

ANNEX -11

PLAN OF OPERATION FOR WATER MANAGEMENT ( MAIN FACILITY ) FIELD

Out put : Irrigation technology of water management and maintenance in main facilities is improved

Activities	Target / Indicators	Schedule (fiscal year)					Responsible persons in the Project	Inputs	Remarks
		1999	2000	2001	2002	2003			
1. Water Management for Main Facilities									
1.1 Survey and evaluation on present water management in model area									
1.1.1 Collection of data concerning water management on Ngamyeik Project	Reports of Ngamyeik Project							HM, SD	
1.1.1.1 Project Plan	Report of problems in present condition								
1.1.1.2 Existing problems on water management	Operation manual of Dam/Canal system							HM	
1.1.1.3 Operation manuals	Water discharge and distribution table							HM, SD	
1.1.1.4 Water discharge of Dam and distribution at each intake facilities	Present land utilization map							HM, SD	
1.1.1.5 Present land utilization	Irrigation and drainage network map and table							HM, SD	
1.1.1.6 Irrigation and drainage system									
1.1.2 Survey present water management situation on the field									
1.1.2.1 Cropping pattern	Cropping pattern table							1.3.2.1	
1.1.2.2 Measurement of water distribution of each intake facilities	Water distribution table								
1.1.2.3 Survey on structure of intake facilities	Inventory of facilities								
1.1.2.4 Longitudinal and cross section survey	Profiles, Cross section view								
1.1.2.5 Measurement of water flow in canal	H-Q curve, Coefficient of roughness								
1.1.2.6 Survey on other water resources	Report on other water resources								
1.1.3 Evaluation on present water management	Report of the evaluation								
1.2 Study on techniques to improve irrigation facilities									
1.2.1 Study to improve irrigation facilities									
1.2.1.1 Study on flow capacity of canals	Report on flow capacity of canals								
1.2.1.2 Study on water distribution facilities	Report on water distribution facilities								
1.2.1.3 Study on leakage and sedimentation	Installation of intake gates								
1.2.1.4 Study on improvement of facilities	Report on leakage and sedimentation								
1.2.2 Making proposal report on improvement of main facilities	Report on improvement of facilities								
1.2.2.1 Study on water distribution plan	Recommendation of proposal report								
1.3 Improvement of operation and maintenance techniques of irrigation facilities									
1.3.1 Study to improve operation and maintenance techniques									
1.3.1.1 Study on water distribution plan	Water distribution plan							SD	
1.3.1.2 Study on Dam operation for water discharge	Report on Dam operation								
1.3.1.3 Study on operation of distribution facilities	Report on operation of intakes								
1.3.1.4 Utilization of operation record books	Operation record books								
1.3.2 Making trials of studied techniques									
1.3.2.1 Operation on outlet of Dam and distribution facilities	Data on operation record books								
1.3.2.2 Enforcement of operation data recording	Data on operation record books								
1.3.2.3 Checking-up of operation record book	Data on operation record books								
1.3.2.4 Re-improvement of water management techniques	Check list								
1.3.3 Making proposal report on improvement of operation and maintenance techniques of main facilities	Proposal report								

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Activities	Target / Indicators	Schedule (fiscal year)					Responsible persons in the Project	Inputs	Remarks
		1999	2000	2001	2002	2003			
		1 11 11 11 11	1 11 11 11 11	1 11 11 11 11	1 11 11 11 11	1 11 11 11 11			
1.4 Preparation of materials for Training 1.4.1 Study on water management instruction 1.4.2 Study on instruction materials for water management						U Aung Ba Daw Than Than Oo		Training	

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## PLAN OF OPERATION FOR WATER MANAGEMENT ( TERMINAL FACILITIES ) FIELD

Out put : Study method for water management of terminal irrigation system is improved

Activities	Target / Indicators	Schedule (fiscal year)												Responsible persons in the Project	Inputs	Remarks			
		1999			2000			2001			2002						2003		
		I	II	III-IV	I	II	III-IV	I	II	III-IV	I	II	III-IV				I	II	III-IV
<b>2. Water Management for Terminal Facilities Field</b> <b>2.1 Survey and evaluation on present water management in study area</b> 2.1.1 Evaluation of present situation by using of existing data 2.1.1.1 Collection of soil map 2.1.1.2 Water requirement of terminal farm 2.1.1.3 Irrigated area of study area 2.1.1.4 Water distribution of terminal farm 2.1.1.5 Water users' association of terminal farm 2.1.2 Evaluation of present situation by using of existing data 2.1.2.1 Topographic survey 2.1.2.2 Survey on terminal facilities condition 2.1.2.3 Measurement of water flow 2.1.2.4 Survey on attainment time of irrigation water 2.1.2.5 Measurement of water requirement rate 2.1.2.6 Survey on management of study area <b>2.2 Study on techniques to improve terminal facilities and water management in test farm</b> 2.2.1 Construction of test farm 2.2.1.1 Drawing of construction plan 2.2.1.2 Estimation and preparation 2.2.1.3 First construction work 2.2.1.4 Second construction work 2.2.2 Observation of test farm after construction 2.2.2.1 Survey on terminal facilities condition 2.2.2.2 Measurement of water flow 2.2.2.3 Survey on attainment time of irrigation water 2.2.2.4 Measurement of water requirement rate <b>2.2.3 Making of proposal report of water management for terminal facilities</b> 2.2.3.1 Analysis of result of observation 2.2.3.2 Study on arrangement of water course 2.2.3.3 Study on water requirement in various levels of water course density 2.2.3.4 Study on proposal report # <b>2.3 Preparation of materials for Training</b>	Report to be prepared Report to be prepared Report to be prepared Report to be prepared Report to be prepared Making of topographic map Report to be prepared Report to be prepared Report to be prepared Report to be prepared Report to be prepared Plan to be prepared Construction to be prepared Test farm to be improved Test farm to be improved Proposal report to be prepared Proposal report to be prepared Proposal report to be prepared Progress of water management techniques Improvement of awareness for water management		U San Win Naing U Aung Myo Swe U Aung Than Oo U San Win Naing Daw Myint Myint Than Daw Myint Myint Than U Myo Zaw Zaw U San Win Naing U San Win Naing U Myo Zaw Zaw U Myo Zaw Zaw Daw Myint Myint Than Daw Myint Myint Than Head of ITC Head of ITC Daw Myint Myint Than U San Win Naing U Aung Myo Swe U Myo Zaw Zaw Daw Myint Myint Than U San Win Naing U Aung Myo Swe Head of ITC U Myo Zaw Zaw	Form 46, Kwin map Total station Partial flume & Notch weir N-type meter Short term expert Construction work Construction work Partial flume & Notch weir N-type meter Short term expert Short term expert Short term expert Short term expert Short term expert	IIM IIM TR														



## PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD

Out put : Irrigation information management technology is improved to monitor irrigation projects

Activities	Target / Indicators	Schedule (Fiscal year)					Responsible persons in the Project	Inputs	Remarks
		1999	2000	2001	2002	2003			
4. Irrigation Information Management field									
4.1 Study on monitoring method of water management in existing irrigation projects									
4.1.1 Study on water management monitoring method	Study plan						U Soc Tun Aung U Soc Tun Aung		
4.1.1.1 Preparation of study plan	Information list								
4.1.1.2 Collection of information on water management monitoring method	Data list							Total Station, Mapping Data Storing System, GPS, MDS System	SD, WMI, WMI, SD
4.1.2 Collection of water utilization data information for evaluation of present monitoring method	Data list							Short-term Expert	
4.1.2.1 Collection and check of data on Ngamoyek irrigation project and project area	Materials for consideration								
4.1.2.2 Collection of data on irrigation projects and projects areas	Water Management Condition Survey System (Proto-type)								
4.1.3 Study on water management condition survey system and test survey of it	Test survey								
4.1.3.1 Investigation on actual condition of water management	WMCS System (Improved type)								
4.1.3.2 Study on water management condition survey system									
4.1.3.3 Implementation of test survey									
4.1.3.4 Improvement of the water management condition survey system and extension of it									
4.1.4 Study on improvement method of irrigation facilities	Materials for consideration								
4.1.4.1 Analysis of water utilization data information	Subject list								
4.1.4.2 Check-up of subjects to be improved	Report								
4.1.4.3 Information study on the improvement method of irrigation facilities									
4.1.5 Study on function of water Users' Association	Study plan								
4.1.5.1 Making study plan	Materials for consideration								
4.1.5.2 Field observation and investigation									
4.1.5.3 Information study on function of water users' association	Report								
4.2 Improvement of storage system of irrigation information									
4.2.1 Selection and collection of project design reference	Necessary information list								
4.2.1.1 Study on necessary information of design reference	Information list of design reference								
4.2.1.2 Information collection on design reference									
4.2.2 Selection and collection of project construction reference	Necessary information list								
4.2.2.1 Study on necessary information of construction reference	Irrigation facilities list								
4.2.2.2 Information collection of irrigation facilities constructed by the project	Irrigation facilities list								
4.2.2.3 Information collection of irrigation facilities constructed by farmers in the project site									
4.2.3 Development and maintenance of storage system for design study	Materials for consideration								
4.2.3.1 Investigation on actual condition of irrigation data storage	Data Storage System (Proto-type)								
4.2.3.2 Development of the data storage system and study on the method to maintain and manage the system	Design study								
4.2.3.3 Implementation of design study	Guidance								
4.2.3.4 Making guidance	DS System (Improved type)								
4.2.3.5 Report on improvement of the data storage system									
4.3 Preparation of materials for training	Materials for training								

ANNEX II

PLAN OF OPERATION FOR TRAINING FIELD

Out put : Water management technology is disseminated to technical staff of Irrigation Department and farmers in test farm through training

Activities	Target/ Indicators	Schedule (Financial Year)												Input	Remarks			
		1999			2000			2001			2002					Responsible person in the Project		
		I	II	III-IV	I	II	III-IV	I	II	III-IV	I	II	III-IV					
<p>5. Training</p> <p>5.1 Implementation of Training for Water Management</p> <p>5.1.1 Preparation of Implementation Plan</p> <p>5.1.1.1 Study on Present Condition</p> <p>5.1.1.2 Course Settlement Plan</p> <p>5.1.1.3 Detailed Implementation Plan</p> <p>5.1.2 Preparation of Training Facilities</p> <p>5.1.3 Preparation of Teaching Materials</p> <p>5.1.4 Implementation of Water Management Training</p> <p>5.1.4.1 Basic Course for Farmers</p> <p>5.1.4.2 Basic Course for ID Staff</p> <p>5.1.4.3 Intermediate Course for Farmers</p> <p>5.1.4.4 Intermediate Course for ID Staff</p> <p>5.1.4.5 Advanced Course for ID Staff</p> <p>5.1.4.5 Special Course of each Fields</p> <p>5.2 Formulation of Training Master Plan</p> <p>5.2.1 Working Schedule</p> <p>5.2.2 Study on Presentation</p> <p>5.2.2.1 Existing Master Plan</p> <p>5.2.2.2 Present Training Implementation</p> <p>5.2.3 Preparation of proposal for establishment procedure of New Master Plan</p> <p>5.2.3.1 Preparation of proposal</p> <p>5.2.3.2 Authorization of the procedure</p> <p>5.2.4 Preparation of Draft Master Plan</p> <p>5.2.4.1 Preparation first draft</p> <p>5.2.4.2 Examination of the draft</p> <p>5.2.4.3 Authorization of the draft Master Plan</p> <p>5.2.4.4 Maintenance of Master Plan</p>	<p>Study report to be prepared. Course Settlement Plan to be prepared and authorized. Detailed Implementation Plan to be prepared and authorized. Necessary facilities to be prepared for each course. Necessary Materials to be prepared for each course</p> <p>Training to be conducted. Training to be conducted. Training to be conducted. Training to be conducted. Training to be conducted.</p> <p>Tentative Schedule to be fixed.</p> <p>Study report to be prepared. Study report to be prepared.</p> <p>Procedure to be proposed at 2<sup>nd</sup> JCCM. Procedure to be proposed by JCCM.</p> <p>First draft to be examined in ITC, to be second draft. The second draft to be examined by Sub-Special Committee (SSC), formed in ID. Special Committee to be formed in ID. The final draft to be examined and authorized as the New Master Plan. Maintenance plan of training system to be considered.</p>																	
															DAAH DAAH	STE	Other 4 sections	
															DAAH, DHHW	STE	Other 4 sections	
															DAAEI, DHHW	Teaching facilities, Transportation	Other 4 sections	
															DA-AH, DHHW	Teaching materials	Other 4 sections	
															DAAH DAAH	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	
															DHHW	Lecture, STE	Other 4 sections	

