, Gewog and farmers, in consultation with experts.

V. Schedule

Required Action (WHAT)		Period	03	04	05	06	07	08	09	10	11	12
1	Budget allocation for research	3 Months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Organizing research Members	2 Months	<input type="checkbox"/>									
3	Market research of local market	2 Months	<input type="checkbox"/>			<input type="checkbox"/>				<input type="checkbox"/>		

**Main Report
Action Plan Sheet**

Required Action (WHAT)		Period	03	04	05	06	07	08	09	10	11	12
4	Market research in neighboring Dzongkhags and Thimphu	3 Months		☐			☐				☐	
5-1	Forming the study team of foreign market	2 Months		☐				☐				
5-2	Inventory survey of local products	2 Months		☐				☐				
5-3	Participation of foreign experts	4 Months			☐							
5-4	Preparation of inception report	3 Months			☐			☐				
5-5	Market research study	1 Month			█			█				
5-6	Analysis of survey results	2 Months			☐			☐				
5-7	Preparation of Final Study Report including Action Plan	1 Month			☐			█				

VI. Implementation and Monitoring System

Action	Plan	
Progress Management of A/P	WHO	Program Director, RNR-RC east
	WHEN	Once a month during the action period after organizing team
	WHERE	RNR-RC east
	HOW	Economist of RNR-RC east will have meeting with Program Director and submit monthly report
Budget Management at Preparatory Stage	WHO	MOA
	WHEN	Previous year for budget allocation.
	WHERE	MOA, Thimphu
	HOW	As per financial regulation after receipt of the request letter from RNR-RC.
Budget Management at Implementation Stage	WHO	MOA
	WHEN	Every year
	WHERE	MOA, Thimphu
	HOW	As per financial regulation.
Budget Management at O&M Stage	WHO	None
	WHEN	None
	WHERE	None
	HOW	None
Problem Solving	WHO	Program Director of RNR-RC east
	WHEN	When problem will happen.
	WHERE	RNR-RC east
	HOW	If Program Director will not solve it within members he will ask in the consultation with MOA.

Action Plan Sheet

I. General		Sheet No.	AP-8
Program	Program for Cash Crop Production Strengthening		
Sub-program	Technical Research and Development SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA	Dr. Pirthiman Pradhan (Program Director, RNRRC, Khangma ,04-535132)
	Dzongkhag	Lhuntse and Mongar	Mr. Deepak Rai (Agr., Hort., Dz., Lhuntse, 545127) Mr. Tandin Dorji (Agr., Hort., Dz., Mongar ,641181,)
	Gewog		
	Beneficiaries		

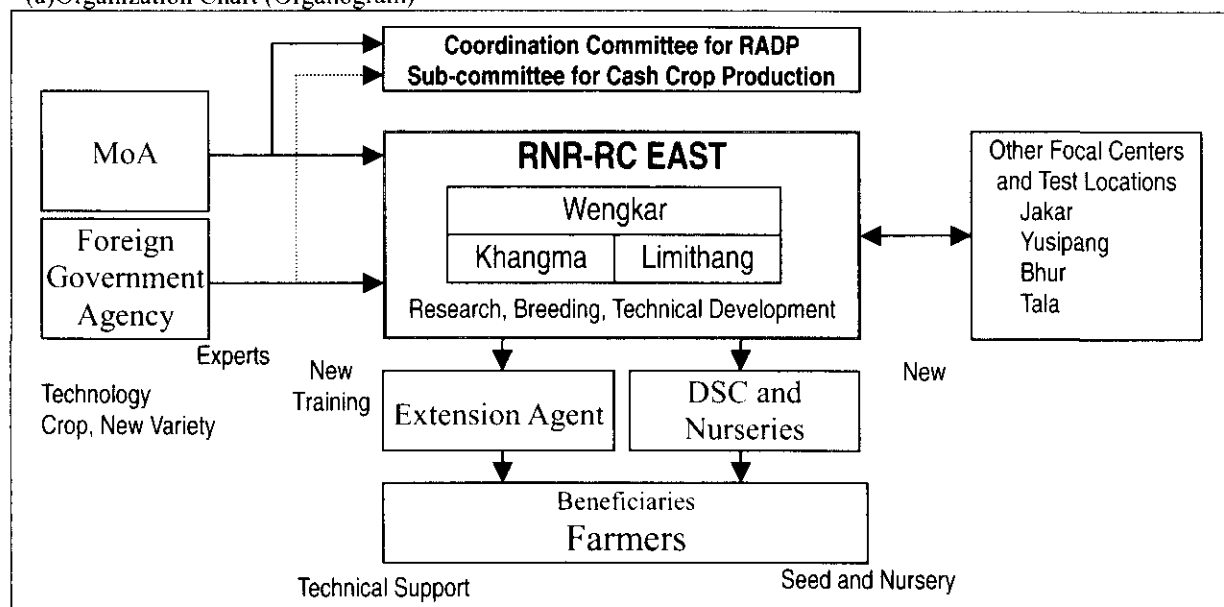
II. Program/Sub-program

Target	To Improve Technical Research and Development of Horticulture
Activities	<ul style="list-style-type: none"> • Strengthening of Horticulture Research in RNR Research Center East • Introduction of New Fruit and Nuts • Introduction of New Vegetables and New Crops • Improvement of Fruit Varieties • Improvement of Vegetable Varieties • Development of Propagation Methods of Fruit and Vegetable Crops • Improvement of Fruit Growing Technology • Improvement of Vegetable Culture Technology • Improvement of Disease and Pest Control • Improvement of Fruit Quality • Improvement of Vegetable Quality • Survey and Evaluation of Medicinal and Other Specific Plants
Input	<ul style="list-style-type: none"> • Expert of Horticulture Long-term Experts for: <ul style="list-style-type: none"> - Cash crop development - Fruit - Vegetable Short-term Experts for : <ul style="list-style-type: none"> - Plant Protection (Disease and Pest Control) - Plant Genetic Resources/ Aromatic and Medicinal Plants • Facility Improvement of RNR-Research Center East Laboratories and Laboratory Equipment Greenhouse and Equipment Experimental Farm Equipment • Training of Counterparts in Foreign Country • Costs for Seeds and Nurseries
Output	<ul style="list-style-type: none"> • Development and Modernization of Horticultural Research • Establishment of Growing Technology for New Fruits and Nuts • Establishment of Culturing Technology for New Vegetables and New Crops • Establishment of Producing Fruit Nurseries and Vegetable Seeds • Increase in Yield of Fruits and Nuts • Increase in Yield of Vegetables • Improvement of Fruit and Nuts Quality: Production of High-Quality Fruits and Nuts • Improvement of Vegetable Quality: Production of High-Quality Vegetables. • Development of Production and Utilization of Medicinal, Aromatic, Spice, and Specific Plants • Improvement of Farmer's Health with Nutritious Foods produced in Farmyard • Increase in Farmer's Income • Stimulation for Local Activity
Period	2003.7 ~ 2013.6 I . 2003.7 ~ 2008.6 Laboratory, Greenhouse Construction,

	<p>Introduction of New Crops, Survey of Genetic Resources for Specific Crops, and Improvement of Varieties are Priority Improvement of Fruit Growing Techniques, Vegetable Culturing Techniques, and Disease and Pest Control Technology</p> <p>II. 2008.7 ~ 2013.6 Improvement of Fruit Quality and Vegetable Quality, Research for Specific Crops Including Medicinal Plants and Aromatic Plants</p>
Related Program / Sub-program (How)	<p>P2-SP3: Training of Extension Agent Sub-program (High culturing technology and knowledge are necessary to extension of fruit growing and vegetable culture.)</p> <p>P2-SP4: Agro-processing Technology Training Sub-program (Processing fruits and vegetables will be developed, followed by the production of good quality materials in a certain scale.)</p> <p>P3: Marketing System Developing Plan (Establishment of marketing system is desirable for shipping products, followed by the production in a large scale.)</p>
Project Justification	<p>This Project is Closely Connected with the "Horticulture Research Program 9th Five-Year Plan(2002-2007)" Issued by The RNR Sector, Ministry of Agriculture, Royal Government of Bhutan. The Project is not inconsistent with the Plan: Research Objectives, Strategies, and the Programs. The Project will Encourage and Promote Practicing the Plan.</p>

IV. Implementing Organization

(a) Organization Chart (Organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	MoA	<ul style="list-style-type: none"> • Call for committee and sub-committee • Dispatch of experts and arrangement of counterparts • Budget application and budget allocation
	RNR-Research Center	<ul style="list-style-type: none"> • Research planning • Action of research works: New crops, new variety, and new technology • Training: Long-term training, Short-term training
Dzongkhag	DOA,	<ul style="list-style-type: none"> • Cooperation to RNR-RC
	Lhuntse Dzonghag, Mongar Dzonghag	<ul style="list-style-type: none"> • Experimental trial of new technology, new crop and new variety • Training of extension agent • Supply of new crops and new variety
Gewog		
Beneficiaries		

IV. Action Plan (sequent)

	Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Research Planning	RNR-RC East	Planning of the sub-project, research strengthening and development of horticulture
2	Dispatch of Experts	MOA/ RNR-RC East	Making application to foreign government agency for sending Long- and Short-term Experts
3	Study of C/P	RNR/MOA	Making an application to foreign government agency for study in the foreign country
4	Design and Construction of Laboratory	RNR-RC East	Design and construction of laboratories and facility for horticultural research
5	Design and Construction of Greenhouse	RNR-RC East	Design and construction of greenhouse and facility for protecting plant materials of research purpose
6	Design and Arrangement of Experimental Field	RNR-RC East	Design and arrangement of research or experimental field and the equipment
7	Introduction of New Fruits and Nuts	RNR-RC East	Collecting promising fruit trees and nuts from foreign countries, planting, growing, testing, and evaluation
8	Introduction of New Vegetable and New Crops	RNR-RC East	Collecting promising vegetables and new crops from foreign countries, planting, growing, testing, and evaluation,
9	Survey of Medicinal, Aromatic, Spice, and Specific Plants	RNR-RC East	Survey of genetic resources of medicinal, aromatic, spice, and specific plants
10	Development of Technology for Propagation of Fruit Trees	RNR-RC East	<ul style="list-style-type: none"> • Development of grafting and cutting method of fruit trees • Development of rootstocks of fruit trees
11	Development of Technology for Propagation of Vegetable Crops	RNR-RC East	<ul style="list-style-type: none"> • Development of seed production of vegetable crops • Development of nursery plant production of vegetable crops
12	Improvement of Fruit Variety	RNR-RC East	<ul style="list-style-type: none"> • Collecting fruit cultivars from foreign countries, and select high quality and adaptable one to environment • Breeding and selecting suitable and excellent variety
13	Improvement of Vegetable Variety	RNR-RC East	<ul style="list-style-type: none"> • Collecting vegetable cultivars from foreign countries, and select high quality and adaptable to environment • Breeding and selecting suitable and excellent variety
14	Development of Fruit Growing Technology	RNR-RC East	Development of growing technology for promoting yield, fruit size, fruit quality, shipping quality, and labor efficiency
15	Development of Vegetable Culture Technology	RNR-RC East	Development of culturing technology for promoting yield, size, quality, shipping quality, and labor efficiency
16	Development of Protection Technology	RNR-RC East	Development of protection technology for controlling diseases, pest insects, etc.
17	Evaluation of Medicinal, Aromatic, Spice, and Specific Plants	RNR-RC East	Evaluation and selecting of genetic resources of medicinal, aromatic, spice, and specific plants
18	Development of Culturing Technology of Medicinal plants, Aromatic, Spice, and Specific Plants	RNR-RC East	Development of culture technology for medicinal, aromatic, spice, and specific plants
19	Budget allocation for Counterpart Study	RNR-RC East /MOA	Budget allocation for C/P study in foreign country, Both of long-term and short-term study
20	Budget allocation for Construction of Laboratory	RNR-RC East /MOA	Budget allocation for expenses on construction of laboratory and facilities required for the research works in RNRRC, Wengkar
21	Budget allocation for Construction of Greenhouse	RNR-RC East /MOA	Budget allocation for expenses on construction of greenhouse and facilities required for the research works in RNRRC, Wengkar
22	Budget allocation for required equipment	RNR-RC East /MOA	Budget allocation for expenses required for research works in RNRRC, Wengkar, Khangma, and Limithang

Main Report
Action Plan Sheet

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
23	Budget allocation for Introducing new seed and nursery	RNR-RC East /MOA	Budget allocation for expenses of introducing new crops and new varieties from foreign countries

V. Schedule

Required Action (WHAT)		Period	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	Research Planning	2002.12~2003.06	□										
2	Dispatch of Experts	App.2003.3.2003.7~13.6.		□	□	□	□	□	□	□	□	□	□
3	Study of C/P	App.2003.12.2004.7~12.6		□	□	□	□	□	□	□	□	□	□
4	Design and Construction of Laboratory	2003.7~122004.6~12		□	□								
5	Design and Construction of Greenhouse	2003.7~122005.1~6		□	□								
6	Design and Arrangement of Experimental Field	2003.7~122005.1~6		□	□								
7	Introduction of New Fruits and Nuts	2003.7~2006.6		□	□	□	□	□	□	□	□	□	□
8	Introduction of New Vegetable and New Crops	2003.7~2006.6		□	□	□	□	□	□	□	□	□	□
9	Survey of Medicinal, Aromatic, Spice, and Specific Plants	2003.7~2006.6		□	□	□	□	□	□	□	□	□	□
10	Development of Technology for Propagation of Fruit Trees	2003.7~2007.6		□	□	□	□	□	□	□	□	□	□
11	Development of Technology for Propagation of crops	2004.7~2008.6			□	□	□	□	□	□	□	□	□
12	Improvement of Fruit Variety	2004.7~2013.6			□	□	□	□	□	□	□	□	□
13	Improvement of Vegetable Variety	2004.7~2013.6			□	□	□	□	□	□	□	□	□
14	Development of Fruit Growing Technology	2004.7~2013.6			□	□	□	□	□	□	□	□	□
15	Development of Vegetable Culture Technology	2004.7~2013.6			□	□	□	□	□	□	□	□	□
16	Development of Protection Technology	2005.7~2013.6				□	□	□	□	□	□	□	□
17	Evaluation of Medicinal, Aromatic, Spice, and Specific Plants	2006.7~2009.6					□	□	□	□	□	□	□

Action Plan Sheet
RADP, Program for Cash Crop Production Strengthening
Technical Research and Development SP

Required Action (WHAT)		Period	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
18	Development of Culture Technology of Medicinal, Aromatic, Spice, and Specific Plants	2006.7~2013.6											
19	Budget allocation for Counterpart Study	App.2002.12 2003.7-12 05,08,10.	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		
20	Budget allocation for Construction of Laboratory	Application 2003.4-6.		<input type="checkbox"/>									
21	Budget allocation for Construction of Greenhouse	Application 2003.2-6		<input type="checkbox"/>									
22	Budget allocation for required equipment	Application 2003.2-6		<input type="checkbox"/>									
23	Budget allocation for Introducing new seed and nursery	Application 2003.2-6		<input type="checkbox"/>									

VI. Implementation and Monitoring System

Action	Plan
Progress Management of AP	WHO: Program Director (PD), RNR-RC East
	WHEN: Every three months and annual
	WHERE: RNR-RC East
	HOW: PD compiles progress report
Budget Management at Preparatory Stage	WHO: Program Director, RNR-RC East
	WHEN: Preparatory Stage, Before beginning of implementation
	WHERE: RNR-RC East
	HOW: Annual meeting, PD approves release of the allocated budget
Budget Management at Implementation Stage	WHO: Program Director, RNR-RC East
	WHEN: Every three months and annual
	WHERE: RNR-RC East
	HOW: PD release allocated budget every 3 month
Budget Management at O&M Stage	WHO: Program Director, RNR-RC East
	WHEN: Direct after implementation stage finish
	WHERE: RNR-RC East
	HOW: PD submits annual report to MOA
Problem Solving	WHO: Program Director, RNR-RC East
	WHEN: Quarterly and annual meeting and whenever necessary
	WHERE: RNR-RC East
	HOW: Problem presented will be discussed in meetings

Action Plan Sheet

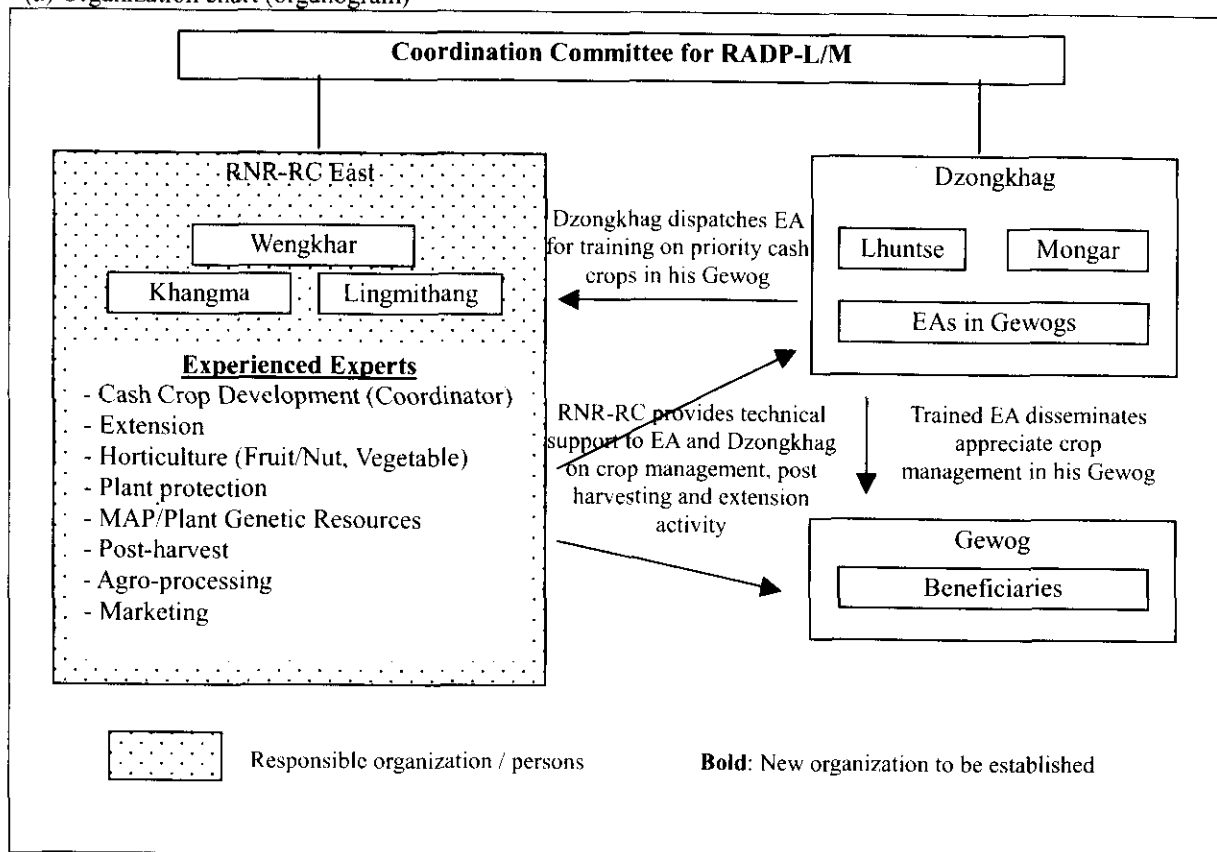
I. General		Sheet No.	AP-9
Program	Program for Cash Crop Production Strengthening		
Sub-program	Training of Extension Agent SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	RNR- RC East	Program Director of RNR-RC East
	Dzongkhag	Lhuntse and Mongar Dzongkhags	DAOs of both Dzongkhag Agriculture – EAs of Gewog
	Gewog	-	-
	Beneficiaries	Farmers	