DAAH- Daw Aye Hlaing  
DHHW - Daw Hlar Htar win  
STE - Short-term Expert

PLAN OF OPERATION FOR WATER MANAGEMENT (MAIN FACILITY) FIELD ( 1999-2000 )

	Activities	1999 - 2000												Remark
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1	<b>Water Management for Main Facility Field</b>													
1.1	Survey and evaluation on present water management in model area													
1.1.1	Collection of data concerning water management on Ngamosyeik Project													
1.1.1.1	Project Plan													
1.1.1.2	Existing problems on water management													
1.1.1.3	Operation manuals													
1.1.1.4	Water discharge of Dam and distribution at each intake facilities													
1.1.1.5	Present land utilization													
1.1.1.6	Irrigation and drainage system													
1.1.2	Survey present water management situation on the field													
1.1.2.1	Cropping pattern													
1.1.2.2	Measurement of water distribution of each intake facilities													
1.1.2.3	Survey on structure of intake facilities													
1.1.2.4	Longitudinal and Cross section survey													
1.1.2.5	Measurement of water flow in canal													
1.1.2.6	Survey on other water resources													
1.1.3	Evaluation on present water management													
1.4	Preparation of materials for training													
1.4.1	Study on water management instruction													
1.4.2	Study on instruction materials for water management													

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PLAN OF OPERATION FOR WATER MANAGEMENT (MAIN FACILITIES) FIELD ( 2000-2001 )

	Activities	2000 - 2001												Remark	
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
1	<b>Water Management for Main Facility Field</b>														
1.1	Survey and evaluation on present water management in model area														
1.1.1	Collection of data concerning water management on Ngamosyek Project														
1.1.1.2	Existing problems on water management														
1.1.2	Survey present water management situation on the field														
1.1.2.1	Cropping pattern														
1.1.2.2	Measurement of water distribution of each intake facilities														
1.1.2.4	Longitudinal and Cross section survey														
1.1.2.5	Measurement of water flow in canal														
1.1.2.6	Survey on other water resources														
1.1.3	Evaluation on present water management														
1.2	Study on techniques to improve irrigation facilities														
1.2.1	Study to improve irrigation facilities														
1.2.1.1	Study on flow capacity of canal														
1.2.1.2	Study on water distribution facilities														
1.2.1.3	Study on leakage and sedimentation														
1.2.1.4	Study on improvement of facilities														
1.3	Improvement of operation and maintenance techniques of irrigation facilities														
1.3.1	Study to improve operation and maintenance techniques														
1.3.1.1	Study on water distribution plan														
1.3.1.2	Study on dam operation for water discharge														
1.3.1.3	Study on operation of distribution facilities														
1.3.1.4	Utilization of operation record books														
1.3.2	Making trials of studied techniques														
1.3.2.1	Operation on outlet of dam and distribution facilities														
1.3.2.2	Enforcement of operation data recording														
1.4	Preparation of materials for training														
1.4.1	Study on water management instruction														
1.4.2	Study on instruction materials for water management														

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## PLAN OF OPERATION FOR WATER MANAGEMENT (MAIN FACILITY) FIELD ( 2001-2002 )

	Activities	2001 - 2002												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
<b>1</b>	<b>Water Management for Main Facility Field</b>															
1.1	Survey and evaluation on present water management in model area															
1.1.1.2	Survey present water management situation on the field															
1.1.1.2.4	Longitudinal and Cross section survey															
1.1.2.5	Measurement of water flow in canal															
1.1.2.6	Survey on other water resources															
1.1.3	Evaluation on present water management															
1.2	Study on techniques to improve irrigation facilities															
1.2.1	Study to improve irrigation facilities															
1.2.1.1	Study on flow capacity of canal															
1.2.1.2	Study on water distribution facilities															
1.2.1.3	Study on leakage and sedimentation															
1.2.1.4	Study on improvement of facilities															
1.3	Improvement of operation and maintenance techniques of irrigation facilities															
1.3.1	Study to improve operation and maintenance techniques															
1.3.1.1	Study on water distribution plan															
1.3.1.2	Study on dam operation for water discharge															
1.3.1.3	Study on operation of distribution facilities															
1.3.1.4	Utilization of operation record books															
1.3.2	Making trials of studied techniques															
1.3.2.1	Operation on outlet of dam and distribution facilities															
1.3.2.2	Enforcement of operation data recording															
1.3.2.3	Checking-up of operation record book															
1.3.2.4	Re-improvement of water management techniques															
1.4	Preparation of materials for training															
1.4.1	Study on water management instruction															
1.4.2	Study on instruction materials for water management															

PLAN OF OPERATION FOR WATER MANAGEMENT (MAIN FACILITY) FIELD ( 2002-2003 )

	Activities	2002 - 2003												Remark
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
<b>1</b>	<b>Water Management for Main Facility Field</b>													
1.1	Survey and evaluation on present water management in model area													
1.1.1	Evaluation on present water management													
1.2	Study on techniques to improve irrigation facilities													
1.2.2	Making recommendation report for irrigation facilities													
1.3	Improvement of operation and maintenance techniques of irrigation facilities													
1.3.1	Study to improve operation and maintenance techniques													
1.3.1.1	Study on water distribution plan													
1.3.1.2	Study on dam operation for water discharge													
1.3.1.3	Study on operation of distribution facilities													
1.3.1.4	Utilization of operation record books													
1.3.2	Making trials of studied techniques													
1.3.2.1	Operation on outlet of dam and distribution facilities													
1.3.2.2	Enforcement of operation data recording													
1.3.2.3	Checking-up of operation record book													
1.3.2.4	Re-improvement of water management techniques													
1.3.3	Making guideline on water management for main facilities													
1.4	Preparation of materials for training													
1.4.1	Study on water management instruction													
1.4.2	Study on instruction materials for water management													

PLAN OF OPERATION FOR WATER MANAGEMENT (MAIN FACILITY) FIELD ( 2003-2004 )

	Activities	2003 - 2004												Remark	
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
1	<b>Water Management for Main Facility Field</b>														
1.2	Study on techniques to improve irrigation facilities														
1.2.2	Making recommendation report for irrigation facilities														
1.3	Improvement of operation and maintenance techniques of irrigation facilities														
1.3.1	Study to improve operation and maintenance techniques														
1.3.1.1	Study on water distribution plan														
1.3.2	Making trials of studied techniques														
1.3.2.1	Operation on outlet of dam and distribution facilities														
1.3.2.2	Enforcement of operation data recording														
1.3.2.3	Checking-up of operation record book														
1.3.2.4	Re-improvement of water management techniques														
1.3.3	Making guideline on water management for main facilities														
1.4	Preparation of materials for training														
1.4.1	Study on water management instruction														
1.4.2	Study on instruction materials for water management														

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PLAN OF OPERATION FOR WATER MANAGEMENT (TERMINAL FACILITIES) FIELD ( 1999 - 2000 )

Sr. No.	Activities	1999-2000												Remark	
		Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar		
2	<b>Water Management for Terminal Facilities Field</b>														
2.1	Survey and evaluation on present water management in study area														
2.1.1	<i>Evaluation of present situation by using of existing data</i>														
2.1.1.1	Collection of soil map														
2.1.1.2	Water requirement of terminal farm														
2.1.1.3	Irrigated area of study area														
2.1.1.4	Water distribution of terminal farm														
2.1.1.5	Water users' association of terminal farm														
2.1.2	<i>Evaluation of present situation by using survey result in study area</i>														
2.1.2.1	Topographic survey														
2.1.2.2	Survey on terminal facilities condition														
2.1.2.4	Survey on attainment time of irrigation water														
2.1.2.6	Survey on management of study area														
2.2	<b>Study on techniques to improve terminal facilities and water management in test farm</b>														
2.2.1	<i>Construction of test farm</i>														
2.2.1.1	Drawing of construction plan														
2.2.1.2	Estimation and Preparation														
2.2.1.3	First construction work														
2.3	<b>Preparation of material for training</b>														

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## PLAN OF OPERATION FOR WATER MANAGEMENT (TERMINAL FACILITIES) FIELD ( 2000 - 2001 )

Sr. No.	Activities	2000-2001												Remark	
		Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar		
2	<b>Water Management for Terminal Facilities Field</b>														
2.1	Survey and evaluation on present water management in study area														
2.1.1	<i>Evaluation of present situation by using of existing data</i>														
2.1.1.1	Collection of soil map														
2.1.1.2	Water requirement of terminal farm														
2.1.1.3	Irrigated area of study area														
2.1.1.4	Water distribution of terminal farm														
2.1.1.5	Water users' association of terminal farm														
2.1.2	<i>Evaluation of present situation by using survey result in study area</i>														
2.1.2.2	Survey on terminal facilities condition														
2.1.2.3	Measurement of water flow														
2.1.2.4	Survey on attainment time of irrigation water														
2.1.2.5	Measurement of water requirement rate														
2.1.2.6	Survey on management of study area														
2.2	<b>Study on techniques to improve terminal facilities and water management in test farm</b>														
2.2.1	<i>Construction of test farm</i>														
2.2.1.1	Drawing of construction plan														
2.2.1.2	Estimation and Preparation														
2.2.1.3	First construction work														
2.2.1.4	Second construction work														
2.2.2	<i>Observation of test farm after construction</i>														
2.2.2.1	Survey on terminal facilities condition														
2.2.2.2	Measurement of water flow														
2.2.2.4	Measurement of water requirement rate														
2.3	<b>Preparation of material for training</b>														

ANNEX. 11

PLAN OF OPERATION FOR WATER MANAGEMENT (TERMINAL FACILITIES) FIELD ( 2001 - 2002 )

Sr. No.	Activities	2001-2002												Remark	
		Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar		
2	Water Management for Terminal Facilities Field														
2.1	Survey and evaluation on present water management in study area														
2.1.1	<i>Evaluation of present situation by using of existing data</i>														
2.1.1.4	Water distribution of terminal farm														
2.1.2	<i>Evaluation of present situation by using survey result in study area</i>														
2.1.2.3	Measurement of water flow														
2.1.2.5	Measurement of water requirement rate														
2.1.2.6	Survey on management of study area														
2.2	Study on techniques to improve terminal facilities and water management in test farm														
2.2.1	<i>Construction of test farm</i>														
2.2.1.4	Second construction work														
2.2.2	<i>Observation of test farm after construction</i>														
2.2.2.1	Survey on terminal facilities condition														
2.2.2.2	Measurement of water flow														
2.2.2.3	Survey on attainment time of irrigation water														
2.2.2.4	Measurement of water requirement rate														
2.2.3	<i>Making of proposal report of water management for terminal facilities</i>														
2.2.3.1	Analysis of result of observation														
2.3	Preparation of material for training														

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ANNEX. II

PLAN OF OPERATION FOR WATER MANAGEMENT (TERMINAL FACILITIES) FIELD ( 2002 - 2003 )

Sr. No.	Activities	2002-2003												Remark	
		Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar		
2	<b>Water Management for Terminal Facilities Field</b>														
2.1	Survey and evaluation on present water management in study area														
2.1.2	<i>Evaluation of present situation by using survey result in study area</i>														
2.1.2.3	Measurement of water flow														
2.1.2.5	Measurement of water requirement rate														
2.2	Study on techniques to improve terminal facilities and water management in test farm														
2.2.2	<i>Observation of test farm after construction</i>														
2.2.2.1	Survey on terminal facilities condition														
2.2.2.2	Measurement of water flow														
2.2.2.3	Survey on attainment time of irrigation water														
2.2.2.4	Measurement of water requirement rate														
2.2.3	<i>Making of proposal report of water management for terminal facilities</i>														
2.2.3.1	Analysis of result of observation														
2.2.3.2	Study on arrangement of water course														
2.2.3.3	Study on water requirement in various levels of water course density														
2.3	Preparation of material for training														

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ANNEX. 11

PLAN OF OPERATION FOR WATER MANAGEMENT (TERMINAL FACILITIES) FIELD ( 2003 - 2004 )

Sr. No.	Activities	2003-2004												Remark	
		Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar		
2	Water Management for Terminal Facilities Field														
2.1	Survey and evaluation on present water management in study area														
2.2	Study on techniques to improve terminal facilities and water management in test farm														
2.2.2	<i>Observation of test farm after construction</i>														
2.2.2.1	Survey on terminal facilities condition														
2.2.2.2	Measurement of water flow														
2.2.2.3	Survey on attainment time of irrigation water														
2.2.2.4	Measurement of water requirement rate														
2.2.3	<i>Making of proposal report of water management for terminal facilities</i>														
2.2.3.1	Analysis of result of observation														
2.2.3.2	Study on arrangement of water course														
2.2.3.3	Study on water requirement in various levels of water course density														
2.2.3.4	Study on proposal report #														
2.3	Preparation of material for training														

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ANNEX II PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 1999-2000 )

Sr.No.	Item	1999-2000												Remark			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
3.1	Development of database system of irrigation area																
3.1.1	Data management system using existing data supplement survey																
3.1.1.1	Making a land use ledger system.																IIM
	- Data collection																IIM
	- Data checking and correction																IIM
	- Scanning of necessary Kwin maps and other images																IIM
	- Data input in spreadsheets software																IIM
3.1.1.2	Addition of various management parameters to the land use ledger system after survey																
	- Establishment of database frame and programming																
3.1.2	Study on introduction of other measuring methods on irrigable and irrigated area																
3.1.2.1	Introduction and training of the advanced measuring methods																
3.1.2.2	Practice of these measuring methods to improve surveying efficiency																
	- Field measurement of Ngamoeyek irrigable and irrigated area																
3.2	Development of supporting programs for water management																
3.2.1	Hydraulic phenomena simulation for operation of water management																
3.2.1.1	Examination of programs developed in Phase I																
3.2.1.2	Improvement of data analysis technique by using computer and other appliances																
3.2.2	Calculation of water traveling time in canal																
3.2.2.1	Measurement of water reaching time at the distribution points in main and left canals																WMI
	- Collection of maps covering the whole area of the canals																WMI
	- Observation of the current condition of the distribution points																WMI
	- Selection of the measurement points																WMI
	- Measurement of water reaching time																WMI
3.2.2.2	Analysis of the obtained data by using computer																
3.2.3	Water balance simulation for study of storage of reservoir																

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**ANNEX II PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 1999-2000 )**

Sr.No.	Item	1999-2000												Remark	
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
3.2.3.1	Study of Japanese water management programs														WMI, WMII
3.2.3.2	Comparison of the translated programs with the programs utilized in														
3.2.3.3	Revising and improvement of the program by reforming program structure - Selection of the factors for the programs development - Improvement of monitoring method of water storage of reservoir														
3.3															WMI
3.3.1.1	Survey on water inflow of reservoir														
3.3.1.2	Survey on water discharge of reservoir														
3.3.1.3	Study on measurement method of dam capacity by ordinary survey method - Information collection of the dam before construction - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps - Measure points														IIM
3.3.1.4	Study on introduction of advanced methods of dam capacity measurement - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps.														
3.4	Preparation of material for training - Make operation and user manuals of water management programs - Prepare curriculums and texts for GPS & Remote sensing training														

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**ANNEX 11 PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2000-2001 )**

Sr.No.	Item	2000-2001												Remark		
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
3.1	Development of database system of irrigation area															
3.1.1	Data management system using existing data supplement survey															
3.1.1.1	Making a land use ledger system.															IIM
	- Data collection															IIM
	- Data checking and correction															IIM
	- Scanning of necessary Kwin maps and other images															IIM
	- Data input in spreadsheets software															
3.1.1.2	Addition of various management parameters to the land use ledger system after survey															
	- Establishment of database frame and programming															
3.1.2	Study on introduction of other measuring methods on irrigable and irrigated area															
3.1.2.1	Introduction and training of the advanced measuring methods															
3.1.2.2	Practice of these measuring methods to improve surveying efficiency															
	- Field measurement of Ngamoeyek irrigable and irrigated area															
3.2	Development of supporting programs for water management															
3.2.1	Hydraulic phenomena simulation for operation of water management															
3.2.1.1	Examination of programs developed in Phase I															
3.2.1.2	Improvement of data analysis technique by using computer and other appliances															
3.2.2	Calculation of water traveling time in canal															
3.2.2.1	Measurement of water reaching time at the distribution points in main and left canals															WMI
	- Collection of maps covering the whole area of the canals															
	- Observation of the current condition of the distribution points															
	- Selection of the measurement points															WMI
	- Measurement of water reaching time															WMI
3.2.2.2	Analysis of the obtained data by using computer															WMI
3.2.3	Water balance simulation for study of storage of reservoir															

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ANNEX II PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2000-2001 )

Sr.No.	Item	2000-2001												Remark		
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
3.2.3.1	Study of Japanese water management programs															WM I, WM II
3.2.3.2	Comparison of the translated programs with the programs utilized in															
3.2.3.3	Revising and improvement of the program by reforming program structure - Selection of the factors for the programs development															
3.3	Improvement of monitoring method of water storage of reservoir															WM I
3.3.1.1	Survey on water inflow of reservoir															
3.3.1.2	Survey on water discharge of reservoir															
3.3.1.3	Study on measurement method of dam capacity by ordinary survey method - Information collection of the dam before construction - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps - Measure points															IIM
3.3.1.4	Study on introduction of advanced methods of dam capacity measurement - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps. - Measure water spread line and water depth															
3.4	Preparation of material for training - Make operation and user manuals of water management programs - Prepare curriculums and texts for GPS & Remote sensing training															

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ANNEX 11 PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2001-2002 )

Sr.No.	Item	2001-2002												Remark			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
3.1	Development of database system of irrigation area																
3.1.1	Data management system using existing data supplement survey																
3.1.1.1	Making a land use ledger system.																
	- Data collection																IIM
	- Data checking and correction																IIM
	- Scanning of necessary Kwin maps and other images																IIM
	- Data input in spreadsheets software																IIM
3.1.1.2	Addition of various management parameters to the land use ledger system after survey																
	- Establishment of database frame and programming																
3.1.2	Study on introduction of other measuring methods on irrigable and irrigated area																
3.1.2.1	Introduction and training of the advanced measuring methods																
3.1.2.2	Practice of these measuring methods to improve surveying efficiency																
	- Field measurement of Ngamoeyik irrigable and irrigated area																
3.2	Development of supporting programs for water management																
3.2.1	Hydraulic phenomena simulation for operation of water management																
3.2.1.1	Examination of programs developed in Phase I																
3.2.1.2	Improvement of data analysis technique by using computer and other appliances																
3.2.2	Calculation of water traveling time in canal																
3.2.2.1	Measurement of water reaching time at the distribution points in main and left canals																WMI
	- Collection of maps covering the whole area of the canals																WMI
	- Observation of the current condition of the distribution points																WMI
	- Selection of the measurement points																WMI
	- Measurement of water reaching time																WMI
3.2.2.2	Analysis of the obtained data by using computer																
3.2.3	Water balance simulation for study of storage of reservoir																

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**ANNEX 11 PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2001-2002 )**

Sr.No.	Item	2001-2002												Remark	
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
3.2.3.1	Study of Japanese water management programs														Finished Finished WMI, WMII
3.2.3.2	Comparison of the translated programs with the programs utilized in														
3.2.3.3	Revising and improvement of the program by reforming program structure - Selection of the factors for the programs development														
3.3	Improvement of monitoring method of water storage of reservoir														WMI
3.3.1.1	Survey on water inflow of reservoir														
3.3.1.2	Survey on water discharge of reservoir														
3.3.1.3	Study on measurement method of dam capacity by ordinary survey method - Information collection of the dam before construction - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps - Measure points														IIM
3.3.1.4	Study on introduction of advanced methods of dam capacity measurement - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps.														
3.4	Measure water spread line and water depth Preparation of material for training - Make operation and user manuals of water management programs - Prepare curriculums and texts for GPS & Remote sensing training														

ANNEX 11 PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2002-2003 )

Sr.No.	Item	2002-2003												Remark			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
3.1	Development of database system of irrigation area																
3.1.1	Data management system using existing data supplement survey																
3.1.1.1	Making a land use ledger system.																
3.1.1.2	Addition of various management parameters to the land use ledger system after survey																
3.1.2	- Establishment of database frame and programming Study on introduction of other measuring methods on irrigable and irrigated area																
3.1.2.1	Introduction and training of the advanced measuring methods																
3.1.2.2	Practice of these measuring methods to improve surveying efficiency																
3.2	- Field measurement of Ngamoyeik irrigable and irrigated area Development of supporting programs for water management																
3.2.1	Hydraulic phenomena simulation for operation of water management																
3.2.1.1	Examination of programs developed in Phase I																
3.2.1.2	Improvement of data analysis technique by using computer and other appliances																
3.2.2	Calculation of water traveling time in canal																
3.2.2.1	Measurement of water reaching time at the distribution points in main and left canals																
3.2.2.2	Analysis of the obtained data by using computer																
3.2.3	Water balance simulation for study of storage of irrigated fields																
3.2.3.1	Study of Japanese water management programs																
3.2.3.2	Comparison of the translated programs with the programs utilized in																
3.2.3.3	Revising and improvement of the program by reforming program structure																
3.3	Improvement of monitoring method of water storage of reservoir																
3.3.1	Survey on water inflow of reservoir																
3.3.2	Survey on water discharge of reservoir																
3.3.3	Study on measurement method of dam capacity by ordinary survey method																

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**ANNEX 11 PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2002-2003 )**

Sr.No.	Item	2002-2003												Remark			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
3.3.4	Study on introduction of advanced methods of dam capacity measurement - Selection of the measurement positions and confirm the place by using Landsat maps and reservoir area maps. - Measure water spread line and water depth																
3.4	Preparation of material for training - Make operation and user manuals of water management programs - Prepare curriculums and texts for GPS & Remote sensing training																TR

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ANNEX 11 PLAN OF OPERATION OF SYSTEM DEVELOPMENT FIELD ( 2003-2004 )

Sr.No.	Item	2003-2004												Remark			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
3.1	Development of database system of irrigation area																
3.1.1	Data management system using existing data supplement survey																
3.1.1.1	Making a land use ledger system.																
3.1.1.2	Addition of various management parameters to the land use ledger system after survey																
	- Establishment of database system																
3.1.2	Study on introduction of other measuring methods on irrigable and irrigated area																
3.1.2.1	Introduction and training of the advanced measuring methods																
3.1.2.2	Practice of these measuring methods to improve surveying efficiency																
3.2	Development of supporting programs for water management																
3.2.1	Hydraulic phenomena simulation for operation of water management																
3.2.1.1	Examination of programs developed in Phase I																
3.2.1.2	Improvement of data analysis technique by using computer and other appliances																
3.2.2	Calculation of water traveling time in canal																
3.2.2.1	Measurement of water reaching time at the distribution points in main and left canals																
3.2.2.2	Analysis of the obtained data by using computer																
3.2.3	Water balance simulation for study of storage of irrigated fields																
3.2.3.1	Study of Japanese water management programs																
3.2.3.2	Comparison of the translated programs with the programs utilized in																
3.2.3.3	Revising and improvement of the program by reforming program structure																
3.3	Improvement of monitoring method of water storage of reservoir																
3.3.1	Survey on water inflow of reservoir																
3.3.2	Survey on water discharge of reservoir																
3.3.3	Study on measurement method of dam capacity by ordinary survey method																
3.3.4	Study on introduction of advanced methods of dam capacity measurement																
3.4	Preparation of material for training																
	- Make operation and user manuals of water management programs																
	- Prepare curriculums and texts for GPS & Remote sensing training																

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 1999-2000 )

Sr.No.	Item	1999-2000												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
4	Irrigation Information Management field															
4.1	Study on monitoring method of water management in existing irrigation projects															
4.1.1	Study on water management monitoring method															
4.1.2	Collection of water utilization data information															
4.1.3	Study on water management condition survey system and test survey of it															
4.1.4	Study on improvement method of irrigation facilities															
4.1.5	Study on function of Water Users' Association															
4.2	Improvement of storage system of irrigation information															
4.2.1	Selection and collection of Project design reference															
4.2.2	Selection and collection of Project construction reference															
4.2.3	Development and maintenance of storage system for design study															
4.3	Preparation of materials for training															

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 2000-2001 )