II. Program/Sub-program

Target	To encourage EAs with sufficient capability of extension activities in order to promote cash crop production in their Gewogs.
Activities	<ul style="list-style-type: none"> • Improvement of training facilities and equipment of RNR-RC East, • Examination of priority cash crops reported by each Gewog, • Preparation of training curriculum on above cash crops: <ul style="list-style-type: none"> - Long-term training course (2 years course for 5 trainees group of EAs, 5 trainees participate in this course every year, and periodically return to Gewog for the responsibility work in the Gewog) - Subject training course (1 week / course for EAs of Gewogs concerned to the subject), • Training of EAs on cash crop management by the above courses, <ul style="list-style-type: none"> - Long-term training course: 5 EAs group x 5 course = 25 EAs - Subject training course (participants: 20 – 25 EAs / session, 2 sessions / year) • Following up and monitoring in field level and refresh training for participated EAs, • Preparation and publication of crop production manual on cash crops for EA and farmer.
Input	<ul style="list-style-type: none"> • Construction of facility and procurement of equipment for training (Training hall, dormitory for trainee, audio visual and so on), • Experienced experts for training of EAs (Technical Assistance): <ul style="list-style-type: none"> - Cash crop development (coordinator), - Training and extension, - Fruit (research cum training) - Vegetable (Research cum training) - Plant genetic resources / Medicinal and Aromatic plant (research cum training) - Plant protection (research cum training), - Post-harvest (research cum training)
Output	<ul style="list-style-type: none"> • EAs have sufficient capability to disseminate improved technology of farming and post-harvesting on priority cash crops to farmers in their Gewogs.
Period	• 2003.7 – 2012
Related Program / Sub-program (How)	• P4-SP2: Extension strengthening for Cash Crop Production (Trained EAs will disseminate the farming techniques to farmers in their Gewog)
Project Justification	<ul style="list-style-type: none"> • Sustainability: <ul style="list-style-type: none"> - EAs will be trained on cash crop production, - RNR-RC East will be improved in extension facilities for training of EAs in other Dzongkhags of Eastern Region, - Trained EAs will disseminate the technology to the surrounding Gewogs,

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	MOA	Improvement of training facilities and equipment of RNR-RC East including budget arrangement
	RNR-RC	Training of EAs on cash crop production and post-harvest technology
Dzongkhag	DAO	Dispatch of EAs to RNR-RC for training on cash crop, Overall coordination and discussion with RNR-RC on EA training
	EAs	Participation to training of RNR-RC and extension activities of cash crops in their Gewog after the training

IV. Action Plan (sequent)

	Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Improvement plan of training facilities and equipment	MOA	MOA has prepared improved plan.
2	Budget arrangement of training facilities and equipment	MOA	MOA has requested financial assistance from donor.
3	Improvement of training facilities and equipment	MOA	MOA will contract with contractor of facility construction and suppliers of equipment after approval of the budget.
4	Request / recruit of experienced experts	MOA	MOA should request technical assistance from donors or recruit experienced experts for EA training.
5	Examination of priority cash crops reported from Gewogs	RNR-RC	RNR-RC reviews and examines the priority cash crops reported from Gewogs on suitability and marketability for preparation of training program.
6	Preparation of training program curriculum	RNR-RC	<ul style="list-style-type: none"> • RNR-RC should prepare training program and curriculum discussing with DAO. The training should consist of - crop management, - propagation, - pest control,

Main Report
Action Plan Sheet

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
			<ul style="list-style-type: none"> - fertilization, - harvesting, - quality control - post-harvesting - marketing, and - improvement of extension activities <ul style="list-style-type: none"> • Curriculum of long-term training will include whole items, and Subject training will target few items to all trainees. • The training courses will be carried out at RNR-RC East, field in Gewog, other research centers, marketing facilities, etc.
7	Selection of trainees	DAO	DAO should send to RNR-RC trainees selected from EAs following the training program. <ul style="list-style-type: none"> - Long-term (2 years) course: 5 trainees will participate every year during 5years - Subject training course: EAs concerned with the subjects will participate the training courses
8	EA training by long-term course	RNR-RC	RNR-RC should train EA on management technology and extension system on priority cash crops of their Gewogs
9	EA training by subject training courses	RNR-RC	RNR-RC should provide periodically one week training as for EA in Gewogs on subject matters such as grafting, pest control, grading and packing, marketing, and so on.
10	Preparation / publication of crop management manual on cash crops	RNR-RC	Preparation of booklet on crop management manual for EA and farmer
11	Following up and monitoring of trained EAs	RNR-RC	RNR-RC should follow up and monitoring EAs activities in their Grewogs after training to feed back problems in the field, and carry out refresh training for the EAs.

V. Schedule

Required Action (WHAT)		Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	Improvement plan of training facilities and equipment	3. 2002 – 3. 2003	□										
2	Budget arrangement of training facilities and equipment	6.2002 – 3.2003	□										
3	Improvement of training facilities and equipment	7. 2003 – 6.2004		□									
4	Request / recruit experienced experts	7. 2003 – 12.2004		□									
5	Examination of priority cash crops reported from Gewogs	1. 2004 – 3. 2004			□								
6	Preparation of training program curriculum	1.2004 – 6. 2004			□								
7	Selection of trainees	6. 2004			□								
8	EA training by long-term courses	7. 2004 – 6. 2010			▬	▬	▬	▬	▬	▬	▬	▬	▬
9	EA training by subject training courses	7. 2004 -			□	□	□	□	□	□	□	□	□

Action Plan Sheet
RADP, Program for Cash Crop Production Strengthening
Training of Extension Agent SP

Required Action (WHAT)		Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
10	Preparation and publication of crop management manual on cash crops					□							
11	Following up and monitoring of trained EAs	7. 2006 -					□						

VI. Implementation and Monitoring System of Action Plan

Action	Plan
Progress Management of A/P	WHO: PD of RNR-RC East for training
	WHEN: Every 3 months during 2003 – 2010, and annually from 2011
	WHERE: RNR-RC
	HOW: PD of RNR-RC East reviews quarterly the progress of training and reports to MOA and Dzongkhags concerned
Budget Management at Preparatory Stage	WHO: MOA for improvement of facilities and equipment
	WHEN: 12. 2002 - 6. 2003
	WHERE: MOA
	HOW: MOA requests to donors or allocates the budget required
Budget Management at Implementation Stage	WHO: PD of RNR-RC East
	WHEN: Every year
	WHERE: RNR-RC East
	HOW: Budget for FYP and annual will be approved by MOA and MOF
Budget Management at O&M Stage	WHO: PD of RNR-RC East
	WHEN:
	WHERE: RNR-RC East
	HOW:
Problem Solving	WHO: PD of RNR-RC East
	WHEN: Annual meeting and when problem occurs
	WHERE: RNR-RC East
	HOW: PD of RNR-RC East, DAO and personnel concerned have a meeting for discussion of the problem and countermeasures

Action Plan Sheet

I. General		Sheet No.	AP-10
Program	Program for Cash Crop Production Strengthening		
Sub-program	Agro-processing Technology Training SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	RNR-RC east	Program Director, RNR-RC Tel: 04-535132
	Dzongkhag	DAO	Tel: 545127 (Lhuntse) Tel: 641181 (Mongar)
	Gewog	-	-
	Beneficiaries	All inhabitants	-

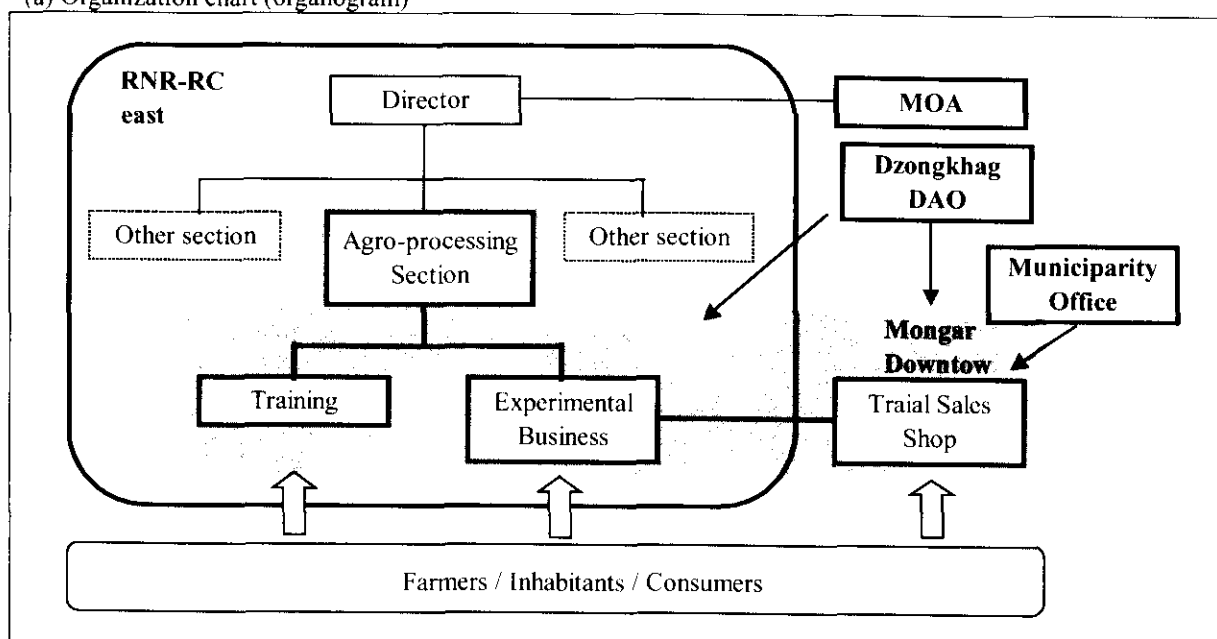
II. Program/Sub-program

Target	<ul style="list-style-type: none"> • To spread agro-processing and marketing technology and foster entrepreneurs for agro-processing. • To incubate local agro-processing enterprises. • To increase opportunity for inhabitants, especially women, to participate in the development of agro-processing business and to increase income. • Target number of trainees: 10 / course (2 weeks) , 50 / year • Target number of agro-processing enterprises to be incubated: 5 during 10 years.
Activities	<ul style="list-style-type: none"> • Preparation of training programs for various cooking and processing technique and marketing technology. And establishment of training courses of agro-processing in collaboration with foreign experts. <li style="padding-left: 20px;">Expected condition <li style="padding-left: 40px;">- Training period: 2 weeks <li style="padding-left: 40px;">- No. of trainees: 10 <li style="padding-left: 40px;">- Training period: mainly Oct.-Feb. as agricultural off-season <li style="padding-left: 40px;">- Training times per year: 5 - 10 • Fostering trainers by foreign experts. • Implementation of training program, recruiting trainees in the Study Area. • Selecting and forming dedicated trainees to a group for practical experimental business activities covering products development, processing and marketing. • Carrying out such experimental activities by the way of marketing cycle theory. <div style="text-align: center; margin: 10px 0;"> <pre> graph TD P[Production] --> S[Sales] S --> P D[Development and improvement of products design] --> P D --> S R[Responses and needs of consumers] --> P R --> S </pre> </div> <ul style="list-style-type: none"> • Display and sale of trial products in the trial sales ("antenna") shop established in the center of Mongar downtown. • Expanding production and marketing to town shops and to the other towns for the products having better response from consumers, and supporting and releasing the group to an individual business enterprise or cooperative to manage the business autonomously by themselves.
Input	<ul style="list-style-type: none"> • Small factory as a training and experimental facility. • Introduction of a series of simple and small-scale processing equipments such as: grinder, mixer, cooker, fryer, dryer, roaster, refrigerator, oven, bottling machine, canning machine, sealer etc. • A trial sales ("antenna") shop will be attached to it as an annex and established in the downtown of Mongar. • Foreign experts in charge of preparation training programs and training to trainers. • Mongar Dzongkhag office's assistance for acquiring area for an annex in the facility of weekly market near the bus terminal in Mongar town.

Output	<ul style="list-style-type: none"> • Demonstration effect of market-oriented products development. • Introduction of cottage industries in the Study Area. • Generation of small agro-processing enterprises that will be seeds for development of agro-processing industry in the future.
Period	From 2004
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Cash Crop Production Strengthening Program will focus on increase of cash crop production that will expand and diversify the resources for agro-processing activity. • Market System Development Program will be able to support the marketing of the agro-processed products for export.
Project Justification	Under the situation of the Study Area being in a disadvantaged position to foreign market through Samdrup Jongkhar, this program is practical and effective and aims to incubate and develop the small agro-processing enterprises for local market. These enterprises will assume the initial stage for development of agro-processing industry in the future.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	MOA RNR-RC east	MOA will allocate budget and recruit foreign experts for implementation of the program. RNR-RC east will be the implementation body of the program.
Dzongkhag	DAO, EAs	DAO and EAs will support for recruitment of trainees and establishment of trial sales shop in Mongar downtown together with Municipality Office.
Gewog	-	-
Beneficiaries	Inhabitants	Participation as trainees and consumers of trial sale products for the program implementation.

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Basic design and budget allocation for initial investment	RNR-RC east MOA	RNR-RC east will prepare the design of equipment and facility and estimate the cost of training and experimental agro-processing facility and establishment of a shop. MOA will take necessary measures and allocate budget, and provide foreign experts.

Main Report
Action Plan Sheet

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
2	Forming agro-processing section	RNR-RC east	Forming agro-processing section under Director of RNR-RC east and allocate staffs.
3	Preparation of training program	RNR-RC east	Staffs will prepare the training guideline and curriculum in collaboration with foreign experts.
4	Training of trainers	RNR-RC east	Experts will train the trainers.
5	Establishment of facility	RNR-RC east	RNR-RC east will procure equipment and construct the facility for training and experimental activity.
6*	Budget allocation for annual activities	MOA,	MOA will allocate budget for planned annual activity prepared by RNR-RC east.
7*	Recruitment of trainees	RNR-RC east	RNR-RC east will recruit trainees publicly in collaboration with DAOs, and EAs.
8*	Training implementation	RNR-RC east	Training will be carried out mainly from Oct. to Feb during the agricultural off-season.
9	Establishment of trial sales shop	RNR-RC east	RNR-RC east will establish the trial sales ("antenna") shop in downtown of Mongar in collaboration with Dzongkhag and Municipality Office. A part of Weekly Market facility belonging to Municipality Office is nominated.
10*	Organizing experimental production and sale group	RNR-RC east	Dedicated trainees will be selected from all trainees trained in the previous one year and organized a group for experimental activity from production to sale.
11*	Implementation of experimental activity	RNR-RC east Group	Group will carry out and repeat a series of experimental work through a year, such as designing products, production, display and sale.
12	Establishment of enterprise	RNR-RC east Dzongkhag	If the group will be able to develop the products having good response from market, RNR-RC east and Dzongkhag will support and release them to be an individual enterprise managed by themselves

* Repeated permanent activity

V. Schedule

Required Action (WHAT)		Period	03	04	05	06	07	08	09	10	11	12
1	Basic design and budget allocation for initial investment	3 Months	<input type="checkbox"/>									
2	Forming agro-processing section	1 Months	<input type="checkbox"/>									
3	Preparation of training program	4 Months		<input type="checkbox"/>								
4	Training of trainers	3 Months		<input type="checkbox"/>								
5	Establishment of facility	6 Months		<input type="checkbox"/>								
6*	Budget allocation for annual activities	2 Months		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7*	Recruitment of trainees	2 Months		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8*	Training implementation	5 Months		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Action Plan Sheet
RADP, Program for Cash Crop Production Strengthening
Agro-processing Technology Training SP

Required Action (WHAT)		Period	03	04	05	06	07	08	09	10	11	12
9	Establishment of trial sales shop	2 Months			▮							
10*	Organizing experimental production and sale group	1 Month			▮	▮	▮	▮	▮	▮	▮	▮
11*	Implementation of experimental activity	11 Months			▭	▭	▭	▭	▭	▭	▭	▭
12	Establishment of enterprise	1 Month					▮	▮	▮	▮	▮	▮

VI. Implementation and Monitoring System

Action	Plan	
Progress Management of A/P	WHO	Program Director, RNR-RC east
	WHEN	Once a month after forming section
	WHERE	RNR-RC east
	HOW	Agro-processing section will prepare to submit monthly report to Program Director of RNR-RC east
Budget Management at Preparatory Stage	WHO	MOA
	WHEN	Previous year for budget allocation.
	WHERE	MOA, Thimphu
	HOW	As per financial regulation after receipt of the request letter from RNR-RC.
Budget Management at Implementation Stage	WHO	Accounting section in RNR-RC east
	WHEN	Each three months
	WHERE	RNR-RC east
	HOW	Agro-processing section will keep an account book and report to an accounting section of RNR-RC east.
Budget Management at O&M Stage	WHO	Accounting section in RNR-RC east
	WHEN	Each three months
	WHERE	RNR-RC east
	HOW	Agro-processing section will keep an account book and report to an accounting section of RNR-RC east.
Problem Solving	WHO	Program Director of RNR-RC east
	WHEN	When problem will happen.
	WHERE	RNR-RC east
	HOW	If Program Director will not solve it within the section he will consult with MOA.