Sr.No.	Item	2000-2001												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
4	Irrigation Information Management field															
4.1	Study on monitoring method of water management in existing irrigation projects															
4.1.1	Study on water management monitoring method															
4.1.2	Collection of water utilization data information															
4.1.3	Study on water management condition survey system and test survey of it															
4.1.4	Study on improvement method of irrigation facilities															
4.1.5	Study on function of Water Users' Association															
4.2	Improvement of storage system of irrigation information															
4.2.1	Selection and collection of Project design reference															
4.2.2	Selection and collection of Project construction reference															
4.2.3	Development and maintenance of storage system for design study															
4.3	Preparation of materials for training															

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 2001-2002 )

Sr.No.	Item	2001-2002												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
4	Irrigation Information Management field															
4.1	Study on monitoring method of water management in existing irrigation projects															
4.1.2	Collection of water utilization data information for evaluation of present monitoring method															
4.1.2.1	Collection and check of data on Ngamoeyik irrigation project and project area															
4.1.2.2	Collection of data on irrigation projects and projects areas															
4.1.3	Study on water management condition survey system and test survey of it															
4.1.3.2	Study on water management condition survey system															
4.1.3.3	Implementation of test survey															
4.1.4	Study on improvement method of irrigation facilities															
4.1.4.1	Analysis of water utilization data information															
4.1.4.2	Check-up of subjects to be improved															
4.1.5	Study on function of Water Users' Association															
4.1.5.2	Field observation and investigation															
4.1.5.3	Information study on function of water users' association															

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 2001-2002 )

Sr.No.	Item	2001-2002												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
4.2	Improvement of storage system of irrigation information															
4.2.1	Selection and collection of project design reference															
4.2.1.1	Study on necessary information of design reference															
4.2.1.2	Information collection on design reference															
4.2.2	Selection and Collection of Project construction reference															
4.2.2.1	Study on necessary information of construction reference															
4.2.2.2	Information collection of irrigation facilities constructed by the project															
4.2.2.3	Information collection of irrigation facilities constructed by farmers in the project site															
4.2.3	Development and maintenance of storage system for design study															
4.2.3.2	Development of the data storage system and study on the method to maintain and manage the system															
4.3	Preparation of materials for training															

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 2002-2003 )

Sr.No.	Item	2002-2003												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
4	Irrigation Information Management Field															
4.1	Study on monitoring method of water management in existing irrigation projects															
4.1.2	Collection of water utilization data information for evaluation of present monitoring method															
4.1.2.2	Collection of data on irrigation projects and projects areas															
4.1.3	Study on water management condition survey system and test survey of it															
4.1.3.2	Study on water management condition survey system															
4.1.3.3	Implementation of test survey															
4.1.3.4	Improvement of the water management condition survey system and extension of it															
4.1.4	Study on improvement method of irrigation facilities															
4.1.4.2	Check-up of subjects to be improved															
4.1.4.3	Information study on the improvement method of irrigation facilities															
4.1.5	Study on function of Water Users' Association															
4.1.5.2	Field observation and investigation															
4.1.5.3	Information study on function of water users' association															

PLAN OF OPERATION FOR IRRIGATION INFORMATION FIELD ( 2002-2003 )

Sr.No.	Item	2002-2003												Remark			
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
4.2	Improvement of storage system of irrigation information																
4.2.1	Selection and collection of project design reference																
4.2.1.1	Study on necessary information of design reference																
4.2.1.2	Information collection on design reference																
4.2.2	Selection and Collection of Project construction reference																
4.2.2.1	Study on necessary information of construction reference																
4.2.2.2	Information collection of irrigation facilities constructed by the project																
4.2.2.3	Information collection of irrigation facilities constructed by farmers in the project site																
4.2.3	Development and maintenance of storage system for design study																
4.2.3.2	Development of the data storage system and study on the method to maintain and manage the system																
4.2.3.3	Implementation of design study																
4.3	Preparation of materials for training																

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 2003-2004 )

Sr.No.	Item	2003-2004												Remark	
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
4	Irrigation Information Management Field														
4.1	Study on monitoring method of water management in existing irrigation projects														
4.1.2	Collection of water utilization data information for evaluation of present monitoring method														
4.1.2.2	Collection of data on irrigation projects and projects areas														
4.1.3	Study on water management condition survey system and test survey of it														
4.1.3.4	Improvement of the water management condition survey system and extension of it														
4.1.4	Study on improvement method of irrigation facilities														
4.1.4.3	Information study on the improvement method of irrigation facilities														
4.1.5	Study on function of Water Users' Association														
4.1.5.3	Information study on function of water users' association														

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PLAN OF OPERATION FOR IRRIGATION INFORMATION MANAGEMENT FIELD ( 2003-2004 )

Sr.No.	Item	2003-2004												Remark		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
4.2	Improvement of storage system of irrigation information															
4.2.2	Selection and collection of Project construction reference															
4.2.2.2	Information collection of irrigation facilities constructed by the project															
4.2.2.3	Information collection of irrigation facilities constructed by farmers in the project site															
4.2.3	Development and maintenance of storage system for design study															
4.2.3.4	Making guidance															
4.2.3.5	Report on implement of the data storage system															
4.3	Preparation of materials for training															

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## ANNEX 11

## PLAN OF OPERATION OF TRAINING FIELD (1999-2000 )

Sr.No	Item	1999-2000												Remarks		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
5.1	<b>Implementation of Training for Water Management</b>															
5.1.1	Preparation of Implementation Plan															
5.1.2	Preparation of Training Facilities															
5.1.3	Preparation of Teaching Materials															
5.1.4	Implementation of Water Management Training															
5.2	<b>Formulation of Training Master Plan</b>															
5.2.1	Working schedule															
5.2.2	Study on present condition															
5.2.3	Preparation of proposal for establishment procedure of New Master Plan															
5.2.4	Preparation of Draft Master Plan															

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## PLAN OF OPERATION OF TRAINING FIELD (2000-2001 )

Sr.No	Item	2000-2001												Remarks		
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
5.1	Implementation of Training for Water Management															
5.1.1	Preparation of Implementation Plan															
5.1.2	Preparation of Training Facilities															
5.1.3	Preparation of Teaching Materials															
5.1.4	Implementation of Water Management Training															
5.2	Formulation of Training Master Plan															
5.2.1	Working schedule															
5.2.2	Study on present condition															
5.2.3	Preparation of proposal for establishment procedure of New Master Plan															
5.2.4	Preparation of Draft Master Plan															

Plan .....

## PLAN OF OPERATION OF TRAINING FIELD (2001-2002 )

Sr.No	Item	2001-2002												Remarks	
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
5.1	Implementation of Training for Water Management														
5.1.1	Preparation of Implementation Plan														
5.1.2	Preparation of Training Facilities														
5.1.3	Preparation of Teaching Materials														
5.1.4	Implementation of Water Management Training														
5.2	Formulation of Training Master Plan														
5.2.1	Working schedule														
5.2.2	Study on present condition														
5.2.3	Preparation of proposal for establishment procedure of New Master Plan														
5.2.4	Preparation of Draft Master Plan														

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PLAN OF OPERATION OF TRAINING FIELD (2002-2003 )

Sr.No	Item	2002-2003												Remarks	
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
5.1	Implementation of Training for Water Management														
5.1.1	Preparation of Implementation Plan														
5.1.2	Preparation of Training Facilities														
5.1.3	Preparation of Teaching Materials														
5.1.4	Implementation of Water Management Training														
5.2	Formulation of Training Master Plan														
5.2.1	Working schedule														
5.2.2	Study on present condition														
5.2.3	Preparation of proposal for establishment procedure of New Master Plan														
5.2.4	Preparation of Draft Master Plan														

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## PLAN OF OPERATION OF TRAINING FIELD (2003-2004 )

Sr.No	Item	2003-2004												Remarks	
		Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
5.1	Implementation of Training for Water Management														
5.1.1	Preparation of Implementation Plan														
5.1.2	Preparation of Training Facilities														
5.1.3	Preparation of Teaching Materials														
5.1.4	Implementation of Water Management Training														
5.2	Formulation of Training Master Plan														
5.2.1	Working schedule														
5.2.2	Study on present condition														
5.2.3	Preparation of proposal for establishment procedure of New Master Plan														
5.2.4	Preparation of Draft Master Plan														

Plan .....

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Annex 12. Project Design Matrix - 1 (PDM1) for Irrigation Technology Center Project Phase I

Summary of the Project	Verifiable Indicators	Means Of Verification	Important Assumptions
<p>1. Overall Goal To raise agricultural productivity through improvement of irrigation technology</p>	<p>Efficiency of irrigation water use</p>	<p>Evaluation report</p>	<p>- Dissemination of the water management technology based on project results - Agricultural development policy will continue</p>
<p>2. Project Purpose To upgrade the irrigation technology especially in water management, applying the basic irrigation technology which was achieved through the Phase I Project</p>	<p>Irrigated area in model area</p>	<p>Evaluation report</p>	<p>- The knowledge and experience acquired through the Project is continuously extended</p>
<p>3. Outputs</p>	<p>1) Contents of guideline on water management for main facilities 2) Contents of proposal report on water management for terminal facilities 3) Application of supporting system 4) Contents of proposal reports for monitoring method and storage system 5-1) Contents of master plan 5-2) Contents of conducted training and number of participants</p>	<p>1) Developed guideline 2) Proposal report 3) Situation of Utilization 4) Proposal reports 5) Evaluation report</p>	
<p>4. Activities</p>	<p>Input</p>	<p>Myanmar Side</p>	<p>- Same counterparts should be assigned more than two years</p>
<p>1) Water Management for Main Facilities</p> <p>1-1) Survey and evaluation on present water management in model area 1-2) Study on techniques to improve irrigation facilities 1-3) Improvement of operation and maintenance techniques of irrigation facilities 1-4) Preparation of materials for training</p> <p>2) Water Management for Terminal Facilities</p> <p>2-1) Survey and evaluation on present water management in study area 2-2) Study on techniques to improve terminal facilities and water management in test farm 2-3) Preparation of materials for training</p> <p>3) System Development</p> <p>3-1) Development of data base system of irrigation area 3-2) Development of supporting programs for water management 3-3) Improvement of monitoring method of water storage of reservoir 3-4) Preparation of materials for training</p> <p>4) Irrigation Information Management</p> <p>4-1) Study on monitoring method of water management in existing irrigation projects 4-2) Improvement of storage system of irrigation information 4-3) Preparation of materials for training</p> <p>5) Training</p> <p>5-1) Implementation of training for the above four fields 5-2) Formulation of training master plan</p>	<p>Japanese Side</p> <p>1. Dispatch of Experts (1) Long-term Experts - Chief Advisor / Irrigation Information Management - Coordinator / Training - Water Management for Main Facilities - Water Management for Terminal Facilities - System Development (2) Short-term Experts will be dispatched when necessity arises 2. Provision of machinery and equipment 3. Training of counterpart personnel in Japan 4. Local cost</p>	<p>1. Counterparts (1) Project Director (2) Deputy Project Director (3) Project Manager (4) Two Assistant Directors (5) Counterparts for each expert (6) Management staff (7) Technical staff (8) Other staff as needed 2. Land, building and facilities for the Project (1) Land and facilities for Japanese Experts (2) Office and other facilities for Japanese Experts (3) Office and other facilities for Japanese Experts (4) Facilities to keep provided machinery (5) Other facilities 3. Local cost</p>	<p>- Institutional collaboration between Branches and Divisions in Irrigation Department - Institutional collaboration among Myanmar Agriculture Service, Settlement &amp; Land Records Department, Department of Agriculture Planning, and Irrigation Department - Input from both sides are timely and adequately provided - Concerned farmers understand project activities and cooperate</p>
			<p>Pre-conditions - Land for test farm is prepared.</p>

2. 評価グリッド(日本語・英語)