Action Plan Sheet

I. General		Sheet No.	AP-11
Program	Market System Development Program		
Sub-program	Collection Depot Construction SP / Group Assembling SP / Group Assembling and Marketing SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	AMS/PPD, MOA, RNR-RC	Director of AMS
	Dzongkhag	Lhuntse / Mongar	DAO, EAs
	Gewog	Gewogs having motorable road	GUP
	Beneficiaries	Farmers	Leaders of group activity for marketing

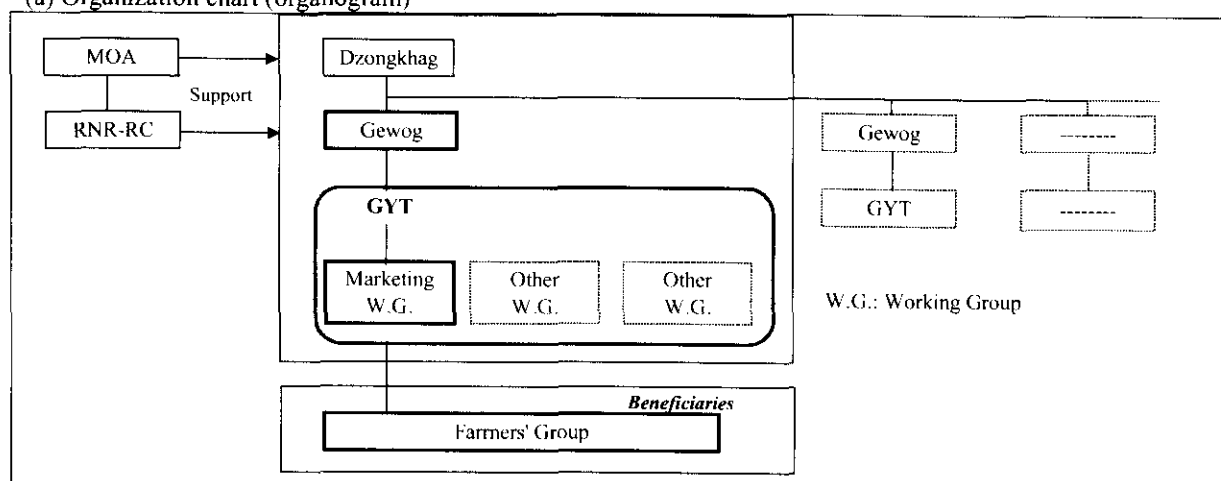
II. Program/Sub-program

Target	<ul style="list-style-type: none"> • To increase opportunity for farmers to meet buyers. • To increase farmer's income and stability of sales. • Participatory number of households in Gewog: about 200 households • Sales amount: About Nu. 2,000,000 of 400 tons
Activities	<p><u>SP1</u></p> <ul style="list-style-type: none"> • Organizing marketing working group • Organizing farmers group. • Construction of a depot beside the farm road, which will be used for assembling place of products and for collection place for buyers. • <As for Gewogs having a shed market already it will start to organize farmers and implement activity of SP2 omitting construction of a depot.> <p><u>SP2</u></p> <ul style="list-style-type: none"> • (Organizing marketing working group) • (Organizing farmers group) • Forming the leaders among organized farmers group and training them for management of group activity. • Planning of assembling schedule among members. • Bringing the products to the depot by each member farmer. • Promotion of better conditions for selling products such as grading and repacking by the trained leaders. • Carrying out the transaction between buyers and farmers in the depot. <p><u>SP3</u></p> <ul style="list-style-type: none"> • Training and strengthening ability of the leaders above (SP2) to carry out the group assembling activities • Collection and analysis of market information • Grading and repacking of products at the depot. • Transporting and selling at local markets or at the auction yard in Samdrup Jongkhar. • Storing some products and shipping later after seeing market conditions.
Input	<p><u>SP1</u></p> <ul style="list-style-type: none"> • Provision of construction materials for depot (@Nu.80,000). • Capacity: Stacking and handling of products by 8 tons. (30Lx10Wx3Hm) <p><u>SP2</u></p> <ul style="list-style-type: none"> • Provision of trainers for <ul style="list-style-type: none"> - Group activity - Fostering leaders - Business management - Marketing, and - Quality control <p><u>SP3</u></p> <ul style="list-style-type: none"> • Provision of market information of Mongar market by DOA and of the auction yard in Samdrup Jongkhar by FCB • Provision of Trainers for <ul style="list-style-type: none"> - Management and marketing, and - Information collection and analysis to the leaders.
Output	<ul style="list-style-type: none"> • Participatory number of households in Gewog will be 200. • Handling quantity of planned marketable cash crop production in Gewog will achieve

	400 tons.
Period	<ul style="list-style-type: none"> • Depot construction (SP1): Soon after farm road construction. • Implementation of SP2-3: After depot construction.
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Depot will be constructed after completion of farm road construction work carried out by "Farm Road Construction Program". • "Marketing Support Program by FCB (SP-4)" will support the sales of products assembled in depot by the programs.
Project Justification	<ul style="list-style-type: none"> • The depot or the existing shed market will be used for average 200 of households and about 400 tons of sales of marketable products. The investment for a depot construction is justifiable in view of publicity and expected marketing benefit. • To ensure income increase of farmers as the upper goal, these sub-programs are indispensable following and supporting to improvement of cash crop production. • To create the market-oriented mindset among farmers especially leaders through training and activities in the programs is important for sustainability of marketing activities carried out by them.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	MOA, RNR-RC	<ul style="list-style-type: none"> • MOA will provide the budget for purchasing of collection depot materials. • MOA and RNR-RC will provide experts for training by the request from Dzongkhag.
Dzongkhag	DAO, EAs	<ul style="list-style-type: none"> • DAO and EAs will promote farmers' group activities and provide the support for training and market information.
Gewog	GYT	<ul style="list-style-type: none"> • Administrative implementation body. • Marketing working group in GYT will promote farmers' group activity for marketing and the organized group will be actual implementing body for the programs.
Beneficiaries	Farmers	<ul style="list-style-type: none"> • Participation to group activity.

IV. Action Plan (sequent)

	Required Action (WHAT)	Sub-Program	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1	Organizing of Market Working Group	1,2	Gewog (GYT)	GYT of Gewog will organize Market Working Group under GYT.
2	Request of depot construction material	1	Gewog (GYT)	GYT of Gewog will prepare the request letter for provision of depot construction material in consultation with DAO.
3	Organizing of farmers group	1,2	Market WG	Market WG will organize farmers group that will manage construction and operation of collection depot and group assembling.
4	Budget allocation	1	MOA	MOA will take procedure upon receipt of the request letter from Dzongkhag and allocate the budget to Dzongkhag for purchasing construction material for a depot.

Main Report
Action Plan Sheet

Required Action (WHAT)		Sub-Program	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
5	Training of EAs and members of marketing working group of GYT	1,2	MOA, RNR-RC	MOA will provide the training to EAs and members of marketing working group of GYT concerning promotion of group activities and organizing farmers.
6	Promotion of organizing farmers	1,2	Gewog (GYT)	GYT will promote and organize farmers in collaboration with EAs.
7	Fostering leaders	1,2	Gewog (GYT)	GYT will foster leaders and organize leaders group in collaboration with EAs.
8	Decision of construction place of depot	1	Farmers group	Organized farmers group will consider and decide the appropriate place of a depot among members under supervision by GYT and EAs.
9	Provision of construction material	1	Dzongkhag	Dzongkhag will purchase and provide the construction material for depot to Gewogs.
10	Construction of a depot	1	Farmers group	Members of the group will participate and carry out the depot construction work under supervision by GYT and EAs.
11	Training of leaders (1)	2	MOA, RNR-RC	MOA will provide the training to leaders concerning management of group activities and marketing.
12	Sales promotion	2	Farmers group	Leaders of the group will promote buyers to come to a depot. DAO, EAs and staffs of marketing working group of GYT will cooperate with them.
13	Group shipment	2	Farmers group	The farmers group will start the group shipment. They will start from small quantity and less time of shipment, and increase gradually. DAO, EAs and staffs of marketing working group of GYT will support and coordinate their activity.
14	Training of leaders (2)	2,3	MOA, RNR-RC	MOA will provide the training to leaders concerning market information collection and processing, grading and quality control, and support in formulating the rules and procedures for grading activity.
15	Grading activity	2,3	Farmers group	Leaders of the group will promote and start the grading activity in the depot. They will start from small quantity and increase gradually. DAO, EAs and staffs of marketing working group of GYT will cooperate with them.
16	Provision of market information	3	DAO	DAO will provide market information including Mongar market and the auction yard in Samdrup Jongkhar.
17	Direct sale activity	3	Farmers group	Leaders of the group will promote and start the direct sale activity of assembled products in Mongar market and the auction yard of Samdrup Jongkhar by hiring truck.

Note: Some actions will be deleted for application condition in each Gewog according to figures in the column of "Sub-program". For example, actions for "1" in the column will be deleted for Gewogs having shed market, actions for "3" will be deleted for Gewogs without implementation of SP3.

V. Schedule

Required Action (WHAT)		Period	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1	Organizing of Market Working Group	By May.	<input type="checkbox"/>									
2	Request of depot construction material	By Jun.	<input type="checkbox"/>									
3	Organizing of farmers group	By Dec.	<input type="checkbox"/>									
4	Budget allocation	By Jun.		<input type="checkbox"/>								

Collection Depot Construction SP, Group Assembling SP, Group Assembling and Marketing SP

Required Action (WHAT)		Period	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
5	Training of EAs and members of marketing working group of GYT	1 day		□								
6	Promotion of organizing farmers	By end of 5th		□								
7	Fostering leaders	By end of 3rd		□								
8	Decision of construction place of depot	7 days		□								
9	Provision of construction material	By Jun.		□								
10	Construction of a depot	3 days		□								
11	Training of leaders (1)	2 days		□								
12	Sales promotion	By end of 3rd		□								
13	Group shipment	Aug. of 2nd ~		□								
14	Training of leaders (2)	3 days		□								
15	Grading activity	Dec. of 2nd ~		□								
16	Provision of market information	3 rd ~		□								
17	Direct sale activity	4 th ~		□								

Note: Implementation schedule of the programs by calendar year will differ among Gewogs due to farm road construction schedule and other local conditions.

VI. Implementation and Monitoring System of Action Plan

Action	Plan	
Progress Management of A/P	WHO	In the initial stage (of a few years) till the group can manage their activity properly by themselves, DAO in Dzongkhag will supervise and manage the progress of the programs. Afterwards, GYT will take over.
	WHEN	Monthly basis in the preparatory period and sales season
	WHERE	DAO office of Dzongkhag / GYT Office
	HOW	Monthly report prepared by GYT / leaders of the group will be submitted.
Budget Management at Preparatory Stage	WHO	PPD, MOA
	WHEN	Previous year for budget allocation.
	WHERE	MOA, Thimphu
Budget Management at Implementation Stage	HOW	As per financial regulation after receipt of the request letter from Dzongkhag.
	WHO	DAO, Dzongkhag
	WHEN	Monthly basis in the 2nd year only.
	WHERE	DAO office
	HOW	As per financial regulation.

Main Report
Action Plan Sheet

Action	Plan	
Budget Management at O&M Stage	WHO	Leaders of the farmers group
	WHEN	Monthly basis
	WHERE	Any place authorized by the group.
	HOW	As per management regulation of the group.
Problem Solving	WHO	<ul style="list-style-type: none"> • Budget arrangement: MOA • Initial stage: Dzongkhag • Afterwards: GYT (Marketing working group)
	WHEN	When the problems will occur.
	WHERE	<ul style="list-style-type: none"> • Budget arrangement: MOA office • Initial stage: DAO office, Dzongkhag • Afterwards: GYT office
	HOW	<ul style="list-style-type: none"> • Budget arrangement: MOA will be consultation with MOF. • Initial stage: DAO will discuss with EAs, member of GYT and leaders of the group. • Afterwards: GYT will discuss with leaders of the group.

Action Plan Sheet

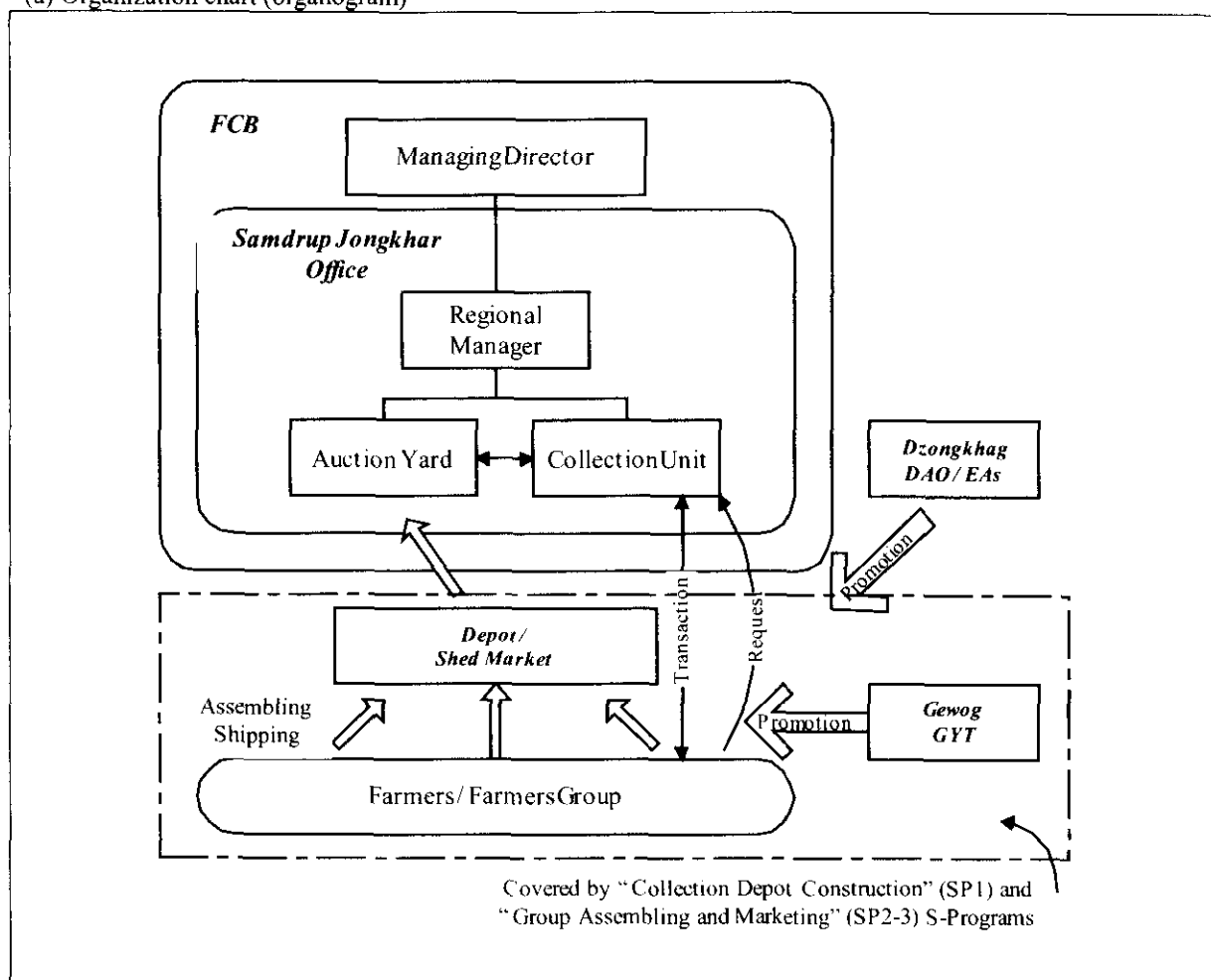
I. General		Sheet No.	AP-12
Program	Market System Development Program		
Sub-program	Marketing Support SP by FCB		
Stakeholders	Level	Organization / Name	Contact Person
	National	FCB	Managing Director Tel: 5-252375 Regional Manager in Samdrup Jongkhar
	Dzongkhag	DAO, EAs	Tel: 545127 (Lhuntse) Tel: 641181 (Mongar)
	Gewog	All Gewogs having motorable road.	Gups, EAs
	Beneficiaries	All producers	

II. Program/Sub-program

Target	<ul style="list-style-type: none"> • To promote the ideal trading condition of export products for farmers by provision of more marketing options. • To generate reasonable profit to farmers by reduction of intermediate and transportation cost. • To generate profit by upgrading of quality. • Target of handling quantity: About 1,600 tons, 20% of total assembled products in depots and shed markets.
Activities	<ul style="list-style-type: none"> • Assignment of the staffs for the program implementation. • Arrangement of trucks in cost for collection in accordance with request by farmers groups. • Issuance of receipts to farmers or representatives of farmers group when receiving products. • Auctioning the collected products at the auction yard by FCB after coming back to Samdrup Jongkhar (S.J.). • Carrying out cash settlement in the time of next collection, after deduction of transportation and handling cost, and service charge (3%) of auction yards.
Input	<ul style="list-style-type: none"> • Plastic containers for vegetable and fruits to reduce transportation losses. • Quantity: 600 units for two trucks • Budget: \$ 3,000.-
Output	<ul style="list-style-type: none"> • Farmers and farmers' groups will have a new marketing channel by this program. • Preferable condition for farmers will be expected by the competition among middlemen, FCB and other buyers. • Farmers and farmers' groups can sell their products at auction yard in S. J. directly even owing the transportation cost.
Period	From 2004
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Cash Crop Production Strengthening Program will focus on increase of cash crop production and raise quantity and diversify the recourses for export. • Market System Development Program (P3-SP1-3) will relate directly to this program. It will provide better quality of products by assembling and grading activity in the collection points or the shed markets by which the collection activity will be effective and economical for this program.
Project Justification	<ul style="list-style-type: none"> • Under the situation of the Study Area in which the free market mechanism has not been established yet, this program implementation will lead to improvement and modernization of the commercial system in this Area. • As the result, more market-oriented system will generate by this program implementation together with other sub-programs in Market System Development Program (P3-SP1-3).