ミヤンマーかんがい技術センター計画 中間評価グリッド

評価項目	調査項目	必要情報・データ	情報源	調査方法	評価	コメント
実績	上位目標の達成度 (見込み)	・水利用効率の向上 (単位収量の増加)	・農林統計	・資料レビュー		
	中間目標の達成度 (見込み)	・5かんがい地区はどこか ・2009年までの研修生数 ・研修ターゲット数(最終目標値)	・専門家・CP ・訓練マスタープラン ・訓練マスタープラン	・インタビュ ・インタビュ ・資料レビュー		
	プロジェクト目標達成度 (見込み)	1. ガモエ地区水利用効率の向上(数値目標とする) 2. ID 技術者の向上 3. 水管理組合の適用	1. 計測結果 2. ID 技術者・専門家 3. 専門家・CP・水管理組合	1. データ調査 2. インタビュ 3. インタビュ		
成果の達成度	(基幹施設水管理) (1) 現況の水管理に対する評価 (2) 施設改善提言レポートの作成 1. 水路流下能力の検討 2. 水路の分水施設の検討 3. 漏水・堆砂の検討 4. 施設改善の検討 5. 提言レポート (3) 操作・管理技術改善提言レポートの作成 1. 配水計画 2. ダム放流操作の検討 3. 分水施設操作の検討 4. 操作日誌の活用 5. 研究した操作管理技術による試行 6. 提言ガイドライン作成 (4) CP の技術開発手法習熟度 (5) ヤンゴン地区のメインテナンスオフィスの O&M 技術習熟度		(1) ①専門家・CP ②モニタリングレポート (2) ①専門家・CP ②モニタリングレポート (3) ①専門家・CP ②モニタリングレポート (4) 専門家・CP (5) 専門家・CP・技術者	(1) ①インタビュ ②資料レビュー (2) ①インタビュ ②資料レビュー (3) ①インタビュ ②資料レビュー (4) インタビュ (5) インタビュ		



	<p>末端施設水管理)</p> <p>(1) 現況評価</p> <p>(1) 試験ほ場建設</p> <p>(3) 末端水利施設改良手法提案書の作成</p> <p>(4) 末端水利施設 O&amp;M 手法提案書の作成</p> <p>(5) CP の技術開発手法習熟度</p> <p>(6) ID 技術者の O&amp;M 技術習熟度</p> <p>(システム開発)</p> <p>(1) 土地利用台帳</p> <p>1. 土地利用台帳システムの作成</p> <p>2. 上記運営操作マニュアルの作成</p> <p>3. CP の技術開発手法習熟度</p> <p>4. ID 技術者の習熟度</p> <p>(2) 水理解析</p> <p>1. 水理プログラムの開発</p> <p>2. 上記運営操作マニュアルの作成</p> <p>3. CP の技術開発手法習熟度</p> <p>4. ID 技術者の利用度</p> <p>(3) 用水到達時間の計測</p> <p>1. 用水到達時間の計測方法の開発</p>	<p>(1) ① 専門家・CP ② モニタリングレポート</p> <p>(2) ① 専門家・CP ② モニタリングレポート</p> <p>(3) ① 専門家・CP ② モニタリングレポート</p> <p>(4) ① 専門家・CP ② モニタリングレポート</p> <p>(5) ① 専門家・CP ② モニタリングレポート</p> <p>(6) ① 専門家・CP・技術者</p> <p>1. ① 専門家・CP ② モニタリングレポート</p> <p>2. ① 専門家・CP ② モニタリングレポート</p> <p>3. ① 専門家・CP ② モニタリングレポート</p> <p>4. ① 専門家・CP・技術者</p> <p>1. ① 専門家・CP ② モニタリングレポート</p> <p>2. ① 専門家・CP ② モニタリングレポート</p> <p>3. ① 専門家・CP ② モニタリングレポート</p> <p>4. ① 専門家・CP・技術者</p> <p>1. ① 専門家・CP ② モニタリングレポート</p>	<p>(1) ① インタビュー ② 資料レビュー</p> <p>(2) ① インタビュー ② 資料レビュー</p> <p>(3) ① インタビュー ② 資料レビュー</p> <p>(4) ① インタビュー ② 資料レビュー</p> <p>(5) ① インタビュー ② 資料レビュー</p> <p>(6) インタビュー</p> <p>1. ① インタビュー ② 資料レビュー</p> <p>2. ① インタビュー ② 資料レビュー</p> <p>3. インタビュー ② 資料レビュー</p> <p>4. インタビュー</p> <p>1. ① インタビュー ② 資料レビュー</p> <p>2. ① インタビュー ② 資料レビュー</p> <p>3. インタビュー ② 資料レビュー</p> <p>4. インタビュー</p> <p>1. ① インタビュー ② 資料レビュー</p>	
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<p>2. 上記操作マニヤル</p> <p>3. CP の技術開発手法習熟度</p> <p>4. ID 技術者の利用度</p> <p>(4) 水収支解析</p> <p>1. 水収支プログラムの開発</p> <p>2. 上記操作マニヤル</p> <p>3. CP の技術開発手法習熟度</p> <p>4. ID 技術者の利用度</p> <p>(5) ダム貯水容量解析</p> <p>1. ダム貯水容量計測手法の開発</p> <p>2. 上記操作マニヤル</p> <p>3. CP の技術開発手法習熟度</p> <p>4. ダム管理技術者の利用度</p>	<p>2. ①専門家・CP ②モニタリングレポート 3. 専門家・CP</p> <p>4. 専門家・CP・技術者</p> <p>1. ①専門家・CP ②モニタリングレポート 2. ①専門家・CP ②モニタリングレポート 3. 専門家・CP 4. 専門家・CP・技術者</p> <p>1. ①専門家・CP ②モニタリングレポート 2. ①専門家・CP ②モニタリングレポート 3. 専門家・CP 4. 専門家・CP・技術者</p> <p>1. ①専門家・CP ②モニタリングレポート 2. 専門家・CP 3. 専門家・CP・技術者 4. ①専門家・CP ②モニタリングレポート</p> <p>1. ①専門家・CP ②モニタリングレポート</p>	<p>2. ①インタビュ ②資料レビュー 3. インタビュ</p> <p>4. インタビュ</p> <p>1. ①インタビュ ②資料レビュー 2. ①インタビュ ②資料レビュー 3. インタビュ 4. インタビュ</p> <p>1. ①インタビュ ②資料レビュー 2. ①インタビュ ②資料レビュー 3. インタビュ 4. インタビュ</p> <p>1. ①インタビュ ②資料レビュー 2. インタビュ 3. インタビュ 4. ①インタビュ ②資料レビュー</p> <p>1. ①インタビュ ②資料レビュー</p>	
<p>(かんがい情報管理)</p> <p>(1) モニタリング方法</p> <p>1. 適正水管理状況把握システムの改良</p> <p>2. CP の技術開発手法習熟度</p> <p>3. ID 技術者の維持管理習熟度</p> <p>4. かんがい施設等の改善対策の提言</p> <p>(2) 情報保存システム</p> <p>1. かんがい情報システムの改良</p>	<p>2. ①専門家・CP ②モニタリングレポート 3. 専門家・CP</p> <p>4. 専門家・CP・技術者</p> <p>1. ①専門家・CP ②モニタリングレポート 2. ①専門家・CP ②モニタリングレポート 3. 専門家・CP 4. 専門家・CP・技術者</p> <p>1. ①専門家・CP ②モニタリングレポート 2. 専門家・CP 3. 専門家・CP・技術者 4. ①専門家・CP ②モニタリングレポート</p> <p>1. ①専門家・CP ②モニタリングレポート</p>	<p>2. ①インタビュ ②資料レビュー 3. インタビュ</p> <p>4. インタビュ</p> <p>1. ①インタビュ ②資料レビュー 2. ①インタビュ ②資料レビュー 3. インタビュ 4. インタビュ</p> <p>1. ①インタビュ ②資料レビュー 2. インタビュ 3. インタビュ 4. ①インタビュ ②資料レビュー</p> <p>1. ①インタビュ ②資料レビュー</p>	

		(訓練) 1. 水管理研修 2. 研修成果 3. CP 研修成果 4. 農民研修成果	1. ①専門家・CP ②モニタリングレポート 2. ①専門家・CP ②モニタリングレポート 3. CP 4. ①専門家・CP/指導員 ②農民	1. ①インタビュ ②資料レビュー 2. ①インタビュ ②資料レビュー 3. CP インタビュ 4. ①インタビュ ②インタビュ	
実施プロセス	活動の進捗状況	活動は計画どおり行われたか	① モニタリングレポート ② リーダー、専門家	① 資料レビュー ② インタビュ	
	モニタリングの実施状況	1. モニタリングの仕組み (1)M&E 組織は独立しているか (2)M&E の方法は確立しているか 2. PDM, 詳細活動の軌道修正の内容 3. 外部条件の変化と対応	(1)①専門家・CP ②モニタリングレポート (2)①専門家・CP ②モニタリングレポート 2. 1. モニタリング報告書 2. 2. 過去の PDM 3. ① 専門家・CP ② モニタリングレポート	(1)①インタビュ ②資料レビュー (2)①インタビュ ②資料レビュー 2. 1 資料レビュー 2. 2 資料レビュー 3. ① インタビュ ② 資料レビュー	
	専門家とカウンターパートの関係	1. コミュニケーションの状況 2. 共同作業による問題解決 3. カウンターパートの変化	① 専門家・CP ② モニタリングレポート	①インタビュ・フォーカスグループ ② 資料インタビュ	
	受益者の事業への関わり方	1. 農民の認識の変化 2. 水利組合の変化	1. 農民 2. 水利組合	1. フォーカスグループ 2. フォーカスグループ	
	相手国実施機関のオーナーシップ	1. 実施機関責任者の参加の度合い 2. 予算の手当て 3. CP 配置の適正度	1. 2. 3. ① 実施機関関係者 ② 専門家・CP ③ モニタリング報告書	① インタビュ ② インタビュ ③ 資料レビュー	

妥当性	上位目標は相手国開発計画に一致しているか	1. 社会経済開発計画 2. 農業省の農業政策	1. 開発計画 2. 政策	1. 資料レビュー 2. 資料レビュー	
	他地域への波及効果は期待できるか	1. かんがい局の政策 2. 当該事業地区の位置付け	1. かんがい計画 2. かんがい局担当者	1. 文献・資料レビュー 2. インタビュー	
	プロジェクト目標は相手側のニーズに合致しているか	ガモエ地区のかんがい局の技術改良計画	① かんがい局責任者 ② ガモエ地区 ID 責任者	① インタビュー ② インタビュー	
	日本政府の国別援助方針と一致しているか	1. 国別援助計画	国別援助計画書	文献レビュー	
有効性	日本の技術の優位性はあるか	1. かんがい技術者の理解	C/P、ID 関係者	インタビュー	
	プロジェクトの達成度合いは、期待された効果であったか	ガモエ地区での水管理技術は開発されたか（中間報告として）	達成度の評価	上記達成度の評価	
	それは成果によって達成されたか	外部要因の検討	① モニタリングレポート ② 専門家、CP	① 資料レビュー ② インタビュー	
	外部条件の影響はどうか	技術経験の普及の度合い（外部条件の変化）	① モニタリングレポート ② 専門家、CP	① 資料レビュー ② インタビュー	
効率性	投入されたた資源量に見合った成果が達成されているか	成果の達成度合いの適正度	① 実績表 ② モニタリングレポート	資料レビュー	
		投入の活用度	① モニタリングレポート ② 専門家・CP ③ 現場踏査	① 資料レビュー ② インタビュー ③ 直接観察	
		投入のタイミングの適正度（外部条件）	① モニタリングレポート ② 専門家・CP	① 資料レビュー ② インタビュー	

	<p>投入量(総コスト)と他ドナーの類似プロジェクトとの比較</p> <p>プロジェクト運営スタッフの定着度(外部条件の変化)</p> <p>かんがい局の部と課の協力関係の変化(外部条件の変化)</p> <p>かんがい局と他の部局の組織的協力関係 ・ミヤンマー農業サービス ・定住土地記録局 ・農業計画部</p> <p>農民の理解と協力の变化</p> <p>試験圃場の土地の準備(前提条件の確保状況)</p>	<p>① 他ドナーのプロ・ドク ② 他ドナーの担当者</p> <p>① モニタリングレポート ② 専門家</p> <p>① モニタリングレポート ② 専門家・CP ③ かんがい局責任者</p> <p>① モニタリングレポート ② 専門家・CP ③ かんがい局責任者 ④ 相手側責任者</p> <p>① モニタリングレポート ② 専門家・CP</p> <p>① モニタリングレポート ② 専門家・CP</p>	<p>① 資料レビュー ② インタビュー</p> <p>① 資料レビュー ② インタビュー</p> <p>① 資料レビュー ② ③ インタビュー</p> <p>① 資料レビュー ② インタビュー ③ インタビュー ④ インタビュー</p> <p>① 資料レビュー ② インタビュー</p> <p>① 資料レビュー ② インタビュー</p>	
<p>インパクト</p> <p>プロジェクトの実施により水利用効率は向上したか(見込み)</p> <p>その他の波及効果はあるか</p>	<p>農民のプロジェクトに対する満足度</p> <p>水管理技術の普及の度合い(外部条件)</p> <p>農業開発政策の変化(外部条件)</p> <p>上位目標の達成度合い(適正か)</p> <p>農業省・かんがい局の政策への影響</p>	<p>① 農民</p> <p>① 水管理組合 ② かんがい局</p> <p>① 農業省担当 ② かんがい局担当</p> <p>① 実績表 ② モニタリングレポート</p> <p>① かんがい局担当者 ② プロジェクト・リーダー</p>	<p>① フォーカーグループ</p> <p>① フォーカーグループ ② インタビュー</p> <p>① インタビュー ② インタビュー</p> <p>① 資料レビュー ② 資料レビュー インタビュー</p>	