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	FCB	Implementation body of the program.
Dzongkhag	DAO, EAs	Supporting the FCB's activities for promotion of farmer's participation and information transferring.
Gewog	GYT	Promotion of farmer's participation in line with promotion of farmers' group activity for marketing (P3-SP2-3).
Beneficiaries	Farmers	Participation and shipping their products to FCB.

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Staff's assignment for the program implementation.	FCB	FCB will assign necessary staff for the program implementation.
2 Procurement of plastic containers	FCB	FCB will purchase plastic containers for transportation of vegetable and fruits.
3 Promotion of the program	FCB	FCB will announce and disseminate the program by which farmers group can ask the transportation and auction services for their assembled products to FCB, in collaboration with DAO and EAs.
4* Request to FCB	Farmers group	Representative (leader) of farmers group will request the collection of their assembled products to FCB and negotiate and conclude the collection date.
5* Notice of collection date	Farmers group	Representative (leader) of farmers group will note the date and time by when member farmers carry their products in the depot or shed market.

Action Plan Sheet
RADP, Market System Development Program
Marketing Support SP by FCB

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
6*	Collection of products	FCB	FCB's trucks will collect the products from farmers and farmers' groups at collection points as previously scheduled. FCB's staff will give the receipt to each farmer and farmers' group after weighing and quality inspection of commodities.
7*	Auctioning	FCB	FCB will auction the collected products in place of farmers at their auction yard in S. J. after arrival.
8*	Settlement of sales	FCB	FCB will pay the auctioned price to farmers and farmers' groups after deducting transportation and handling charge and 3% of commission of auction yard based on the receipts at the next time of collection. FCB may pay to the bank accounts to those who have bank account.

* Repeated permanent activity

V. Schedule

Required Action (WHAT)		Period	03	04	05	06	07	08	09	10	11	12
1	Staff's assignment for the program implementation.	1 Months										
2	Procurement of plastic containers	2 Months										
3	Promotion of the program	10 Months		□								
4*	Request to FCB	* Repeated permanent activity		□								
5*	Notice of collection date											
6*	Collection of products											
7*	Auctioning											
8*	Settlement of sales											

VI. Implementation and Monitoring System

Action	Plan	
Progress Management of A/P	WHO	Managing Director
	WHEN	Once a month after starting activity
	WHERE	Head office
	HOW	M.D. will examine the monthly report that will be submitted by Regional Manager of S. J. Office.
Budget Management at Preparatory Stage	WHO	Managing Director
	WHEN	Previous year for budget allocation.
	WHERE	MOA, Thimphu
	HOW	Managing board will decide allocation of budget for purchasing plastic containers.
Budget Management at Implementation Stage	WHO	Accounting section in Head Office
	WHEN	Each three months
	WHERE	Head Office
	HOW	Accounting section of S. J. Office will submit monthly report to Managing Director. The accountants will examine it.
Budget Management at O&M Stage	WHO	None
	WHEN	None
	WHERE	None
	HOW	None
Problem Solving	WHO	Managing Director of FCB
	WHEN	When problem will happens.
	WHERE	Head office
	HOW	If regional manager can not solve it within the S. J. Office he will the consult with Managing Director.

Action Plan Sheet

I. General

Sheet No.	AP-13
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Program	Extension Strengthening Program		
Sub-program	Extension Strengthening for Food Crop SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	RNR-RC	PD & EPO of RNR-RC East
		DSC	DSC-East
		BDFC	Dzongkhag BDFC
	Dzongkhag	Mongar Dzongkhag	DAO Agriculture-EA
	Gewog		Gup Food Crop Working Group *
Beneficiaries	Farmers in Gewog		

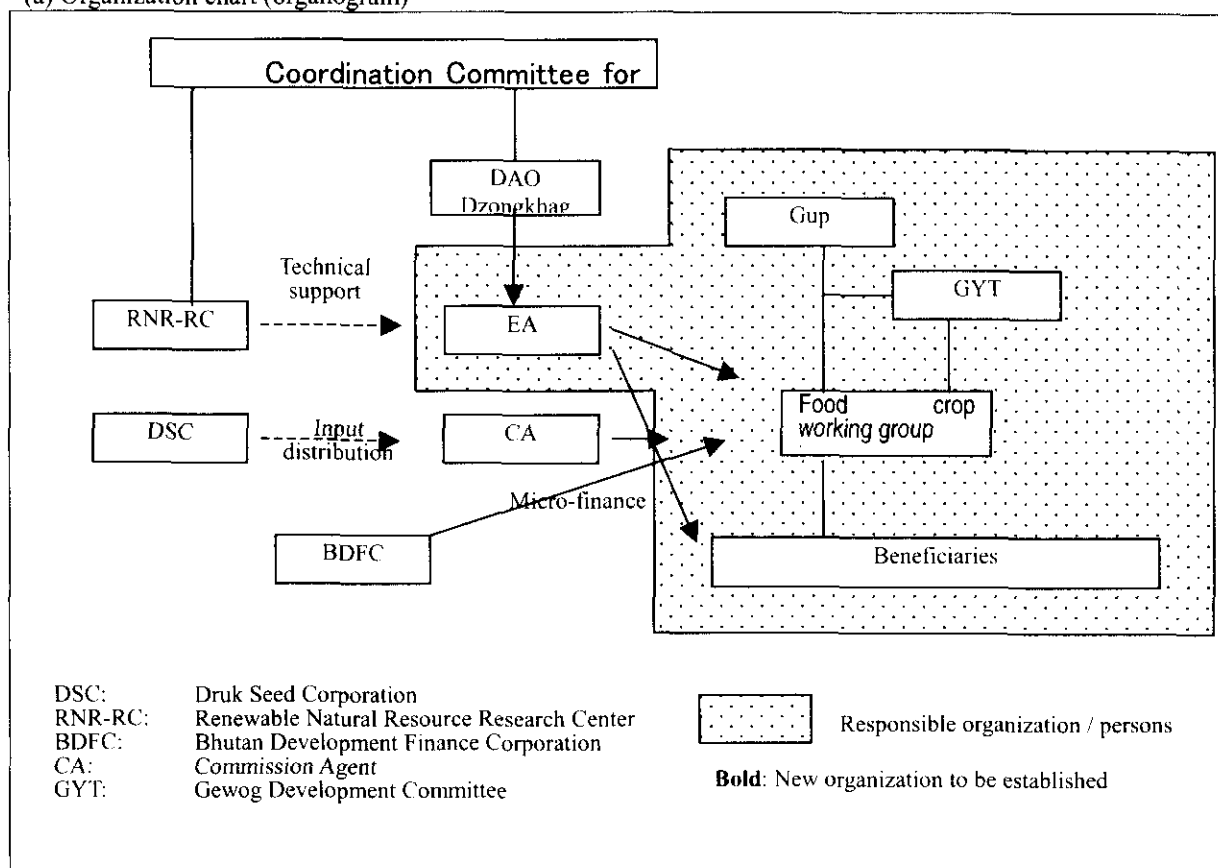
* Food Crop Working Group: The working groups for subjects such as Food crop, Cash crop, and Livestock, will be established in GYT aiming to strengthen administrative functions of Gewog, participation in community activities by residents, and assist EA's activities. The group carries out the Action Plan under the responsibility of Gup.

II. Program/Sub-program

Target	<p>To disseminate improved farming system in order to maintain food sufficiency in the Gewog and encourage farmers through participation in extension activities in Gewog.</p> <ul style="list-style-type: none"> • Target of Cereal Production <table style="margin-left: 20px; border: none;"> <tr> <td>Paddy:</td> <td style="text-align: right;">ton</td> </tr> <tr> <td>Maize:</td> <td style="text-align: right;">ton</td> </tr> <tr> <td>Other cereals:</td> <td style="text-align: right;">ton</td> </tr> <tr> <td>Per capita milled grain:</td> <td style="text-align: right;">kg</td> </tr> </table> 	Paddy:	ton	Maize:	ton	Other cereals:	ton	Per capita milled grain:	kg																																
Paddy:	ton																																								
Maize:	ton																																								
Other cereals:	ton																																								
Per capita milled grain:	kg																																								
Activities	<ul style="list-style-type: none"> • Establishment of Food Crop Working Group, • Survey of present situation and potential of food production, • Preparation of food production plan, • Implementation of Farmers Field School (FFS)* for guidance to leader farmers on improved farming system, post-harvesting, etc., • Implementation of Demonstration Plots** in farmers field to demonstrate and verify improved / high yielding varieties and improved crop management, • Carrying out of Farmers Study Tour (FST)*** in advanced areas, research center, etc. • Distribution of required inputs (seeds, fertilizer) to farmers, • Group purchase of inputs using micro-finance by BDFC, • Seed multiplication inspection by DSC. 																																								
Input	<ul style="list-style-type: none"> • Distribution of subsidized seeds for demonstration plots and promotion of new varieties (cash and carrying). <table style="margin-left: 20px; border: none;"> <tr> <td>Paddy seed: __ kg/year, during __ years</td> </tr> <tr> <td>Maize seed: __ kg/year, during __ year</td> </tr> <tr> <td>Wheat : __ kg/year, during __ year</td> </tr> </table> • Demonstration plots (seed and chemicals) <table style="margin-left: 20px; border: none;"> <tr> <td>__ plots / year, during __ year, input cost Nu.500/plot, total cost Nu. __</td> </tr> </table> 	Paddy seed: __ kg/year, during __ years	Maize seed: __ kg/year, during __ year	Wheat : __ kg/year, during __ year	__ plots / year, during __ year, input cost Nu.500/plot, total cost Nu. __																																				
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Wheat : __ kg/year, during __ year																																									
__ plots / year, during __ year, input cost Nu.500/plot, total cost Nu. __																																									
Output	<ul style="list-style-type: none"> • Improvement of food crop farming system, • Production increase of food crops, • Dissemination of sustainable land use and improved farm management, • Encouragement of leader farmers in Gewog for dissemination of improved farming <p style="text-align: center;">Land Use and Production Plan</p> <p>➤ Present Land Use (ha)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <thead> <tr> <th></th> <th>Wet land</th> <th>Dry land</th> <th>Tseri</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Registered *1 (A)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Estimated *2 (B)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>*1: Registered land, *2: Estimated by Study Team based on Land Cover Map</p> <p>➤ Cereal Production (ton) Source: RNR Statistics 2000</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <thead> <tr> <th></th> <th>Paddy</th> <th>Maize</th> <th>Others</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Present *1 (A)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 *2 (B)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Wet land	Dry land	Tseri	Total	Registered *1 (A)					Estimated *2 (B)					(B) / (A)						Paddy	Maize	Others	Total	Present *1 (A)					2012 *2 (B)					(B) / (A)				
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III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	RNR-RC	Technical support to EA activity
	DSC	Input supply to farmers, Technical guidance and inspection of seed grower farmers
	BDFC	Micro-finance service for group purchase of inputs
Dzongkhag	DAO	Technical support and coordination to EAs' activity
	Agriculture - EA	Extension activity in Gewog; Involving farmers in FFS, Demonstration plot and FST
Gewog	Gup and Food Crop Working Groups	Cooperation and participation in extension activities of EA, and organizing farmers group activities
Beneficiaries		Participation in extension activities of EA

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Organizing of Food Crop Working Group of GYT	Gup / GYT	Gup and GYT in cooperation with EA should organize Working Groups for food crop in GYT. The working group is responsible for implementation of development plan under Gup supported by EA.
2 Agricultural survey and Preparation of food production plan of Gewog	EA and Food Crop Working Group	Food Crop Working Group and EA should survey the present situation of production and development potential of food crops, and prepare production plan including input supply.
3 Request of budget allocation	Gup	Gup should request Dzongkha for the required budget with action plan after the approval of GYT.
4 Seed distribution	Food Crop Working Group	Food Crop Working Group distributes to beneficiaries subsidized seeds of improved varieties of Paddy (IR 64, Bajo Kaap, Bajo Maap), Maize (Yangtsipa, Palmera, Suwan) and Wheat (Sonalika).
5 Implementation of Demonstration Plots	EA and Food Crop Working	Demonstration plots are set up in selected farmers' field for promotion seeds and improved crop management (2 plots each for

Action Plan Sheet
RADP, Extension Strengthening Program
Extension Strengthening for Food Crop SP

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
	Group	paddy and maize, 1 plot each for wheat and mustard seed). EA should regularly (every month) visit the plots and give technical guidance to the farmers.
6	EA and Food Crop Working Group	FFS will be participated by around 15 - 20 of progressive farmers selected by Food Crop Working Group. EA should give technical guidance to participants in the field school held at Demonstration plots and other facility. The guidance will include from sowing to harvesting and post-harvesting. The participants will work voluntarily to disseminate improved crop management to villagers in Gewog.
7	Food Crop Working Group	Dzongkhag and EA prepare a plan of FST to advanced areas and research center. Food Crop Working Group selects participants for FST.
8	GYT / Micro-finance group	Micro-finance group of BDFC organized by GYT coordinates group purchase of inputs.
9	Food Crop Working Group	Food Crop Working Group organizes seed producer groups. DSC gives technical guidance to the groups, and inspects produced seeds.

Note *: FFS, FST and group purchase of input provided together with Extension Strengthening for cash crop.

V. Schedule

Required Action (WHAT)	Period (WHEN)	20	20	20	20	20	20	20	20	20	20	20	20
		02	03	04	05	06	07	08	09	10	11	12	
1	Organization of Food Crop Working Group of GYT		<input type="checkbox"/>										
2	Agricultural survey and Preparation of food production plan of Gewog		<input type="checkbox"/>										
3	Request of budget allocation		<input type="checkbox"/>										
4	Seed distribution												
5	Implementation of Demonstration Plots				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Implementation of Farmers Field School (FFS) *												
7	Farmers Study Tour (FST) *							<input type="checkbox"/>			<input type="checkbox"/>		
8	Group purchase of inputs *												
9	Seed multiplication												

Note *: FFS, FST and group purchase of input provided together with Extension Strengthening for cash crop.

VI. Implementation and Monitoring System of Action Plan

Action	Plan	
Progress Management of A/P	WHO	Gup
	WHEN	Every three months and annually
	WHERE	RNR center / Gup office

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	HOW	Quarterly meeting of Gup, Food Crop Working Group and EA, Crop production (planted area, yield and production) should be analyzed by field survey every cropping season. EA supports Gup technically.
Budget Management at Preparatory Stage	WHO	Gup should request the DAO for the budget plan with action plan.
	WHEN	12. 2003
	WHERE	Gewog
	HOW	Gup should request the DAO for the budget plan with action plan after approval by GYT
Budget Management at Implementation Stage	WHO	Gup
	WHEN	Before of every cropping season for seed distribution
	WHERE	Gewog
	HOW	Budget plan for FYP and annual will be approved by DYT. The budget released by Dzongkhag
Budget Management at O&M Stage	WHO	
	WHEN	
	WHERE	
	HOW	
Problem Solving	WHO	Gup
	WHEN	Annual meeting and when problem occurs
	WHERE	Gewog
	HOW	Gup, Food Crop Working Group, EA and personnel concerned have a meeting for discussion of the problem and countermeasures.

Action Plan Sheet

I. General		Sheet No.	AP-14
Program	Extension Strengthening Program		
Sub-program	Extension Strengthening for Cash Crop SP		
Stakeholders	Level	Organization / Name	Contact Person
	National	RNR-RC	Program Director
		DSC	DSC-East
		BDFC	Dzongkhag BDFC
	Dzongkhag	Lhuntse and Mongar Dzongkhag	DAO Agriculture - EA
	Gewog		Gup Cash Crop Working Group
Beneficiaries	Farmers in Gewog		

* Cash Crop Working Group: The working groups for subjects such as Cash crop, Food crop, Livestock, will be established in GYT aiming to strengthen administrative functions of Gewog, participation in community activities by residents, and assisting EA's activities. The group carries out the Action Plan under the responsibility of Gup.

II. Program/Sub-program

Target	To disseminate improved cash crop management for increase of household income Vegetable production: _____ ton Fruits production: _____ ton Average income from cash crops: Nu. _____ / household.																				
Activities	<ul style="list-style-type: none"> • Selection of priority cash crops in Gewog and identification of priority area to be promoted the crops, • Preparation of cash crop production plan, • Setting up of demonstration plots* in farmers field to disseminate cash crop production technology to farmers, • Farmers Field School (FFS)** for guidance on farming and post-harvesting of cash crops, • Farmers Study Tour (FST)*** to advanced areas, researches, auction yard, and so on, • Distribution of required inputs (seeds, seedlings, fertilizer, agro- chemicals) to farmers, • Group purchase of inputs using micro-finance of BDFC, • Seed / seedling production by farmers inspected by DSC. 																				
Input	<ul style="list-style-type: none"> • Distribution of subsidized seeds / seedlings (cash and carrying) Vegetable seed: ___ kg / ___ years Fruits Seedling: ___ trees / ___ years • Input for Demonstration plots (free of charge): Vegetables: ___ plots/year, ___ years, Nu. 500/plot, total Nu. _____ Fruits: Total ___ plots, Nu.800/plot, Total Nu. _____ 																				
Output	<ul style="list-style-type: none"> • Improvement of cash crop technology in farmers field, • Environmental conservation through orchard development in Tseri, • Increase of cash crop production, • Quality improvement of products, • Income increase of farmers, • Formulation of major production area of priority crops, • Encouragement of leader farmers in Gewog for dissemination of improved farming through activities of cash crop working group and FFS. <p style="text-align: center;">Vegetable</p> <p>➤ Production plan of Vegetables</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-left: 20px;"> <thead> <tr> <th></th> <th style="text-align: center;">Planted area (ha)</th> <th style="text-align: center;">Yield (ton/ha)</th> <th style="text-align: center;">Production (ton)</th> <th style="text-align: center;">Marketing *3 (ton)</th> </tr> </thead> <tbody> <tr> <td>Present *1 (A)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 *2 (B)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>*1: Estimated based on RNR Statistics 2000, Yield and production are estimated by potato production for all vegetables. *2: Proposed production plan assumed at: Planted area (ha/household) _____ → _____</p>		Planted area (ha)	Yield (ton/ha)	Production (ton)	Marketing *3 (ton)	Present *1 (A)					2012 *2 (B)					(B) / (A)				
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Main Report
Action Plan Sheet

	<p>Nos. of households: _____ → _____ 28% increase (average annual increase rate 2.5%) Yield increase (ton/ha) _____ → _____ (% increase) *3: Marketable products Assumed that producers household consumes 300 kg of the product per year</p> <p style="text-align: center;">Fruits</p> <ul style="list-style-type: none"> Production plan of fruits <table border="1"> <thead> <tr> <th></th> <th>Nos. of trees</th> <th>Bearing trees</th> <th>Yield (kg/tree)</th> <th>Production (ton)</th> <th>Marketing *3 (ton)</th> </tr> </thead> <tbody> <tr> <td>Present *1 (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 *2 (B)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>*1: Estimated based on RNR Statistics 2000, Yield and production are estimated by orange for all fruits. *2: Proposed production plan assumed at: Nos of trees (trees/household) _____ → _____ Yield increase (kg/tree) _____ → _____ *3: Marketable products Assumed that producers household consumes 100 kg of the product per year</p>		Nos. of trees	Bearing trees	Yield (kg/tree)	Production (ton)	Marketing *3 (ton)	Present *1 (A)						2012 *2 (B)						(B) / (A)																													
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Period	<ul style="list-style-type: none"> Selection of priority crops and cash crop development plan 7.2003 - 12.2003 Extension activity of fruits 7.2004 - Extension activity of Vegetables 7.2005 - 																																																
Related Program / Sub-program (How)	<ul style="list-style-type: none"> P2-SP3 Training of Extension Agent sub-program (EAs are trained by this program in RNR-RC East) P4-SP1 Extension strengthening for food crop (FFS and FST will be implemented together with this sub-program) 																																																
Project Justification	<ul style="list-style-type: none"> Environment: Some of Tseri area are changed to orchard, Sustainability: Beneficiaries are trained on cash crop production through participation to extension activities. Income Increase per household Vegetables <table border="1"> <thead> <tr> <th></th> <th>Production (kg/hh)</th> <th>Marketing *3 (kg/hh)</th> <th>Price (Nu./kg)</th> <th>Production value (Nu.)</th> <th>Value sold (Nu.)</th> </tr> </thead> <tbody> <tr> <td>Present (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 (B)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Fruits <table border="1"> <thead> <tr> <th></th> <th>Production (kg/hh)</th> <th>Marketing *3 (kg/hh)</th> <th>Price (Nu./kg)</th> <th>Production value (Nu.)</th> <th>Value sold (Nu.)</th> </tr> </thead> <tbody> <tr> <td>Present *1 (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2012 *2 (B)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(B) / (A)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Production (kg/hh)	Marketing *3 (kg/hh)	Price (Nu./kg)	Production value (Nu.)	Value sold (Nu.)	Present (A)						2012 (B)						(B) / (A)							Production (kg/hh)	Marketing *3 (kg/hh)	Price (Nu./kg)	Production value (Nu.)	Value sold (Nu.)	Present *1 (A)						2012 *2 (B)						(B) / (A)					
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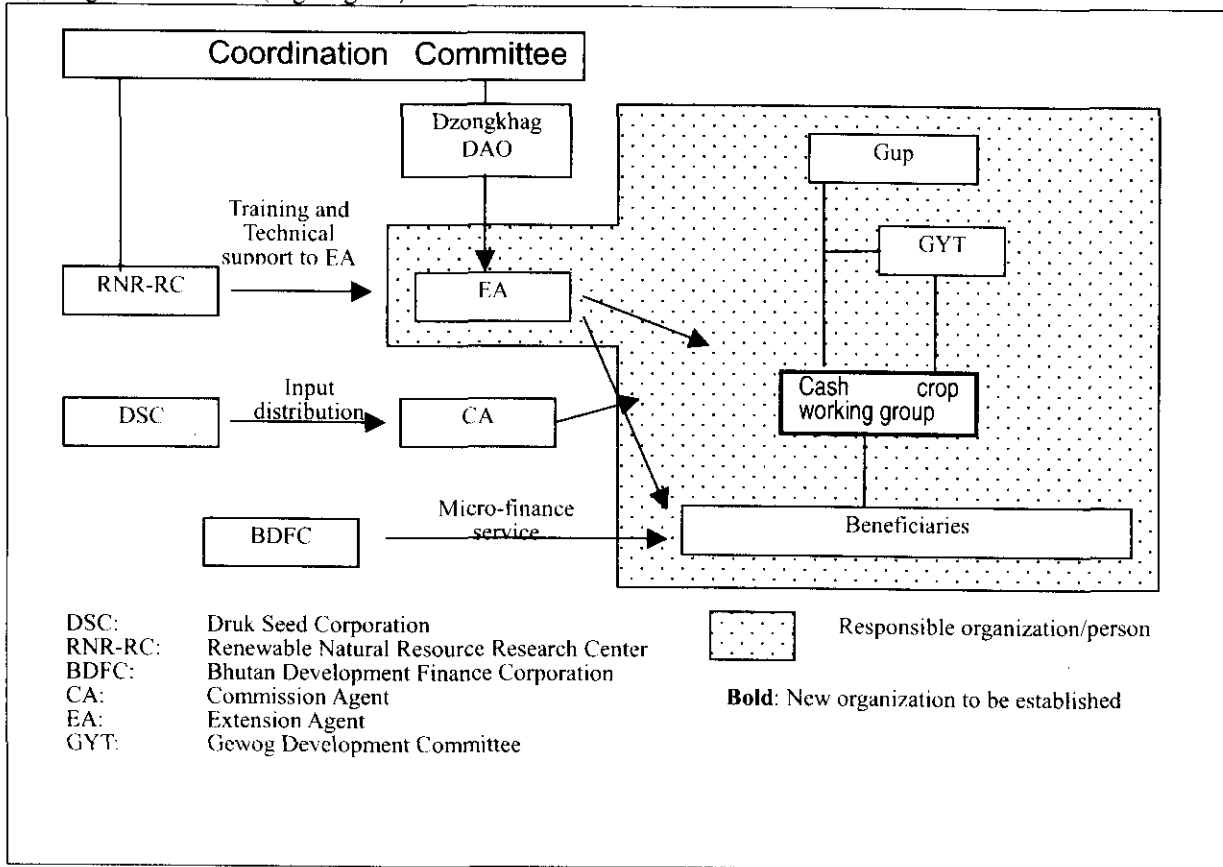
* Farmers Field School (FFS): FFS aims to encourage and train leader farmers for dissemination of improved farming technology and post-harvesting through their voluntary extension activities after the school. Around 15-20 progressive farmers selected from villagers will participate in FFS. FFS will be held one to two times every month at Demonstration plots, community school and other facilities. EA provides technical guidance to participants.

** Demonstration Plot: Demonstration plot is set up in farmers field in order to demonstrate and verify new crops / varieties and improved crop management. The location will be moved every year for opportunity beneficiaries. EA periodically visits to give technical guidance in improved farming. Farming practices will be carried out by the farmers themselves. Promotion seed and chemicals will be supplied free of charge to the farmers.

*** Farmers Study Tour (FST): FST aims to train farmers through investigation in progress areas and discussion with concerned organizations. Gewog or Dzongkhag provides FST schedule.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	RNR-RC	Technical support to EA activity
	DSC	Input supply to farmers, Technical guidance and inspection to seed / seedling growers
	BDFC	Micro-finance service for group purchase of inputs
Dzongkhag	DAO	Coordination of Dzongkhag level and support to EAs
	Agriculture - EA	Extension activity in Gewog; Involving farmers in FFS, Demonstration plot and FST.
Gewog	Gup and cash crop micro-finance group in GYT	Cooperation and participation in extension activities of EA, and organizing farmers group activities,
Beneficiaries		Participation in extension activities of EA.

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1. Organization of Cash Crop, Working Groups in GYT	Gup / GYT	Gup and GYT in cooperation with EA organize Working Groups in GYT for cash crop. The working group is responsible for implementation of development plan under Gup supported by EA.
2. Selection of priority crops and identification of area to be promoted for the crops	EA and Cash Crop Working Group	Priority crops and area to be promoted should be selected through examination of natural condition, present situation of production and farmers, marketing potential and so on. DAO and RNR-RC give technical support in the selection.
3. Preparation of cash crop development plan of Gewog	EA and Cash Crop Working Group	Cash Crop Working Group and EA should prepare cash crop development plan based on the above examination.
4. Request of budget allocation for seed / seedling supply	Gup	Gup should request Dzongkhag for the required budget for subsidized seed / seedling supply with action plan after the approval of GYT.
5. Seed and seedling	Cash Crop	Subsidized seed and seedling distribution of horticulture crops:

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Action Plan Sheet

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
distribution	Working Group	vegetable seeds, and seedlings of mango, mandarin orange and walnut.
6 Implementation of Demonstration Plot for cash crops	EA and Cash Crop Working Group	Demonstration plots are set up in farmers field for promotion seeds and improved crop management (2 plots each for potato and other vegetables, 1 plot each for orange, mango and walnut). EA should regularly (every month) visit the plots and give technical guidance to the farmers.
7 Implementation of Farmers Field School (FFS) activity	EA and Cash Crop Working Group	FFS will be participated by 15 to 20 participants of progressive farmers. EA should give technical guidance to participants in the field school held at Demonstration plot, field and other facilities. The guidance will include from sowing to harvesting and post-harvesting. The participants will work voluntarily to disseminate crop management to farmers in Gewog.
8 Farmers Study Tour (FST)	Cash Crop Working Group	Dzongkhag and EA will prepare plan of FST to advanced areas, research center, auction yard, consumers market and so on. Gewog will raise participants for the tour
9 Group purchase of inputs	GYT / Micro-finance group	Micro-finance group of BDFC organized by GYT coordinates group purchases of inputs.
10 Seed and seedling multiplication	Cash Crop Working Group	Cash Crop Working Group will organize growers group of vegetable seeds and seedling of fruits. DSC will give technical guidance for the group, and inspect seed/seedling.

V. Schedule

Required Action (WHAT)	Period (WHEN)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 Organization of Cash Crop, Working Groups in GYT	8. 2003 – 9. 2003		<input type="checkbox"/>									
2 Selection of priority crops and identification of area to be promoted for the crops	9. 2003 – 12.2003		<input type="checkbox"/>									
3 Preparation of cash crop development plan	9.2003 – 12.2003		<input type="checkbox"/>									
4 Request of budget allocation for seed / seedling supply	12.2003		<input type="checkbox"/>									
5 Seed and seedling distribution	7.2004 -			<input type="checkbox"/>								
6-1 Setting up of Demonstration plot for Vegetables	2004 -			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6-2 Setting up of Demonstration Plot for Tree crops	2006 -					<input type="checkbox"/>						
7 Farmers Field School (FFS) activity	2006 -					<input type="checkbox"/>						
8 Farmers Study Tour (FST) (2 times)	2006, 2009					<input type="checkbox"/>						
9 Group purchase of inputs	2007 -					<input type="checkbox"/>						
10 Seed and seedling multiplication	2007 -					<input type="checkbox"/>						

VI. Implementation and Monitoring System of Action Plan

Action	Plan	
Progress Management of A/P	WHO	Gup
	WHEN	Every three months and annually
	WHERE	RNR center / Gup office
	HOW	Quarterly meeting of Gup, Food Crop Working Group and EA, Crop production (planted area, yield and production) should be analyzed by field survey every cropping season. EA supports technically Gup.
Budget Management at Preparatory Stage	WHO	Gup should request DAO for the budget plan with action plan.
	WHEN	12. 2003
	WHERE	Gewog
	HOW	Gup should request DAO for the budget plan with action plan after approval by GYT
Budget Management at Implementation Stage	WHO	Gup
	WHEN	Before of every cropping season for seed distribution
	WHERE	Gewog
	HOW	Budget plan for FYP and annual will be approved by DYT. The budget released by Dzongkhag
Budget Management at O&M Stage	WHO	
	WHEN	
	WHERE	
	HOW	
Problem Solving	WHO	Gup
	WHEN	Annual meeting and when problem occurs
	WHERE	Gewog
	HOW	Gup, Food Crop Working Group, EA and personnel concerned have a meeting for discussion of the problem and countermeasures.

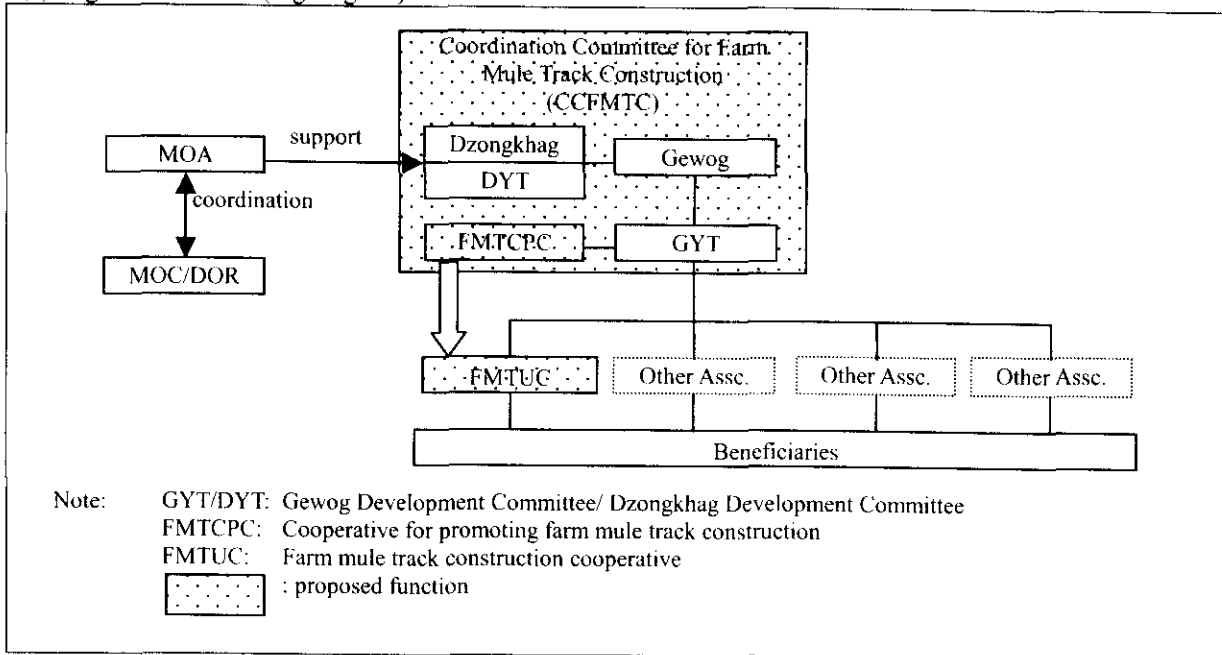
Action Plan Sheet

I. General		Sheet No.	AP-15
Program	Farm Road Construction Program		
Sub-program			
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA	SE, DRDS
	Dzongkhag	Lhuntse/ Mongar	DE DAO
	Gewog	GYT	Gup
	Beneficiaries	Tentative Cooperative	Head of Cooperative

II. Program/Sub-program	
Target (example)	To improve rural access to motor road, especially activating access to the center of Gewog, benefited household to be shown
Activities	<ul style="list-style-type: none"> • Survey, Design and Cost Estimation • Construction of farm road • Maintenance by Farm Road Users Cooperative • Procurement of construction materials and tools • Procurement of construction machinery • Environmental study • Financial arrangement • Establishment of organization • Training for beneficiaries • Training for road engineer
Input	<ul style="list-style-type: none"> • Surveyor (MOA and Dzongkhag) • Civil Engineer for Design (MOA and Dzongkhag) • Civil Engineer for Supervision (Dzongkhag) • Construction Machinery with Operator (CMU, MOA) • Construction Materials and Tools (MOA) • Skilled Labor (Mason, Blaster, etc., MOA) • Unskilled labor (Gewog Beneficiaries) • Project Cost Nu.: Unit cost Nu. 5.5 Mil. /km in farm road length • Maintenance by Farm Road Users Cooperative
Output (example)	The farm road is constructed (length to be shown in km) and the road is connected with center of Gewog through the feeder road. Through this construction worker with skill will be increased.
Period	Survey and Design :depends on construction scale Construction :depends on construction scale Maintenance :after completion
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Construction Machinery Center Program (Construction machinery for the construction works will be provided through this program) • Market System Development Program (Collection depot will be constructed along the farm road and group assembling will be conducted by farmers group)
Project Justification (example)	<ul style="list-style-type: none"> • Environment: IEE was conducted in the Mater Plan and EIA will be executed at the stage of survey and design in consideration of the instruction of NEC. • Efficiency: Reasonable range of construction cost per km is about Nu. 5,500,000 including labor cost in the maximum limitation. A minimum of ten households of 70 people per km and total cultivated area per season should not be less than 30 acres per km stipulated in guidelines for farm roads development of MOA. • Consistency with upper plan/program: This is based on the program of MOA. • Sustainability: The participation of beneficiaries, maintenance fund contribution and so on should be confirmed on the basis of the farm roads construction procedural manual prepared by MOA.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS, MOA	Responsible for the program comprehensively in terms of finance, technical backstopping and coordination with other stakeholders and organizations especially DOR.
Dzongkhag	Engineering Office/ Agriculture Office	Actually supervises FRUA from its establishment to the construction and maintenance by FRUC including accounting of the program.
Gewog	GYT	Formulate the Gewog development plan and evaluate the program in the plan, and based on this, make the official request letter and submit it to Dzongkhag.
Beneficiaries	FRUC	Directly engages in the program and participates in the construction and maintenance from at the stage of preliminary survey as unskilled labor free of charge.