	<p>その他予期しなかった(予想されるPDMにない)プラスの影響</p> <p>その他予期しなかった(予想されるPDMにない)マイナスの影響</p>	<p>① モニタリングレポート ② 専門家・CP ③ 農民</p> <p>① モニタリングレポート ② 専門家・CP ③ 農民</p>	<p>① 資料レビュー ② インタビュー ③ インタビュー</p> <p>① 資料レビュー ② インタビュー ③ インタビュー</p>		
自立発展性	<p>政策支援の継続</p>	<p>・開発計画における農業政策の位置づけ</p>	<p>① 農業政策 ② 農業省担当官</p>	<p>① 資料レビュー ② インタビュー</p>	
	<p>実施機関の組織能力の有無</p>	<p>・人材配置の適正度 ・離職者の割合 ・予算の確保・財政支援の継続性 ・モニタリングの仕組み</p>	<p>① モニタリングレポート ② かんがい局 ③ 専門家・CP</p>	<p>① 資料レビュー ② インタビュー ③ インタビュー</p>	
	<p>技術の定着度・普及の仕組み</p>	<p>・IDスタッフの技術の定着度 ・資機材の維持管理状況 ・技術普及の仕組み</p>	<p>① モニタリングレポート ② IDスタッフ</p>	<p>① 資料レビュー ② インタビュー</p>	
	<p>社会配慮</p>	<p>・水配分を平等におこなうが、受け入れられるか ・ID技術者の男女比率 ・女性に研修時の特別配慮はあるか(宿舎・参加機会など)</p>	<p>① プロジェクト関係者 ② 専門家・CP ③ 農民 ④ ベースラインサーベイ</p>	<p>① インタビュー ② インタビュー ③ インタビュー ④ 現地調査</p>	
	<p>環境配慮</p>	<p>環境配慮が不十分であるために起きている不都合 ・排水不良 ・その他</p>	<p>① プロジェクト関係者 ② 専門家・CP ③ 農民 ④ 現地</p>	<p>① 資料レビュー ② インタビュー ③ インタビュー ④ 現地調査</p>	

Myanmar Irrigation Technology Center Project (II)  
Mid term Evaluation Grid

Evaluation Criteria	Inquiry	Verification	Source	Method	Assessment	Significance
Actual Results (Present Status)	Achievement of Overall Goal (expected)	<ul style="list-style-type: none"> <li>- Improvement of efficiency of irrigation water use</li> <li>- Increase of total yields</li> </ul>	<ul style="list-style-type: none"> <li>- Agricultural statistic</li> </ul>	<ul style="list-style-type: none"> <li>- Documents review</li> </ul>		
	Achievement of intermediate goal (expected)	<ul style="list-style-type: none"> <li>- Five irrigation areas</li> <li>- Accumulative numbers of trainees by 2009</li> <li>- Total numbers of trainees targeted</li> </ul>	<ul style="list-style-type: none"> <li>- Experts/CPs</li> <li>- Training master plan</li> <li>- Training master plan</li> </ul>	<ul style="list-style-type: none"> <li>- Interview</li> <li>- Interview</li> <li>- Document review</li> </ul>		
	Achievement of project purpose (expected)	<ol style="list-style-type: none"> <li>1. Target value of improvement of efficiency of irrigation water use in Ngamoeyeik</li> <li>2. Improvement of ID engineers' technology</li> <li>3. How do farmers adopt water management cooperation</li> </ol>	<ol style="list-style-type: none"> <li>1. Field observation data</li> <li>2. (ID Engineers)/ Experts/CPs</li> <li>3. Experts/CPs/ Farmers</li> </ol>	<ol style="list-style-type: none"> <li>1. Data review</li> <li>2. Interview</li> <li>3. Interview</li> </ol>		
	Achievement of outputs	(main facilities) <ol style="list-style-type: none"> <li>(1) Evaluation on the present water management</li> <li>(2) Making proposal report on improvement of main facilities</li> </ol> <ol style="list-style-type: none"> <li>1. Study on flow capacity of canals</li> <li>2. Study on water distribution facilities</li> <li>3. Study on leakage and sedimentation</li> <li>4. Study on improvement of facilities</li> <li>5. Reporting</li> </ol>	<ol style="list-style-type: none"> <li>(1) 1) Experts/CPs</li> <li>2) Monitoring reports</li> <li>(2) 1) Experts/CPs</li> <li>2) Monitoring reports</li> </ol>	<ol style="list-style-type: none"> <li>(1) 1) Interview</li> <li>2) Documents review</li> <li>(2) 1) Interview</li> <li>2) Documents review</li> </ol>		

<p>(3) Making proposal report on improvement of operation and maintenance technique of main facilities</p> <ol style="list-style-type: none"> <li>1. Study on water distribution plan</li> <li>2. Study on dam operation for water discharge</li> <li>3. Study on operation of distribution facilities</li> <li>4. Utilization of operation record books</li> <li>5. Making trail of studied techniques</li> <li>6. Reporting</li> </ol> <p>(4) CPs' technical achievement of technical study method</p> <p>(5) ID Engineers' technical achievement of O&amp;M (expected)</p>	<p>(3) 1) Experts /CPs 2) Monitoring reports</p> <p>(4) Experts/ CPs</p> <p>(5) Experts/ CPs/( ID Engineers)</p>	<p>(3) 1) Interview 2) Documents review</p> <p>(4) Interview</p> <p>(5) Interview</p>	
<p>(Terminal facilities)</p> <ol style="list-style-type: none"> <li>(1) Evaluation on the present situation</li> <li>(2) Construction of test farms</li> <li>(3) Preparation of a technical proposal for improvement of terminal facilities</li> <li>(4) Making of proposal report of water management for terminal facilities</li> <li>(5) CPs' achievement of technical study method</li> <li>(6) ID Engineers' technical achievement of O&amp;M (expected)</li> </ol> <p>(System development)</p> <ol style="list-style-type: none"> <li>(1) Land use ledger system</li> <li>1. Preparation of system of land register inventory</li> <li>2. Preparation of its operation manual</li> </ol>	<p>(1) 1) Experts /CPs 2) Monitoring reports</p> <p>(2) 1) Experts/CPs 2) Monitoring reports</p> <p>(3) 1) Experts/CPs 2) Monitoring reports</p> <p>(4) 1) Experts/CPs 2) Monitoring reports</p> <p>(5) 1) Experts/CPs 2) Monitoring reports</p> <p>(6) Experts/CPs/( ID Engineers)</p>	<p>(1) 1) Interview 2) Documents review</p> <p>(2) 1) Interview 2) Documents review</p> <p>(3) 1) Interview 2) Documents review</p> <p>(4) 1) Interview 2) Documents review</p> <p>(5) 1) Interview 2) Documents review</p> <p>(6) Interview</p>	
	<p>1. 1) Experts/CPs 2) Monitoring reports</p> <p>2. 1) Experts/CPs 2) Monitoring reports</p>	<p>1. 1) Interview 2) Documents review</p> <p>2. 1) Interview 2) Documents review</p>	



	<p>3.CPs' achievement of technical study method</p> <p>4.ID Engineers' technical achievement (expected)</p> <p>(2) Hydraulic analysis</p> <p>1.Development of hydraulic phenomena simulation program</p> <p>2. Preparation of operation manual</p> <p>3. CPs' achievement of technical study method</p> <p>4. ID Engineers' technical achievement (expected)</p>	<p>3. Experts/CPs</p> <p>4. Experts/ CP/Engineers</p> <p>1. 1) Experts/CPs 2) Monitoring reports</p> <p>2. 1) Experts/CPs 2) Monitoring reports 3. Experts/CPs</p> <p>4.Experts/CP/(ID Engineers)</p>	<p>3.Interview</p> <p>4.Interview</p> <p>1.1) Interview 2) Documents review</p> <p>2.1) Interview 2) Documents review 3.Interview</p> <p>4.Interview</p>	
	<p>(3) Arrival time of irrigation water</p> <p>1.Development of its management</p> <p>2.Preparation of operation manual</p> <p>3.CPs' achievement of technical study method</p> <p>4.ID Engineers' technical achievement (expected)</p>	<p>1.1) Experts/CPs 2) Monitoring reports</p> <p>2. 1) Experts/CPs 2) Monitoring reports 3.Experts/CPs</p> <p>4.Experts/CPs / (ID Engineers)</p>	<p>1.1) Interview 2) Documents review</p> <p>2. 1) Interview 2) Documents review 3. Interview</p> <p>4.Interview</p>	
	<p>(4) Analysis of water balance</p> <p>1.Development of water balance simulation</p> <p>2. Preparation of operation manual</p> <p>3.CPs' achievement of technical study method</p> <p>4. ID Engineers' technical achievement (expected)</p>	<p>1.1) Experts /CPs 2)Monitoring reports</p> <p>2. 1) Experts/CPs 2) Monitoring reports 3.Experts/CPs</p> <p>4.Experts/CPs/(ID Engineers)</p>	<p>1.1) Interview 2) Documents review</p> <p>2. 1) Interview 2) Documents review 3.Interview</p> <p>4.Interview</p>	

<p>(5) Analysis of water storage of a dam</p> <ol style="list-style-type: none"> <li>1. Development of a water storage measurement method</li> <li>2. Its operation manual</li> <li>3. CPs' achievement of technical study method</li> <li>4. ID Engineers' technical achievement of measurement method (expected)</li> </ol> <p>(Irrigation information management)</p> <ol style="list-style-type: none"> <li>(1) Monitoring method             <ol style="list-style-type: none"> <li>1. Improvement of monitoring system for appropriate water management</li> <li>2. CPs' achievement of technical study</li> </ol> </li> <li>3. ID Engineers' technical achievement of program maintenance</li> <li>4. Study on improvement method for irrigation facilities</li> </ol> <p>(2) Information proceeding System</p> <ol style="list-style-type: none"> <li>1. Improvement of irrigation information system</li> </ol> <p>(Training)</p> <ol style="list-style-type: none"> <li>1. Training for water management</li> <li>2. Training results</li> <li>3. CP training results</li> <li>4. Farmers training results</li> </ol>	<ol style="list-style-type: none"> <li>1.1) Experts/CPs</li> <li>2) Monitoring reports</li> <li>2.1) Experts/CPs</li> <li>2) Monitoring reports</li> <li>3. Experts/CPs</li> <li>4. Experts/CPs/ (ID Engineers)</li> </ol> <ol style="list-style-type: none"> <li>1.1) Experts/CPs</li> <li>2) Monitoring reports</li> <li>2. Experts/CPs</li> <li>3. Experts/CPs/Engineers</li> <li>4.1) Experts/CPs</li> <li>2) Monitoring reports</li> </ol> <ol style="list-style-type: none"> <li>1.1) Experts/CPs</li> <li>2) Monitoring reports</li> </ol> <ol style="list-style-type: none"> <li>1. 1) Experts/CPs</li> <li>2) Monitoring reports</li> </ol>	<ol style="list-style-type: none"> <li>1.1) Interview</li> <li>2) Documents review</li> <li>2.1) Interview</li> <li>2) Documents review</li> <li>3. Interview</li> <li>4. Interview</li> </ol> <ol style="list-style-type: none"> <li>1.1) Interview</li> <li>2) Documents review</li> <li>2. Interview</li> <li>3. Interview</li> <li>4.1) Interview</li> <li>2) Documents review</li> </ol> <ol style="list-style-type: none"> <li>1.1) Interview</li> <li>2) Documents review</li> </ol> <ol style="list-style-type: none"> <li>1.1) Interview</li> <li>2) Documents review</li> </ol>	
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Implementing Process	Activities progress	Have activities been done as planned?	1) Monitoring reports 2) Project leader, Experts/CPs	1) Documents review 2) Interview	
	Monitoring operation	1. M&E Organization Is an M&E organization independent? 2. Monitoring system Has a M&E' system been established? 3. Contents modified in activates and PDM 4. Changes in externalities and the project's responses?	1. 1) Experts/CPs 2) Monitoring reports 2. 1) Experts/CPs 3) 1) Monitoring reports 2) Previous PDMs 4. 1) Experts/CPs 2) Monitoring reports	1. 1) Interview 2) Documents review 2. 1) interview 3. 1) Document review 2) Interviews 4. 1) Interview 2) Documents review	
	Cooperation of experts and counterparts	1. Communication 2. Problem solving by collaboration 3. Change in counterparts performance	For 1.2. & 3. 1) Experts/CPs 2) Monitoring reports	1) Interview 2) Documents review	
	Beneficiary participation	1. Change in farmers' recognition 2. Change in Water Management performance	1. Farmers 2. Water management cooperation	1. Focus group 2. Focus group	
Relevance	Ownership of implementation agencies	1. Degree of participation of responsibility of implementation agency 2. Budget preparation 3. Proper CP arrangement	For 1.2. & 3. 1) Implementation agency 2) Experts/CPs 3) Monitoring report	1) Interview 2) Interview 3) Documents review	
	Is an overall goal coincident with national development objectives?	1. Country social and economic development plan 2. Policy of Ministry of Agriculture (MA)	1. Strategy of development plan 2. Contents of policy	1. Documents review 2. Documents review	
	Is propagation of project to other areas expected?	1. Policy of Irrigation Department 2. Role of the project area	1. Irrigation program 2. ID Director General	1. Document review 2. Interview	

	Does the project purpose meet the target group's needs?	A program of improvement of irrigation technology in ID of Ngamoeyeik	1) ID Director General 2) ID Responsible in Ngamoeyeik	1) Document review or Interview 2) Interview	
	Is the project coincident with Japanese country aid strategy?	Country aid strategy	Paper on CAS	Document review	
	Has the project shown technical advantages of Japan?	Recognition of ID irrigation engineers	Counterparts, ID Engineers	Interview	
Effectiveness	Is the effectiveness the same as the expected outcomes?	Has the water management been developed for Ngamoeyeik area?	Degree of achievement	Summary of the degree of achievement	
	Has the project been achieved by the outputs?	Important assumptions	1) Monitoring reports 2) Experts, CPs	1) Documents review 2) Interview	
	How did the externalities influence?	Dissemination of technical experiences	1) Monitoring reports 2) Experts, CPs	1) Documents review 2) Interview	
	Are the output commensurate with the inputs?	Degree of achievement of outputs	1) Actual Results 2) Monitoring reports	Documents review	
Efficiency		Usage of activities	1) Monitoring reports 2) Experts, CPs 3) Field observation	1) Documents review 2) Interview 3) Observation	
		Timing of provisioned inputs (important assumption)	1) Monitoring reports 2) Experts, CPs	1) Documents review 2) Interview	

	Comparison of total inputs (total costs) of the project and ones of the similar projects of other donors	1) Project documents of other donors 2) Donors' representatives	1) Documents review 2) Interview	
	Assignment of project management staff in the project for more than two years (important assumption)	1) Monitoring reports 2) Experts, CPs	1) Documents review 2) Interview	
	Change in collaboration among the department and sections within ID	1) Monitoring reports 2) Experts/CPs 3) ID	1) Documents review 2) Interview 3) Interview	
	Change in institutional collaboration between ID and others in MA • Myanmar Agriculture Services • Settlement & Land records Department • Agriculture Planning.	1) Monitoring reports 2) Experts/CPs 3) ID 4) Other departments	1) Documents review 2) Interview 3) Interview 4) Interview	
	Progress of understandings and cooperation of farmers	1) Monitoring reports 2) Experts/CPs	1) Documents review 2) Interview	
	Preparation of lands for test farms (pre-conditions)	1) Monitoring reports 2) Experts/CPs	1) Documents review 2) Interview	
Impact	Farmers' satisfaction with the project achievement	Farmers	Focus group	
Is efficiency of irrigation water use improved? (expected)  Other impacts?	Degree of extension service for water management (important assumption)	1) Water management cooperation 2) ID	1) Focus group 2) Interview	

Sustainability	Change of policy for agriculture development (important assumption)	1) Ministry of Agriculture 2) ID	1) Interview 2) Interview			
		Achievement of overall goal	1) Results table 2) Monitoring reports	1) Documents review 2) Documents review		
		Impacts on policies of MA and ID	1) ID 2) Project leader	Interview		
		Unexpected positive impacts ( PDM does not mention)	1) Monitoring reports 2) Experts/CPs 3) Farmers	1) Documents review 2) Interview 3) Interview		
		Unexpected negative impacts ( PDM does not mention)	1) Monitoring reports 2) Experts/CPs 3) Farmers	1) Documents review 2) Interview 3) Interview		
		Continuity of policy support	• Role of agricultural policy in the development plan	1) Agriculture policy 2) Ministry of Agriculture	1) Documents review 2) Interview	
Sustainability	Institutional capability	• Staff allocation • Retirement ratio • Budget preparation/ financial support • Monitoring and evaluation system	1) Monitoring reports 2) ID 3) Experts/CPs	1) Documents review 2) Interview 3) Interview		

<p><b>Technical absorption and spreading system</b></p>	<ul style="list-style-type: none"> <li>• Absorption of technology by ID staff</li> <li>• Status of equipment maintenances</li> <li>• System of extension of technology</li> </ul>	<p>1) Monitoring reports 2) ID staff</p>	<p>1) Documents review 2) Interview</p>	
<p><b>Social factors</b></p>	<ul style="list-style-type: none"> <li>• Which water distribution method is accepted by rural society?</li> <li>• Ratio of men/women in ID Engineers</li> <li>• Special arrangement for women participation (dormitory/opportunity)</li> </ul>	<p>1) Project stakeholders 2) Experts/CPs 3) Farmers 4) Baseline survey</p>	<p>1) Interview 2) Interview 3) Interview 4) Field observation</p>	
<p><b>Environment factors</b></p>	<ul style="list-style-type: none"> <li>Negative impacts</li> <li>• drainage malfunctions</li> <li>• others</li> </ul>	<p>1) Project stakeholders 2) Experts/CPs 3) Farmers 4) Field</p>	<p>1) Documents review 2) Interview 3) Interview 4) Field observation</p>	

3. 質問表(日本語・英語)

質問表(案)

評価項目	調査項目・必要情報	詳細質問事項 入手手段	中間評価にとって		データと入手手段			担当
			妥当か	重要か	信頼度	信頼度	経費	
実績	A.上位目標の達成度							
かんがい技術の改善により、農業生産性を向上させる	1. 現況の水利用効率?	データはあるか						
	2. 現況の単位収量? (全国平均は)	データはあるか						
5地区において適正な水管理技術が確立される	A' 中間目標の達成度							
	1. 5かんがい地区(地区のデータはあるか)	1)どこか 2)選定理由						
	2. 2009年までの研修生数	1)誰を、 2)何人目標としているか						
フェーズIで達成された基礎的かんがい技術を採用し、ガモエかんがい事業モデル地区での水管理技術確立する	3. 最終目標研修生数	ID 技術者は、全員で何名か						
	B.プロジェクト目標達成度							
	1. ガモエ地区水利用効率?	1)目標値は設定できるか 2)全国平均は?						
水管理組合の形態? ガモエ地区での水管理の実態	2. ID 技術者のレベル?	目標とする水管理はできるか						
	3. 水管理組合の形態?	1)いくつ管理組合があるか 2)機能しているのか						
	C.成果の達成度 (基幹施設)							
	1. 進捗度は?	資料とインタビューで判断						



評価項目	調査項目・必要情報	詳細質問事項 入手手段	中間評価にとって				選 択	担 当
			妥当か	重要か	信頼度	困難度		
基幹水利施設での水管理と維持管理の技術が改善される	2. 上記見込み?	インタビューで判断						
	3. CPの習熟度と見込み?	専門家の判断						
	4. その他 ID 技術者の習熟度と見込み?	専門家・CP の判断						
	(未端施設)							
末端かんがいシステムの水管理技術の開発手法が改善される	1. 進捗度は?	資料とインタビューで判断						
	2. 上記見込み?	インタビューで判断						
	3. CPの習熟度と見込み?	専門家の判断						
	4. その他 ID 技術者の習熟度と見込み?	専門家・CP の判断						
水管理のための技術支援システムが改善される	(システム開発)							
	1. 進捗度は?	資料とインタビューで判断						
	2. 上記見込み?	インタビューで判断						
	3. CPの習熟度と見込み?	専門家の判断						
(かんがい情報管理)	4. その他 ID 技術者の習熟度と見込み?	専門家・CP の判断						
	1. 進捗度は?	資料とインタビューで判断						

評価項目	調査項目・必要情報	詳細質問事項 入手段	中間評価にとって		データーと入手段				
			妥当か	重要か	信頼度	困難度	経費	選択	担当
かんがいプロジェクトをモニタリングするたに、かんがいが情報管理が改善される	2. 上記見込み?	インタビューで判断							
	3. CPの習熟度と見込み?	専門家の判断							
	4. その他ID技術者の習熟度と見込み?	専門家・CPの判断							
	(訓練)								
	1. 進捗度は?	資料とインタビューで判断							
水管理技術が訓練によって、かんがいが局と農民に理解される	2. 上記見込み?	インタビューで判断							
	3. CPの研修成果は?	インタビューの判断							
	4. その他ID技術者の研修成果は?	どのような指標を使っているか							
	5. 農民の研修成果は?	どのような指標を使っているか							
	A. 活動の進捗状況								
実施プロセス	計画どおりか?	資料とインタビューで判断							
	実施上問題はなかったか?	資料とインタビューで判断							
	投入は予定通りか?	資料とインタビューで判断							
	B. モニタリングの実施状況	資料とインタビューで判断							
	1. M&E組織はあるか?	組織図の有無							
2. モニタリングの仕組みは?	資料とインタビューで判断								

評価項目	調査項目・必要情報	詳細質問事項 入手手段	中間評価によって			データーと入手手段			担当
			妥当か	重要か	信頼度	信頼度	困難度	経費	
	3. PDMの変更は？	資料とインタビューで判断							
	4. 詳細活動の変更は？	資料とインタビューで判断							
	5. 外部条件の変化は？	資料とインタビューで判断							
	<b>C. 専門家とカウンタパートの関係</b>								
	1. 毎日のコミュニケーションは？	資料とインタビューで判断							
	2. 共同で作業しているか？	資料とインタビューで判断							
	3. カウンタパートの変化は？	資料とインタビューで判断							
	<b>D. 受益者の事業への関わり</b>								
	1. 農民は事業を理解しているか？	資料とインタビューで判断							
	2. 水利組合は理解しているか？	資料とインタビューで判断							
	<b>E. 相手側実施機関のオーナーシップは？</b>								
	1. 合同会議への責任者の参加は？	インタビュー・資料レビュー							
	2. 予算の手当ては計画通りか？	インタビュー・資料レビュー							
	3. CP 配置は適正か？	インタビュー・資料レビュー							
<b>妥当性</b>	<b>A. 開発計画</b>								
	1. 開発計画の変更はないか？	インタビュー・資料レビュー							
	2. 農業政策の変更はないか？	インタビュー・資料レビュー							

評価項目	調査項目・必要情報	詳細質問事項 入手段	中間評価にとって		データと入手段			担当
			妥当か	重要か	信頼度	困難度	経費	
	B.他地域への波及効果							
	1. かんがい局の方針は？	インタビュー・資料レビュー						
	2. 当該事業への意見は？	インタビュー・資料レビュー						
	C.相手側ニーズとの合致							
	1. かんがい局の方針？	インタビュー						
	D.日本国の援助方針							
	1. 大使館・JICA 方針？	インタビュー・資料レビュー						
	E.日本の技術の優位性							
	1. ID 技術者の意見は？	インタビュー						
有効性	A.目標の達成度合い							
	1. 見込みはどうか？	インタビュー・資料レビュー						
	B.それは成果によるか							
	1. 見込みはどうか？	インタビュー						
	2. 予期しない外部要因はあるか？	インタビュー						
	C.外部条件の影響							
	1. 技術の普及の見込みは？	インタビュー						
効率性	A.投入と成果のバランス							