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Establishment of institution for farm road construction	Gewog/GYT	A cooperative for promoting farm road construction (FRPCPC) will be tentatively established based on the petition from EA and beneficiaries under Gup in GYT.
2 Consensus in GYT	GYT	The request of farm road construction from FRPCPC will be discussed in GYT and with the consensus, it will be submitted to the Dzongkhag.
3 Official request (FRFORM.01) for implementation	GYT	The GYT member will prepare a request letter and the letter with the signature of Gup will be officially submitted to Dzongkhag with necessary information for evaluation (distance, route, contribution by Gewogs or beneficiaries, etc.)
4 Preliminary Investigation (Module 1)	Dzongkhag / FRPCPC	The preliminary investigation will be executed to find out whether the proposed request meets the basic requirements for government assistance. Project identification report (FRFORM.02) and IEE must be prepared for further procedure.
5 Consensus in DYT	Dzongkhag / DYT	The request will be discussed based on the project identification report and after consensus and Dzongda's approval, it will be submitted to MOA and MOF for further procedure for budget allocation.
6 Budget allocation for Multi-disciplinary	Dzongkhag	The budget for Multi-disciplinary Feasibility Study will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and

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Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
	Feasibility Study (Module 2)		distributed to Dzongkhag directly.
7	Multi-disciplinary Feasibility Study (Module 2)	Dzongkhag	Multi-disciplinary Feasibility Study will be executed to determine whether the proposed request is viable or not and how it can be implemented. Therefore, actual survey of the alignment has to be done using survey equipment. The feasibility study report (FRFORM.03, FORM's format is not fixed in particular.) with a detailed implementation plan, tentative designs and estimation of the project cost will be prepared.
8	Environmental study	Dzongkhag / NEC	Based on the feasibility study report, if environmental study is required, EIA will be executed.
9	Budget allocation for construction	Dzongkhag	The budget for construction of farm road will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.
10	Pre-construction Meeting (Module 3)	Dzongkhag	Explanation of the need of group/cooperative for construction and maintenance of farm road and Farm Road Users Committee (FRM-Committee named in Module 3) to FRPC will be executed.
11	Establishment of Farm Road Users Cooperative (FRUC)	FRUC/ GYT	FRUC will be established and FRM-committee members (FRFORM.04) will be selected from FRUC. Signing of agreements on labor contribution for construction (FRFORM.06), maintenance fund contribution (Annex I) in the letter of understanding (FRFORM.05) will be executed between FRUC and the representative of Dzongkhag in the above meeting.
12	Capacity building for FRUC	Dzongkhag	Training and through OJT, beneficiaries' construction and maintenance skill will be improved.
13	Land acquisition	Beneficiaries	Land acquisition and expropriation along the alignment will be carried out under the instruction of Dzongkhag.
14	Technical Training for Site Engineer and Site In-charge	Dzongkhag	Technical training for site engineer of Dzongkhag and site in-charge of FRUC using total station and so on will be carried out by an experienced road engineer.
15	Overall management of construction	Dzongkhag	The construction of farm road will be carried out under the management of Dzongkhag in Implementation (Module 4).
16	Construction machinery and equipment	MOA	Supply of machinery and equipment including technical backstopping from MOA for construction of farm road will be arranged based on the requisition of Dzongkhag in Implementation (Module 4).
17	Arrangement of unskilled labor	Beneficiaries	Beneficiaries shall provide free unskilled labor in accordance with the arrangement of the site in-charge.
18	Completion and Handing over (Module 5)	Dzongkhag/ Beneficiaries	The farm road shall be handed over to the beneficiaries after signing the Project Completion Report (FRFORM.07) and the Certificate of Satisfactory Completion (FRFORM.08).
19	Reserving fund for maintenance works	FRUC	For the following maintenance, fund will be reserved in the system of FRUC.
20	Routine maintenance	FRUC	Routine maintenance like side ditch cleaning will be periodically and timely carried out under the guidance of the site in-charge.
21	Periodical maintenance	FRUC	Annual maintenance for natural calamity and unexpected disasters will be periodically carried out under the guidance of the site in-charge.
22	Periodical repair works	MOA/ FRUC	Major repair will be executed using construction machinery to be arranged by CMU/MOA and Dzongkhag every five years.

Note: FORM and Module are procedure regulated for farm road development by MOA.

V. Schedule

↖ Commencement of construction

Required Action (WHAT)		Period	- 3	- 2	- 1	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
1	Establishment of institution for farm road construction	Before official request		□									

Action Plan Sheet
FRDP, Farm Road Construction Program

↙ Commencement of construction

Required Action (WHAT)		Period	-3	-2	-1	+1	+2	+3	+4	+5	+6	+7	+8
2	Consensus in GYT	After above establishment		□									
3	Official request (FRFORM.01) for implementation	Keep 1 year more before construction		□									
4	Preliminary Investigation (Module 1)	After above official request		□									
5	Consensus in DYT	After above investigation		□									
6	Budget allocation for Multi-disciplinary Feasibility Study (Module 2)	After above consensus		□									
7	Multi-disciplinary Feasibility Study (Module 2)	About 10 months		□									
8	Environmental study	About 1 month in the end of F/S			□								
9	Budget allocation for construction	After F/S			□								
10	Pre-construction Meeting (Module 3)	Before construction			□								
11	Establishment of Farm Road Users Cooperative (FRUC)	Before construction			□								
12	Capacity building for FRUC	Continuation during execution				□	□	□	□	□	□	□	□
13	Land acquisition	Construction + allowance				□	□	□	□	□	□	□	□
14	Technical Training for Site Engineer and Site In-charge	About 6 months before construction			□								
15	Overall management of construction	About 10 km/ year construction				□	□	□	□	□	□	□	□
16	Construction machinery and equipment	Same as above				□	□	□	□	□	□	□	□
17	Arrangement of unskilled labor	Same as above				□	□	□	□	□	□	□	□
18	Completion and Handing over (Module 5)	End of construction						□					
19	Reserving fund for maintenance works	Construction + about 6 months						□	□	□	□	□	□
20	Routine maintenance	After construction							□	□	□	□	□

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↖ Commencement of construction

Required Action (WHAT)		Period	- 3	- 2	- 1	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
21	Periodical maintenance	Every year after construction							□	□	□	□	□
22	Periodical repair works	5 years after construction										□	

Note: Period will be varied depending on the construction scale.

VI. Implementation and Monitoring System of Action Plan

Action	Plan
Progress Management of A/P	WHO: DE/DAO, Dzongkhag
	WHEN: Every three month
	WHERE: Dzongkhag Engineering/Agriculture Office
	HOW: Quarterly Report prepared by DE
Budget Management at Preparatory Stage	WHO: Superintending Engineer, DRDS, MOA
	WHEN: Every Financial Year
	WHERE: MOA Office, Thimphu
	HOW: As per Financial Manual of Royal Government of Bhutan
Budget Management at Implementation Stage	WHO: DAO, Dzongkhag
	WHEN: Monthly basis
	WHERE: Dzongkhag Agriculture Office
	HOW: As per Financial Manual of Royal Government of Bhutan
Budget Management at O&M Stage	WHO: Chairperson, FRUC
	WHEN: Monthly basis
	WHERE: Accountant, FRUC
	HOW: Constitution/Bylaws enacted in FRUC
Problem Solving	<p>WHO</p> <ul style="list-style-type: none"> • Budget arrangement: Superintending engineer, DRDS, MOA at preparatory stage/ DAO, Dzongkhag at implementation stage/ Chairperson, FRUC at O&M stage. • Technical problems: DE, Dzongkhag • Accident, Participation, Dispute: Chairperson, FRUC • Manpower: Superintending engineer, DRDS, MOA
	<p>WHEN</p> <p>As the problems happened.</p>
	<p>WHERE</p> <ul style="list-style-type: none"> • Budget arrangement: DRDS, MOA at preparatory stage/ Agricultural Office, Dzongkhag at implementation stage/ FRUC Office at O&M stage. • Technical problems: Dzongkhag Engineering Office • Accident, Participation, Dispute: FRUC Office • Manpower: DRDS, MOA
	<p>HOW</p> <ul style="list-style-type: none"> • Budget arrangement: DRDS, MOA discusses with MOF at preparatory stage and implementation stage/ FRUC discusses among the beneficiaries at O&M stage. • Technical problems: Dzongkhag Engineering Office discusses with the beneficiaries. • Accident, Participation, Dispute: FRUC Office discusses among the beneficiaries and third party. • Manpower: DRDS, MOA discusses with the organization concerned.

Action Plan Sheet

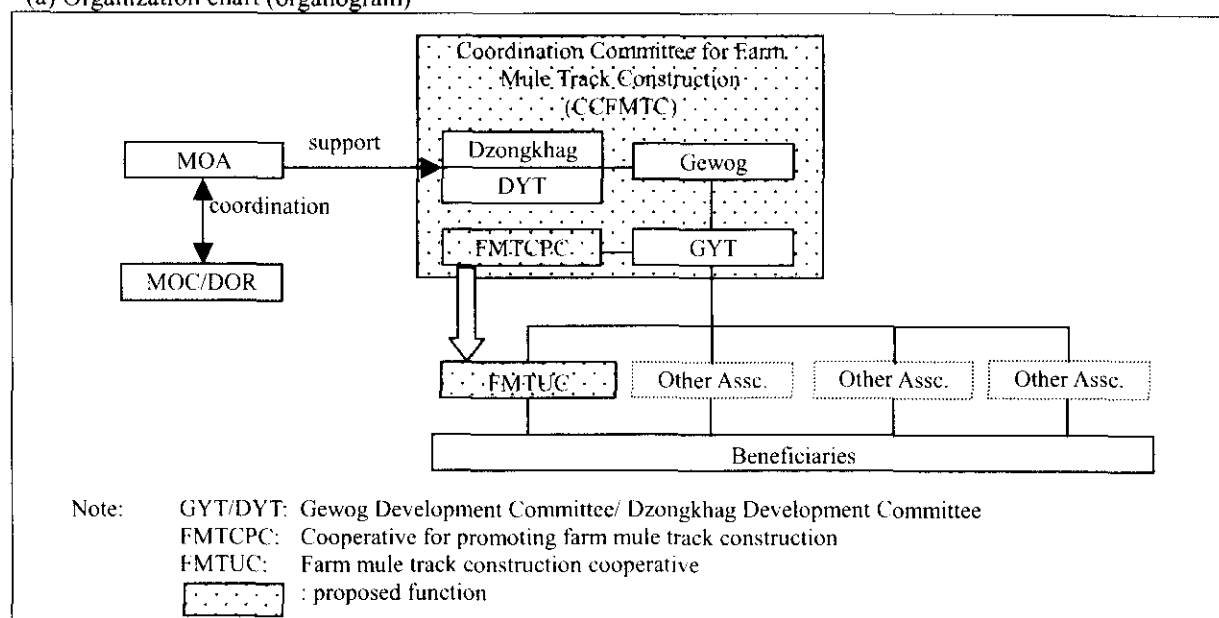
I. General		Sheet No.	AP-16
Program	Farm Mule Track Construction Program		
Sub-program			
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA	SE, DRDS
	Dzongkhag	Lhuntse/ Mongar	DE DAO
	Gewog	GYT	Gup
	Beneficiaries	Tentative Cooperative	Head of Cooperative

II. Program/Sub-program

Target (example)	To improve rural access to motor road with the center of Gewog, benefited household to be shown
Activities	<ul style="list-style-type: none"> • Survey, Design and Cost Estimation • Construction of farm mule track • Maintenance by Farm Mule Track Users Cooperative • Training for Dzongkhag engineer • Training for Farm Mule Track Users Cooperative • Procurement of construction materials and tools • Financial arrangement • Establishment of organization
Input	<ul style="list-style-type: none"> • Surveyor (Dzongkhag) • Civil Engineer for Design (Dzongkhag) • Civil Engineer for Supervision (Dzongkhag) • Construction Materials and Tools (MOA) • Skilled Labor (Mason, Blaster, etc., MOA) • Unskilled labor (Gewog Beneficiaries) • Project Cost Nu.: Unit cost Nu. 0.22 Mil. / km in farm mule track length • Maintenance by Farm Mule Track Users Cooperative
Output (example)	<ul style="list-style-type: none"> • The center of Gewog is connected with Dzongkhag Road, length to be shown in km. • Through this construction worker with skill will be increased.
Period	Survey and Design : depends on construction scale Construction : depends on construction scale Maintenance : after completion
Related Program / Sub-program (How)	Market System Development Program (Collection depot will be constructed along the farm road and group assembling will be conducted by farmers group)
Project Justification(example)	<ul style="list-style-type: none"> • Environment: The routine environmental checking by NEC was executed prior to the commencement of trial construction and an authorization issuance of NEC has being applied by Dzongkhag. • Efficiency: Reasonable range of construction cost per km is about Nu. 220,000 labor cost including maximum. A minimum of ten households of 70 people per km and total cultivated area per season should not be less than 30 acres per km stipulated in guidelines for farm roads development of MOA as this might be upgraded to farm road in future. • Consistency with upper plan/program: This is based on the program of MOA. • Sustainability: The participation of beneficiaries was assessed through the trial construction, there was not much trouble at the farmer's slack season. The construction and its maintenance can be possible only by the beneficiaries themselves if they have skilled labors and the construction materials and tools are supplied.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS, MOA	Responsible for the program comprehensively in terms of finance, technical backstopping and coordination with other stakeholders.
Dzongkhag	Engineering Office/ Agriculture Office	Actually supervises FMTUC from its establishment to the construction and maintenance by FMTUC including accounting of the program.
Gewog	GYT	Formulate the Gewog development plan and evaluate the program in the plan, and based on this, made the official request letter and submit it to Dzongkhag.
Beneficiaries	FMTUC	Directly engages in the program and participate the construction and maintenance from at the stage of preliminary survey as unskilled labor free of charge.

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Establishment of institution for farm mule track construction	Gewog/GYT	A cooperative for promoting farm mule track construction (FMTPCPC) will be tentatively established based on the petition from EA and beneficiaries under Gup in GYT.
2 Consensus in GYT	GYT	The request of farm mule track construction from FMTPCPC will be discussed in GYT and with the consensus it will be submitted to Dzongkhag.
3 Official request (FRFORM.01) for implementation	GYT	The GYT will prepare a request letter and the letter with the signature of Gup will be officially submitted to Dzongkhag with necessary information for evaluation (distance, route, contribution by Gewogs or beneficiaries, etc.)
4 Preliminary Investigation (Module 1)	Dzongkhag / FMTPCPC	The preliminary Investigation will be executed to find out whether the proposed request meets the basic requirements for government assistance. Project identification report (FRFORM.02) and IEE must be prepared for further procedure.
5 Consensus in DYT	Dzongkhag / DYT	The request will be discussed based on the project identification report, and with the consensus and Dzongda's approval it will be submitted to MOA and MOF for further procedure for budget allocation.
6 Budget allocation for Multi-disciplinary Feasibility Study (Module 2)	Dzongkhag	The budget for Multi-disciplinary Feasibility Study will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.

*Action Plan Sheet
FRDP, Farm Mule Track Construction Program*

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
7	Multi-disciplinary Feasibility Study (Module 2)	Dzongkhag	Multi-disciplinary Feasibility Study will be executed to determine whether the proposed request is viable or not and how it can be implemented. Therefore actual survey of the alignment has to be done using survey equipment. The feasibility study report (FRFORM.03, FORM's format is not fixed in particular.) with a detailed implementation plan, tentative designs and estimation of the project cost will be prepared.
8	Environmental study	Dzongkhag / NEC	Based on the feasibility study report, if environmental study is required, EIA will be executed.
9	Budget allocation for construction	Dzongkhag	The budget for construction of farm mule track will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.
10	Pre-construction Meeting (Module 3)	Dzongkhag	Explanation of the need of group/cooperative for construction and maintenance of farm mule track and Farm Mule Track Users Committee (FRM-Committee named in Module 3) to FMTUC will be executed.
11	Establishment of Farm Mule Track Users Cooperative (FMTUC)	FMTUA/ GYT	FMTUC will be established and FMTUC-committee members (FRFORM.04) will be selected from FMTUC. Signing of agreements on labor contribution for construction (FRFORM.06), maintenance fund contribution (Annex I) in the letter of understanding (FRFORM.05) will be executed between FMTUC and the representative of MOA in the above meeting.
12	Training of beneficiaries	Dzongkhag	Training and through OJT, beneficiaries' construction and maintenance skill will be improved.
13	Land acquisition	Beneficiaries	Land acquisition and expropriation along the alignment will be carried out under the instruction of Dzongkhag.
14	Technical Training for Site Engineer and Site In-charge	Dzongkhag	Technical training for site engineer of Dzongkhag and site in-charge of FMTUC using total station and so on will be carried out by an experienced road engineer.
15	Overall management of construction	Dzongkhag	The construction of farm mule track will be carried out under the management of Dzongkhag in Implementation (Module 4).
16	Procurement of construction materials and tools	MOA	Supply of materials and tools including technical backstopping from MOA for construction of farm mule track will be arranged based on the requisition of Dzongkhag in Implementation (Module 4).
17	Arrangement of unskilled labor	Beneficiaries	Beneficiaries shall provide free unskilled labor in accordance with the arrangement of the site in-charge.
18	Completion and Handing over (Module 5)	Dzongkhag/ Beneficiaries	The farm mule track shall be handed over to the beneficiaries after signing the Project Completion Report (FRFORM.07) and the Certificate of Satisfactory Completion (FRFORM.08).
19	Reserving fund for maintenance works	FMTUC	For the following maintenance, fund will be reserved in the system of FMTUC.
20	Routine maintenance	FMTUC	Routine maintenance like removing debris to be an obstacle will be periodically and timely carried out under the guidance of the site in-charge.
21	Periodical maintenance	FMTUC	Annual maintenance for natural calamity and unexpected disasters will be periodically carried out under the guidance of the site in-charge.
22	Periodical repair works	MOA/ FMTUC	Major repair will be executed using construction machinery to be arranged by CMU/MOA and Dzongkhag every five years.

Note: FORM and Module are procedure regulated for farm road development by MOA, the farm mule track construction program will follow this procedure as well.

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V. Schedule

↖ Commencement of construction

Required Action (WHAT)		Period	- 3	- 2	- 1	+ 1	+ 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8
1	Establishment of institution for farm mule track construction	Before official request		□									
2	Consensus in GYT	After above establishment		□									
3	Official request (FRFORM.01) for implementation	Keep 1 year more before construction		□									
4	Preliminary Investigation (Module 1)	After above official request		□									
5	Consensus in DYT	After above investigation		□									
6	Budget allocation for Multi-disciplinary Feasibility Study (Module 2)	After above consensus		□									
7	Multi-disciplinary Feasibility Study (Module 2)	About 10 months		□									
8	Environmental study	About 1 month in the end of F/S			□								
9	Budget allocation for construction	After F/S			□								
10	Pre-construction Meeting (Module 3)	Before construction			□								
11	Establishment of Farm Mule Track Users Cooperative (FMTUC)	Before construction			□								
12	Training of beneficiaries	Continuation during execution				□	□	□	□	□	□	□	□
13	Land acquisition	Construction + allowance				□	□	□	□	□	□	□	□
14	Technical Training for Site Engineer and Site In-charge	About for 6 months before construction			□								
15	Overall management of construction	About 5 km/ year construction				□	□	□	□	□	□	□	□
16	Procurement of construction materials and tools	Same as above				□	□	□	□	□	□	□	□
17	Arrangement of unskilled labor	Same as above				□	□	□	□	□	□	□	□
18	Completion and Handing over (Module 5)	End of construction						□					
19	Reserving fund for maintenance works	Construction + about 6 months							□	□	□	□	□

Required Action (WHAT)		Period	Commencement of construction											
			-3	-2	-1	+1	+2	+3	+4	+5	+6	+7	+8	
20	Routine maintenance	After construction												
21	Periodical maintenance	Every year after construction								□	□	□	□	□
22	Periodical repair works	5 years after construction												□

Note: Period will be varied depending on the construction scale.

VI. Implementation and Monitoring System

Action	Plan
Progress Management of A/P	WHO: DE/DAO, Dzongkhag
	WHEN: Every three month
	WHERE: Dzongkhag Engineering/Agriculture Office
	HOW: Quarterly Report prepared by DE
Budget Management at Preparatory Stage	WHO: Superintending Engineer, DRDS, MOA
	WHEN: Every Financial Year
	WHERE: MOA Office, Thimphu
	HOW: As per Financial Manual of Royal Government of Bhutan
Budget Management at Implementation Stage	WHO: DAO, Dzongkhag
	WHEN: Monthly basis
	WHERE: Dzongkhag Agriculture Office
	HOW: As per Financial Manual of Royal Government of Bhutan
Budget Management at O&M Stage	WHO: Chairperson, FRUC
	WHEN: Monthly basis
	WHERE: Accountant, FRUC
	HOW: Constitution/Bylaws enacted in FRUC
Problem Solving	<p>WHO:</p> <ul style="list-style-type: none"> Budget arrangement: Superintending engineer, DRDS, MOA at preparatory stage/ DAO, Dzongkhag at implementation stage/ Chairperson, FRUC at O&M stage. Technical problems: DE, Dzongkhag Accident, Participation, Dispute: Chairperson, FRUC Manpower: Superintending engineer, DRDS, MOA
	<p>WHEN:</p> <p>As the problems happened.</p>
	<p>WHERE:</p> <ul style="list-style-type: none"> Budget arrangement: DRDS, MOA at preparatory stage/ Agricultural Office, Dzongkhag at implementation stage/ FRUC Office at O&M stage. Technical problems: Dzongkhag Engineering Office Accident, Participation, Dispute: FRUC Office Manpower: DRDS, MOA
	<p>HOW:</p> <ul style="list-style-type: none"> Budget arrangement: DRDS, MOA discusses with MOF at preparatory stage and implementation stage/ FRUC discusses among the beneficiaries at O&M stage. Technical problems: Dzongkhag Engineering Office discusses with the beneficiaries. Accident, Participation, Dispute: FRUC Office discusses among the beneficiaries and third party. Manpower: DRDS, MOA discusses with the organization concerned.

Action Plan Sheet

I. General

Sheet No.	AP-17
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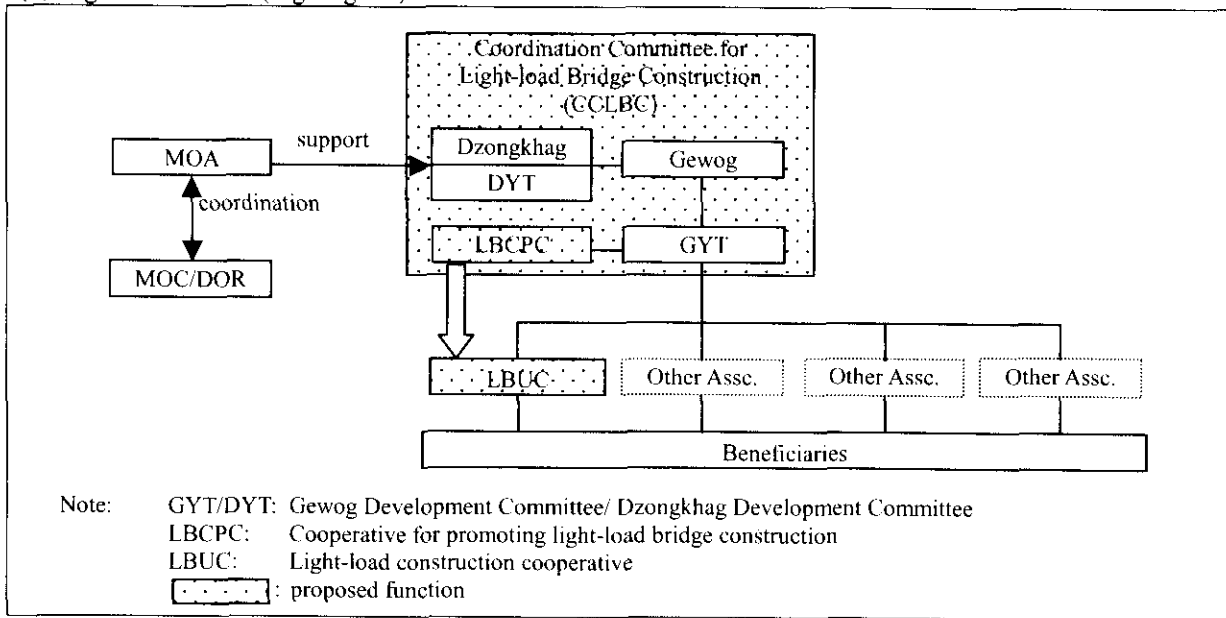
Program	Light-load Bridge Construction Program		
Sub-program			
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA	SE, DRDS
	Dzongkhag	Lhuntse/ Mongar	DE DAO
	Gewog	GYT	Gup
	Beneficiaries	All Gewog	Head of Cooperative

II. Program/Sub-program

Target (example)	To cross Kurichhu and improve rural access to motor road with the Gewog center, benefited household to be shown
Activities	<ul style="list-style-type: none"> • Survey, Design and Cost estimation • Construction of Light-load bridge • Maintenance by Light-load Bridge Users Cooperative • Training for Dzongkhag engineer • Training for Light-load Bridge Users Cooperative • Procurement of construction materials and tools • Financial arrangement • Establishment of organization
Input	<ul style="list-style-type: none"> • Surveyor (DOR and Dzongkhag) • Civil Engineer for Design (DOR) • Civil Engineer for Supervision (Dzongkhag) • Construction Materials and Tools (Dzongkhag) • Skilled Labor (Mason, Blaster, etc.) • Unskilled labor (Gewog Beneficiaries) • Project Cost Nu.: Unit cost Nu. 60,000 /m in light-load bridge length • Maintenance by Light-load Bridge Users Cooperative
Output (example)	<ul style="list-style-type: none"> • The light-load bridge is constructed to cross Kurichhu and connect with Dzongkhag Road, span length to be shown. • Through this construction worker with skill will be increased.
Period	Survey and Design :depends on construction scale Construction :depends on construction scale Maintenance :after completion
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Market System Development Program (Collection depot will be constructed along the farm road and group assembling will be conducted by farmers group)
Project Justification(example)	<ul style="list-style-type: none"> • Environment: As this is actually a replacement of the existing suspended bridge, it will be enough to assess by only the routine environmental checking by NEC to be executed before the commencement of construction and an authorization issuance of NEC will be applied for by Dzongkhag. • Efficiency: Reasonable range of construction cost per m of bridge is about Nu. 60,000 maximum including skilled labor, and construction cost must be less than that of detour to cross Kurichhu. • Consistency with upper plan/program: This is based on the program of MOA. • Sustainability: The participation of beneficiaries was assessed through the trial construction of the Farm Mule Track, there was not much trouble at the farmer's slack season. The construction and its maintenance can be possible only the beneficiaries themselves if they have skilled labors and the construction materials and tools are supplied.

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS, MOA	Responsible for the program comprehensively in terms of finance, technical backstopping and coordination with other stakeholders and organizations especially DOR.
Dzyongkhag	Engineering Office/ Agriculture Office	Actually supervises LBUC from its establishment to the construction and maintenance by LBUC including accounting of the program.
Gewog	GYT	Formulate the Gewog development plan and evaluate the program in the plan, and based on this, make the official request letter and submit it to Dzyongkhag.
Beneficiaries	LBUC	Directly engages in the program and participate the construction and maintenance from at the stage of preliminary survey as unskilled labor free of charge.

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Establishment of institution for light-load bridge construction	Gewog/GYT	A cooperative for promoting light-load bridge construction (LBCPC) will be tentatively established based on the petition from EA and beneficiaries under Gup in GYT.
2 Consensus in GYT	GYT	The request of light-load bridge construction from LBCPC will be discussed in GYT and with the consensus will be submitted to Dzyongkhag.
3 Official request (FRFORM.01) for implementation	GYT	The GYT will prepare a request letter and the letter with the signature of Gup will be officially submitted to Dzyongkhag with necessary information for evaluation (distance, location, contribution by Gewogs or beneficiaries, etc.)
4 Preliminary Investigation (Module 1)	Dzyongkhag / FMTCP	The preliminary Investigation will be executed to find out whether the proposed request meets the basic requirements for government assistance. Project identification report (FRFORM.02) and IEE must be prepared for further procedure.
5 Consensus in DYT	Dzyongkhag / DYT	The request will be discussed based on the project identification report and with the consensus and Dzyongda's approval it will be submitted to MOA and MOF for further procedure for budget allocation.
6 Budget allocation for Multi-disciplinary Feasibility Study (Module	Dzyongkhag	The budget for Multi-disciplinary Feasibility Study will be arranged in MOF after scrutinizing the request from Dzyongkhag by MOA and distributed to Dzyongkhag directly.

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Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
	2)		
7	Multi-disciplinary Feasibility Study (Module 2)	Dzongkhag	Multi-disciplinary Feasibility Study will be executed to determine whether the proposed request is viable or not and how it can be implemented. Then actual survey of the site has to be done using survey equipment for designing and cost estimation by DOR under the coordination of Dzongkhag. The feasibility study report (FRFORM.03, FORM's format is not fixed in particular.) with a detailed implementation plan, tentative designs and estimation of the project cost prepared by DOR will be compiled by Dzongkhag.
8	Environmental study	Dzongkhag/ NEC	Based on the feasibility study report, if environmental study is required, EIA will be executed.
9	Budget allocation for construction	Dzongkhag	The budget for construction of light-load bridge will be arranged in MOF after scrutinizing the request from Dzongkhag by MOA and distributed to Dzongkhag directly.
10	Pre-construction Meeting (Module 3)	Dzongkhag	Explanation of the need of group/cooperative for construction of light-load bridge and maintenance and Light-load Bridge Users Committee (FRM-Committee named in Module 3) to LBUC will be executed.
11	Establishment of Light-load Bridge Users Cooperative (LBUC)	LBUC/ GYT	LBUC will be established and LBUC-committee members (FRFORM.04) will be selected from LBUC. Signing of agreements on labor contribution for construction (FRFORM.06), maintenance fund contribution (Annex 1) in the letter of understanding (FRFORM.05) will be executed between LBUC and the representative of Dzongkhag in the above meeting.
12	Training of beneficiaries	Dzongkhag	Training and through OJT, beneficiaries' construction and maintenance skill will be improved.
13	Land acquisition	Beneficiaries	Land acquisition and expropriation surrounding abutment and anchor block will be carried out under the instruction of Dzongkhag.
14	Technical Training for Site Engineer and Site In-charge	Dzongkhag	Technical training for site engineer of Dzongkhag and site in-charge of LBUC will be carried out by an experienced suspension bridge engineer, if necessary.
15	Overall management of construction	Dzongkhag	The construction of light-load bridge will be carried out under the management of Dzongkhag in Implementation (Module 4).
16	Procurement of construction materials and tools	Dzongkhag	Supply of materials and tools including technical backstopping from MOA/DOR for construction of light-load bridge will be arranged based on the requisition of Dzongkhag in Implementation (Module 4).
17	Arrangement of unskilled labor	Beneficiaries	Beneficiaries shall provide free unskilled labor in accordance with the arrangement of the site in-charge.
18	Completion and Handing over (Module 5)	Dzongkhag/ Beneficiaries	The light-load bridge shall be handed over to the beneficiaries after signing the Project Completion Report (FRFORM.07) and the Certificate of Satisfactory Completion (FRFORM.08).
19	Reserving fund for maintenance works	LBUC	For the following maintenance, fund will be reserved in the system of LBUC.
20	Routine maintenance	LBUC	Routine maintenance like cleaning of deck will be periodically and timely carried out under the guidance of the site in-charge.
21	Periodical maintenance	LBUC	Annual maintenance for natural calamity and unexpected disasters will be periodically carried out under the guidance of the site in-charge.
22	Periodical repair works	Dzongkhag/ LBUC	Major repair will be executed by LBUC in accordance with the instruction of Dzongkhag every five years.

Note: FORM and Module are procedure regulated for farm road development by MOA, the light-load bridge construction program will follow this procedure as well.

V. Schedule

Required Action (WHAT)		Period	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
1	Establishment of institution for light-load bridge construction	2002.10	▣										
2	Consensus in GYT	2002.10	▣										
3	Official request (FRFORM.01) for implementation	2002.10	▣										
4	Preliminary Investigation (Module 1)	2002.10	▣										
5	Consensus in DYT	2002.10	▣										
6	Budget allocation for Multi-disciplinary Feasibility Study (Module 2)	2002.10	▣										
7	Multi-disciplinary Feasibility Study (Module 2)	2002.10~2003.2	□										
8	Environmental study	2003.2	▣										
9	Budget allocation for construction	2003.3	▣										
10	Pre-construction Meeting (Module 3)	2003.3	▣										
11	Establishment of Light-load Bridge Users Cooperative (LBUC)	2003.3	▣										
12	Training of beneficiaries	2003.4~		▬									
13	Land acquisition	2003.4~2003.6		▣									
14	Technical Training for Site Engineer and Site In-charge	2003.4~2003.6		▣									
15	Overall management of construction	2004.1~2005.4			▣								
16	Procurement of construction materials and tools	2003.4~2003.12		▣									
17	Arrangement of unskilled labor	2004.1~2005.4			▣								
18	Completion and Handing over (Module 5)	2005.4				▣							
19	Reserving fund for maintenance works	2005.1~					▬						

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Action Plan Sheet

Required Action (WHAT)		Period	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
20	Routine maintenance	2005.5~											
21	Periodical maintenance	2006.5~					□	□	□	□	□	□	□
22	Periodical repair works	20010.4								□			

VI. Implementation and Monitoring System

Action	Plan
Progress Management of A/P	WHO DE/DAO, Dzongkhag
	WHEN Every three month
	WHERE Dzongkhag Engineering/Agriculture Office
	HOW Quarterly Report prepared by DE
Budget Management at Preparatory Stage	WHO Superintending Engineer, DRDS, MOA
	WHEN Every Financial Year
	WHERE MOA Office, Thimphu
	HOW As per Financial Manual of Royal Government of Bhutan
Budget Management at Implementation Stage	WHO DAO, Dzongkhag
	WHEN Monthly basis
	WHERE Dzongkhag Agriculture Office
	HOW As per Financial Manual of Royal Government of Bhutan
Budget Management at O&M Stage	WHO Chairperson, FRUC
	WHEN Monthly basis
	WHERE Accountant, FRUC
	HOW Constitution/Bylaws enacted in FRUC
Problem Solving	WHO <ul style="list-style-type: none"> Budget arrangement: Superintending engineer, DRDS, MOA at preparatory stage/ DAO, Dzongkhag at implementation stage/ Chairperson, FRUC at O&M stage. Technical problems: DE, Dzongkhag Accident, Participation, Dispute: Chairperson, FRUC Manpower: Superintending engineer, DRDS, MOA
	WHEN As the problems happened.
	WHERE <ul style="list-style-type: none"> Budget arrangement: DRDS, MOA at preparatory stage/ Agricultural Office, Dzongkhag at implementation stage/ FRUC Office at O&M stage. Technical problems: Dzongkhag Engineering Office Accident, Participation, Dispute: FRUC Office Manpower: DRDS, MOA
	HOW <ul style="list-style-type: none"> Budget arrangement: DRDS, MOA discusses with MOF at preparatory stage and implementation stage/ FRUC discusses among the beneficiaries at O&M stage. Technical problems: Dzongkhag Engineering Office discusses with the beneficiaries. Accident, Participation, Dispute: FRUC Office discusses among the beneficiaries and third party. Manpower: DRDS, MOA discusses with the organization concerned.

Action Plan Sheet

I. General

Sheet No.	AP-18
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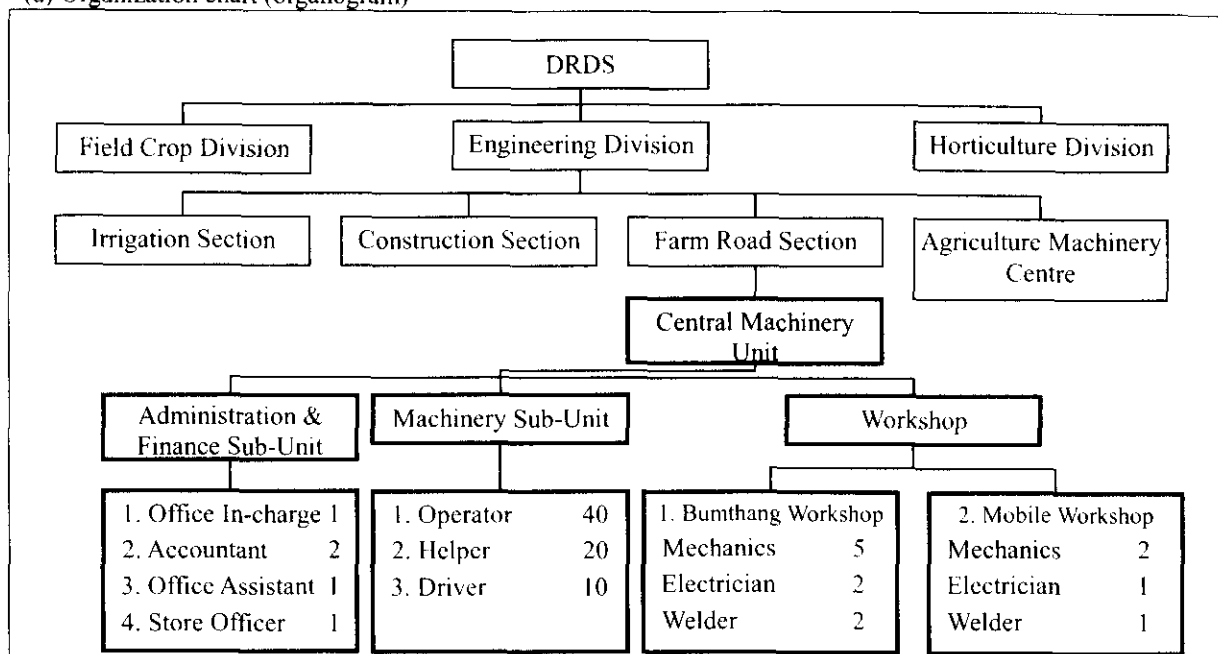
Program	Construction Machinery Center Program		
Sub-program			
Stakeholders	Level	Organization / Name	Contact Person
	National	MOA (CMU)	Mr. Kaylzung Tshering (MOA) (SE. DRDS, 02-322228) Mr. Pen Jore (CMU) (Mobile: 03-631197) Division of forest office: 03-631182)
	Dzongkhag	Not be involved in particular	
	Gewog	Not be involved in particular	
	Beneficiaries	Not be involved in particular	

II. Program/Sub-program

Target	To support smooth implementation of the Farm Road Construction Program.	
Activities	<ul style="list-style-type: none"> • Build workshop, yard with roof and fence for construction machinery and stock house for spare parts • Procurement of the construction machinery and repairing equipment • Training of operator, mechanic and engineer for operating, maintenance and management of construction machinery and repairing equipment • Operating, maintenance and management of construction machinery and repairing equipment 	
Input	<ul style="list-style-type: none"> • Ensure land for workshop and yard, and stock house (MOA) • Budget allocation for workshop, yard with roof and fence, and stock house of construction machinery and repairing equipment (MOA) • Construction machinery and repairing equipment (Foreign Assistance) • Skilled operators, mechanics and engineers (MOA, CMU) • Budget allocation for personnel salary, operating cost of fuel and oil, and maintenance and repairing (MOA, CMU) 	
Output	Necessary number of construction machinery and equipment will be procured. Equipment and spare parts for sustainable O&M will be procured. Capacity of operators and mechanics will be improved.	
Period	B/D	2004.2~3
	Build of workshop and yard	2002.10~2003.12
	Procurement of equipment	2004.10~12
	Operating, Maintenance and Servicing of Equipment	2004.12~
	Capacity building	2005.5~
Related Program / Sub-program (How)	<ul style="list-style-type: none"> • Construction machinery is indispensable for the following programs' implementation. Farm Road Construction Program Farm Mule Track Construction Program Light-load Bridge Construction Program 	
Project Justification	<ul style="list-style-type: none"> • Environment: Since a workshop construction is planned as a part of the program by MOA, the assessment against noise, exhaust and so on from the workshop during its construction and office hours after the construction shall be executed. • Consistency with upper plan/program: This is based on the program of MOA. • Sustainability: The operation and maintenance budget for the program shall be managed by MOA. 	

III. Implementing Organization

(a) Organization chart (organogram)



(b) General Role and Responsibility of Stakeholders

Stakeholder		General Role and Responsibility
National	DRDS, MOA	Responsible for the program comprehensively in terms of finance, operation, maintenance and coordination with DOR.
Dzongkhag	Not be involved in particular.	
Gewog	Not be involved in particular.	
Beneficiaries	Not be involved in particular.	

IV. Action Plan (sequent)

Required Action (WHAT)	Responsible Stakeholder (WHO)	Detailed Activities (HOW)
1 Establishment of new organization of CMU in Bumthang	MOA, CMU	<ul style="list-style-type: none"> Organization of CMU reforms (Refer to III) Organization of shift of CMU and construction machinery in Paro to Bumthang
2 Ensure of land for workshop and yard, and stock house	MOA, CMU	<ul style="list-style-type: none"> Ensure land for workshop and yard in Jakar Ensure stock house in Jakar
3 Build of workshop, yard of construction machinery with roof and fence	MOA, CMU	<ul style="list-style-type: none"> Budget allocation for construction of workshop and yard with roof and fence Design of workshop (4 bays is planned) Construction of workshop and yard in Jakar by the time of procurement of construction machinery and repairing equipment
4 Build of stock house	MOA, CMU	<ul style="list-style-type: none"> Budget allocation for stock house of spare parts Old building is remodeled to stock house of spare parts
5 Request for foreign assistance on construction machinery and repairing equipment	MOA / Foreign Assistance	<ul style="list-style-type: none"> Construction machinery and repairing equipment is offered to foreign assistance according to Application Form (About list of construction machinery and repairing equipment to be offered, refer to Table 5.4.1, 5.4.2, 5.4.3 and 5.4.4)
6 Basic Design of Foreign Assistance	MOA / Foreign Assistance	<ul style="list-style-type: none"> Construction machinery and repairing equipment are studied and selected by foreign assistance
7 Custom clearance of construction machinery, etc.	MOA	Custom clearance of construction machinery, repairing equipment and spare parts at Kolkata port, India and border of Bhutan
8 Transfer of construction machinery, etc. to Jakar	Trader / Maker distributor /MOA	Transfer from Kolkata port to Jakar by the time of appointed day

Required Action (WHAT)		Responsible Stakeholder (WHO)	Detailed Activities (HOW)
		/ CMU	
9	Delivery check of procured construction machinery and spare parts	Trader / Maker distributor /MOA / CMU	<ul style="list-style-type: none"> • Assembly of attachments and accessories of construction machinery • Delivery check of construction machinery and spare parts • Test operation and training of operating method and maintenance of construction machinery for operator, mechanic and engineer of CMU
10	Delivery check of repairing equipment and set-up in the workshop	Trader / Maker /MOA / CMU	<ul style="list-style-type: none"> • Delivery check of repairing equipment • Set-up of repairing equipment • Test operation and training of operation method and maintenance for mechanic and engineer of CMU
11	Budget allocation for operating, maintenance and servicing of construction machinery and repairing equipment	MOA / CMU	<ul style="list-style-type: none"> • Budget allocation for personnel salary in charge of service, operating cost of fuel and oil, maintenance and repairing cost
12	Establishment of service system for construction machinery	CMU / Expert (foreign assistance)	<ul style="list-style-type: none"> • Preparing check sheet of daily check, periodical maintenance, repair work process at workshop, etc. • Preparing machine history book and computer system of machine history of each machine • Preparing of spare inventory card and computer system of spare part inventory each spare part • Expert (foreign assistant) leaves for Jakar by the time of delivery check of construction machinery and set-up of repairing equipment and trains for one year <p>(For details, refer to attached Technical Improvement for Maintenance Activities of CMU)</p>
13	On the job training of service of construction machinery	CMU / MOA/ Maker distributor / Expert of foreign assistance	<ul style="list-style-type: none"> • On the job training of daily check, periodical maintenance by using check sheet and revise them if necessary • On the job training of spare parts inventory included parts order process by using computer system • On the job training of repair by using repair work process sheet and revise it if necessary
14	Long terms of on the job training for periodical maintenance and repair techniques	CMU / MOA / Maker distributor	<ul style="list-style-type: none"> • On the job training to CMU and MOA by maker distributors according to request of CMU

V. Schedule

Required Action (WHAT)	Period	2002			2003				2004				2005			
		4 ~ 6	7 ~ 9	10 ~ 12	1 ~ 3	4 ~ 6	7 ~ 9	10 ~ 12	1 ~ 3	4 ~ 6	7 ~ 9	10 ~ 12	1 ~ 3	4 ~ 6	7 ~ 9	10 ~ 12
1 Establishment of new organization of CMU in Bumthang	~2002/7	[]														
2 Ensure land for workshop and yard, and stock house	2002/6~9	[]														
3 Build workshop, yard of construction machinery with roof and fence	2002.10 ~2003/12	[]														
4 Build stock house	2002/ 7~12	[]														
5 Request for foreign assistance on construction machinery and repairing equipment	2002/7~8	[]														

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Required Action (WHAT)	Period	2002			2003			2004				2005				
		4	7	10	1	4	7	10	1	4	7	10	1	4	7	10
		~ 6	~ 9	~ 12	~ 3	~ 6	~ 9	~ 12	~ 3	~ 6	~ 9	~ 12	~ 3	~ 6	~ 9	~ 12
6	Basic Design of Foreign Assistance	2004/2~3														
7	Custom clearance of construction machinery, etc.	2004/9~10														
8	Transfer of construction machinery, etc. to Jakar	2004/12~2005/2														
9	Delivery check of procured construction machinery and spare parts	2005/1~3														
10	Delivery check of repairing equipment and set-up in the workshop	2005/1~3														
11	Budget allocation for operating, maintenance and servicing of construction machinery and repairing equipment	2004/9~2005/3														
12	Establishment of service system for construction machinery	2004/5~2005/6														
13	On the job training of service of construction machinery	2004/6~2005/6														
14	Long terms of on the job training for periodical maintenance and repair techniques	2005/7~														

VI. Implementation and Monitoring System

Action	Plan
Progress Management of A/P	WHO Superintending engineer, DRDS
	WHEN Monthly basis
	WHERE MOA office, Thimphu
	HOW Monthly Report of MOA prepared by CMU
Budget Management at Preparatory Stage	WHO Superintending engineer, DRDS
	WHEN Every Financial Year
	WHERE MOA office, Thimphu
	HOW As per Financial Manual of Royal Government of Bhutan
Budget Management at Implementation Stage	WHO Superintending engineer, DRDS
	WHEN Every Financial Year
	WHERE MOA office, Thimphu
	HOW As per Financial Manual of Royal Government of Bhutan
Budget Management at O&M Stage	WHO Superintending engineer, DRDS
	WHEN Every Financial Year
	WHERE MOA office, Thimphu
	HOW As per Financial Manual of Royal Government of Bhutan
Problem Solving	WHO Superintending engineer, DRDS will take care of all aspects of the program.
	WHEN As the problem happened
	WHERE MOA office, Thimphu
	HOW Coordinate and discuss with MOA and other related Ministries

Attached Sheet

Technical Improvement for Maintenance Activities of CMU

In CMU Program, the procurement of construction machinery including equipment for repairing and maintenance is planned. Since the workshop is constructed in Jakar by Bhutanese sides own budget before the procurement of construction machinery and repairing equipment, capacity building for the technical improvement for maintenance activities of CMU is proposed as follows;

Title: Technical Improvement for Maintenance Activities of CMU
 Period: One year after delivery check of construction machine and set-up of repairing equipment in the workshop
 Implementing Organization: CMU
 Input: Dispatch of one expert from foreign assistance
 Expected effect / profits: To improve of machine availability and life of machine

No	Service item	Maintenance activities	Trainees
1	Daily Check	Daily check of machinery shall be carried out according to daily check sheet to be prepared based on the manual of the machinery maker. Operators record operating hours or distance on the check sheet every day, and the consumption volume of fuel and lubrication oil each time of their refilling. The result of check-up is reported daily to the site supervisor, then the site supervisor reports to the manager of Machinery Sub-Unit.	Operator Mechanic Engineer
2	Periodical maintenance	Periodical maintenance of the machinery shall be carried out based on the daily check sheet submitted by the manager of Machinery Sub-Unit to the manager of CMU. The manager of CMU follows the condition and operating hours or distance of each machinery, decides the periodical exchange parts, contents of the maintenance work, and the periodical maintenance schedule, and requests store officer through Administration & Finance Sub-Unit to prepare for the periodical maintenance.	Mechanic Engineer
2-1	Store section	The store officer of Administration & Finance Sub-Unit checks the inventory of required parts and requests the office assistant to procure the parts out of stock. In case of lack of the parts, the store officer requests the procure means of the parts through the manager of CMU to Farm Road Section (FRS).	Stock keeper Stock officer
2-2	Officer in charge of CMU / Farm Road Section (FRS)	Officer in charge of CMU has the responsibility of procurement of the parts, so he obtains the price estimate of the required parts, and requests their procurement to the parts deposit of the maker in Singapore directly by e-mail.	Stock officer Engineer
2-3	Workshop	Workshop has the responsibility of the periodical maintenance. In case of the simple periodical maintenance, mobile workshop carries out at job site according to periodical maintenance check sheet. In case of the complicated maintenance such as adjustment of valve clearance of engine, etc., Bumthang workshop carries out the periodical maintenance at Jakar. The result of the periodical maintenance shall be recorded on machine history book through computer system and submitted to the manager of CMU.	Mechanic Engineer
3	Repair works		
3-1	Request for repair works	In case operators find abnormal conditions such as the leakage of fuel, oil, water, etc., or high consumption of fuel, oil, etc., they shall request the mechanics of mobile workshop or workshop for a check-up through the manager of CMU.	Mechanics Engineer
3-2	Repair at the job site	The mechanics investigate causes of trouble at the job site, and record the results of the investigation on the repair record sheet described causes of trouble, repair method, replaced parts and quantity, required man-hours, repair period, etc. and inform to the manager of Machinery Sub-Unit. If the cause of trouble cannot be identified at the job site, the machines out of order are brought to Bumthang workshop and repaired on the judgment of workshop manager based on the mechanics' repair record sheet.	Mechanic Engineer
3-3	Repair at workshop	Repair work at workshop is carried out according to the repair process sheet issued by the workshop manager. The repair process sheet is to be filled with information such as machine user's number, date of failure, cause of trouble, required parts, staff in charge of repair, repair completion	Mechanic Engineer

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No	Service item	Maintenance activities	Trainees
		<p>schedule, etc.</p> <p>The workshop manager checks the items filled in the repair process sheet and transfers the sheet to the manager of CMU.</p> <p>The manager of CMU keeps the repair process sheet after having filled in the repair cost and having registered the repair record on the computer system and machine history book.</p> <p>Regarding the components such as fuel injection pump, hydraulic units, undercarriage, etc. which cannot be repaired at workshop, the components for the unit exchange are needed in order not to delay working plan. Components out of order need to be repaired at the workshops of the maker's distributor or specialized private sector's workshops.</p> <p>Regarding the components such as torque converter, transmission, etc. the repair for which the Bumthang workshop has no experience, it is considered that the engineers of the maker's distributor train the mechanics of CMU on the job training at Bumthang workshop.</p>	
4	Management of spare parts	<p>Spare parts are managed by means of the computer system recording the maker's parts name and parts number, quantity in stock, used quantity, place of stock, etc. CMU shall stock only the periodical replacement parts according to the machine history book in order not to delay the working plan.</p> <p>OJT of management of spare parts inventory is training for one year by one expert through foreign assistance.</p>	Stock officer
5	Training	<p>Engineers and mechanics of CMU have average 16-18 years experience and knowledge such as daily check, periodical maintenance, repair, management, etc. However CMU has only sometimes workable mobile workshop, so CMU does not have sufficient practical experience of repair by using repairing equipment. Therefore, the following on the job training is necessary.</p>	
5-1	Training of service system of construction machinery	<p>OJT of preparing check sheet of daily check, periodical maintenance, repair work process at workshop, etc. is training for one month before procurement of construction machinery by one expert through foreign assistance</p>	Engineer
5-2	On the job training of service	<p>OJT of maintenance, repair and management is training for one year by one expert (foreign assistance).</p> <p>1) OJT of daily check, periodical maintenance, repair method by using mobile workshop</p> <p>2) OJT of repairing method by using repairing equipment of workshop.</p> <p>3) OJT of management by using daily check sheet, periodical check sheet, repair record sheet, repair process sheet, machine history book, parts inventory computer system, etc. through the flow of daily service management.</p>	<p>Operator</p> <p>Mechanic</p> <p>Engineer</p> <p>Stock officer</p> <p>Mechanic</p> <p>Engineer</p> <p>Mechanic</p> <p>Engineer</p> <p>Stock officer</p>
5-3	Long terms of on the job training of service	<p>On the job training of periodical maintenance and repair techniques to CMU and MOA is training by maker distributors according to request of CMU</p>	<p>Mechanic</p> <p>Engineer</p>