評価項目	調査項目・必要情報	詳細質問事項 入手手段	中間評価によって				データと入手手段		
			妥当か	重要か	信頼度	経費	選択	担当	
	1. 成果の達成度合いは予定通りか？	インタビュアー・資料レビュー							
	2. 見込みはどうか？	インタビュアー							
	3. 投入は無駄はないか？	インタビュアー・資料レビュー							
	4. 投入の遅れはないか？	インタビュアー・資料レビュー							
	5. 投入総コストはいくらか？	インタビュアー・資料レビュー							
	6. 他の類似案件との比較はできるか？	インタビュアー・資料レビュー							
	7. プロジェクトスタッフの定着率はよいか？	インタビュアー・資料レビュー							
	8. かんがい局と課の関係に変化はあるか？	インタビュアー							
	9. かんがい局と他組織との協力関係はうまくいっているか？								
	(1) ミヤンマー農業サービス	インタビュアー・資料レビュー							
	(2) 定住土地記録局	インタビュアー・資料レビュー							
	(3) 農業計画部	インタビュアー・資料レビュー							
	(4) 農民は協力的か？	インタビュアー							
	(5) 試験ほ場の土地は計画どおり確保できたか？	インタビュアー・資料レビュー							
<b>インパクト</b>	<b>A. 水利用効率の向上と波及効果</b>								
	1. 農民はプロジェクトに満足しているか？ (見込み)	インタビュアー							

評価項目	調査項目・必要情報	詳細質問事項 入手手段	中間評価によって			テーターと入手手段			担当
			妥当か	重要か	信頼度	困難度	経費	選択	
	2. 水管理技術は普及するか？(見込み)	インタビュー							
	3. 農業開発政策は変わらないか？(見込み)	インタビュー							
	4. 上位目標の達成度合いは？(見込み)	インタビュー							
	5. 農業省・かんがい局は効果によって政策をかえるか？(見込み)	インタビュー							
	6. 予期しないプラス効果は？(見込み)	インタビュー							
	7. 予期しないマイナス効果は？(見込み)	インタビュー							
自立発展性	A. 政策支援の継続								
	1. かんがい政策の位置づけは？	インタビュー・資料レビュー							
	B. 実施機関の組織能力								
	1. 人材配置が適切か？	インタビュー・資料レビュー							
	2. 離職者の割合は？	インタビュー・資料レビュー							
	3. 予算や財政支援の継続は？	インタビュー・資料レビュー							
	4. モニタリングの仕組みは？	インタビュー・資料レビュー							
	C. 技術の定着度・普及の仕組み								
	1. ID スタッフへの技術の定着？	インタビュー・資料レビュー							
	2. 資機材の維持管理状況は？	インタビュー・資料レビュー							

評価項目	調査項目・必要情報	詳細質問事項 入手手段	中間評価にとって		データと入手手段					
			妥当か	重要か	信頼度	困難度	経費	選択	担当	
	3. 技術普及のシステムはできているか？	インタビュー・資料レビュー								
	D. 社会配慮									
	1. 改善技術を農家は受け入れるか？	インタビュー・資料レビュー								
	2. 生活習慣をかえるか？	インタビュー・資料レビュー								
	3. 水配分での問題は？	インタビュー・資料レビュー								
	2. IDでの男女比率は？	インタビュー・資料レビュー								
	3. 女性研修生への配慮は？	インタビュー・資料レビュー								
	4. その他不都合はないか？	インタビュー・資料レビュー								
	E. 環境配慮									
	1. 環境配慮は十分か？	インタビュー・資料レビュー								
	何か如置をしているか？	インタビュー・資料レビュー								
	環境アセスメントはあるか？	インタビュー・資料レビュー								
	2. 不都合はないか？	インタビュー・資料レビュー								
	排水不良は？									
	その他									

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Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Med. Eva.			For data and means		
			Validity	Importance	Reliability	Difficulty	Cost	Selected
<b>Actual results (Present Status)</b> To raise agriculture productivity through improvement of irrigation technology	<b>A. Achievement of overall goal</b> 1.The present efficiency of water use 2.The present yields (ex. country average) <b>A' Achievement of Intermediate goal</b>	Data? Data?						
To establish appropriate water management technology in the five irrigation areas	1.five irrigation areas (areas information) 2. Accumulated numbers of trainees by 2009 3. Total number of trainees targeted in ID <b>B. Achievement of Project purpose</b>	1) Where? 2) Selecting reasons? 1) Who are trainees? 2) How many trainees? How many numbers?						
	1. Efficiency of water use in Ngamoeyeik 2. Present level of ID Engineers 3. The present status of water management cooperation <b>C. Achievement of outputs (Main facilities)</b>	1) Can target efficiency be found? 2) Country's average? 1) Can they do improved water management? 1)How many WMCs in Ngamoeyeik? 2) Do WMCs function?						
	1.The present achievement	Judge by Monitoring reports(MP) and interview						



Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Validity	Med. Eva.			For data and means		
				Importance	Reliability	Difficulty	Cost	Selected	
Irrigation technology of water management and maintenance in main facilities is improved	2. Final achievement? (Expected)	Judge by interview							
	3. CPs' learning achievement and their capacity?	Judge by experts							
	4. ID engineers' learning achievement and their capacity?	Judge by experts and CPs							
	(Terminal facilities)								
Study method for water management of terminal irrigation system is improved	1. The present achievement	Judge by Monitoring reports (MP) and interview							
	2. Final achievement? (Expected)	Judge by interview							
	3. CPs' learning achievement and their capacity?	Judge by experts							
	4. ID engineers' learning achievement and their capacity?	Judge by experts and CPs							
Technical supporting system for water management is improved	(System development)								
	1. The present achievement	Judge by Monitoring reports (MP) and interview							
	2. Final achievement? (Expected)	Judge by interview							
	3. CPs' learning achievement and their capacity?	Judge by experts							
(Irrigation Information management)	4. ID engineers' learning achievement and their capacity?	Judge by experts and CPs							
	1. The present achievement	Judge by Monitoring reports (MP) and interview							

Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Med. Eva.			For data and means		
			Validity	Importance	Reliability	Difficulty	Cost	Selected
Irrigation information management technology is improved to monitor irrigation projects	2. Final achievement? (Expected)	Judge by interview						
	3. CPs' learning achievement and their capacity?	Judge by experts						
	4. ID engineers' learning achievement and their capacity?	Judge by experts and CPs						
	(Training)							
Water management technology is disseminated to technical staff of Irrigation Department and farmers in test farm through training	1. The present achievement	Judge by Monitoring reports (MP) and interview						
	2. Final achievement (Expected)	Judge by interview						
	3. CP training results	Judge by Interview						
	4. ID training results	What indicators?						
	5. Farmers training results	What indicators?						
Implementation Process	<b>A. Activities progress</b>							
	1. As planned	Judge by Monitoring reports (MP) and interview						
	2. Actual problems	Judge by Monitoring reports (MP) and interview						
	3. Inputs as planned	Judge by Monitoring reports (MP) and interview						
	<b>B. Monitoring</b>							
	1. M&E organization	Judge by Monitoring reports (MP) and interview						
	2. M&E method	Judge by Monitoring reports (MP) and interview						

Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Validity	Med. Eva. Importance	For data and means		
					Reliability	Difficulty	Cost
	2.Changes in PDM	Judge by Monitoring reports (MP) and interview					Selected
	3.Changes in detailed activities	Judge by Monitoring reports (MP) and interview					
	4.Cahnges in externalities	Judge by Monitoring reports (MP) and interview					
	<b>C. Cooperation between experts and counterparts</b>	Judge by Monitoring reports (MP) and interview					
	1.Daily communication	Judge by Monitoring reports (MP) and interview					
	2.Work together	Judge by Monitoring reports (MP) and interview					
	3. Change in counterparts	Judge by Monitoring reports (MP) and interview					
	<b>D. Beneficiary Participation</b>						
	1. Understandings of Farmers	Judge by Monitoring reports (MP) and interview					
	2. Understandings of Water Management Cooperation	Judge by Monitoring reports (MP) and interview					
	<b>E. Ownership of ID</b>						
	1. Attendance and initiative at JCC	Judge by Monitoring reports (MP) and interview					
	2. Preparation of budgets as planned	Judge by Monitoring reports (MP) and interview					
	3. CP arrangement	Judge by Monitoring reports (MP) and interview					
	<b>A. Development plan</b>						
<b>Relevance</b>							
	1.Change in the development planning	Judge by Monitoring reports (MP) and interview					
	2.Change in agriculture policy	Judge by Monitoring reports (MP) and interview					

Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Med. Eva.			For data and means			
			Validity	Importance	Reliability	Difficulty	Cost	Selected	
	<b>B. Extension to other areas</b>								
	1. Policy of ID	Judge by Monitoring reports (MP) and interview							
	2. Opinions of experts, CPs	Judge by Monitoring reports (MP) and interview							
	<b>C. Meet the development needs</b>								
	1. Direction of ID	Interview							
	<b>D. Japanese aid policy</b>								
	1. JICA policy	Judge by Monitoring reports (MP) and interview							
	<b>E. Technical advantages of Japan</b>								
	1. ID Engineers' opinions	Interview							
<b>Effectiveness</b>	<b>A. Achievement of the project purpose</b>								
	1. Expected Progress and attainment	Judge by Monitoring reports (MP) and interview							
	<b>B. Roles of outputs</b>								
	1. Expected Progress	Interview							
	2. Unexpected externalities	Interview							
	<b>C. Influence of important assumptions</b>								
	1. dissemination of technology	Interview							
<b>Efficiency</b>	<b>A. Balance of inputs and outputs</b>								

Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Validity	Med. Eva.			For data and means		
				Importance	Reliability	Difficulty	Cost	Selected	
	1. Achievement of outputs	Judge by Monitoring reports (MP) and interview							
	2. Expedited progress and attainment	Interview							
	3. Unneeded inputs	Judge by Monitoring reports (MP) and interview							
	4. Delay of timing of inputs	Judge by Monitoring reports (MP) and interview							
	5. Total input cost estimate	Judge by Monitoring reports (MP) and interview							
	6. Comparison with other similar projects	Judge by Monitoring reports (MP) and interview							
	7. Staying of project staff	Judge by Monitoring reports (MP) and interview							
	8. Changes in collaboration among ID	Interview							
	9. Collaboration with other agricultural institutes								
	(1) Myanmar Agriculture Service	Judge by Monitoring reports (MP) and interview							
	(2) Settlement & Land Records Department	Judge by Monitoring reports (MP) and interview							
	(3) Agriculture Planning	Judge by Monitoring reports (MP) and interview							
	(4) Cooperation of farmers	Interview							
	(5) Preparation of land for test farms	Judge by Monitoring reports (MP) and interview							
<b>Impact</b>	<b>A. Improvement of efficiency of water use and extension of technology</b>								
	1. Satisfaction of farmers	Interview							

Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Med. Eva.			For data and means		
			Validity	Importance	Reliability	Difficulty	Cost	Selected
	2.Extension technology	Interview						
	3.Continuity of Agriculture development policy	Interview						
	4. Expected achievement of overall goal	Interview						
	5. Impacts on decision taking of policies and directions of MA and ID	Interview						
	6. Unexpected positive impacts	Interview						
	7. Unexpected negative impacts	Interview						
<b>Sustainability</b>	<b>A. Continuity of supporting policy</b>							
	1. Role of irrigation policy	Judge by Monitoring reports (MP) and interview						
	<b>B. Institutional capability</b>							
	1. Arrangement of staff	Judge by Monitoring reports (MP) and interview						
	2. Ratio of retirement	Judge by Monitoring reports (MP) and interview						
	3. Expected budget preparation and financial support	Judge by Monitoring reports (MP) and interview						
	4. Monitoring system	Judge by Monitoring reports (MP) and interview						
	<b>C. Establishment and extension of technology and</b>							
	1. ID staff learning of technology	Judge by Monitoring reports (MP) and interview						
	2. Status of equipment maintenance	Judge by Monitoring reports (MP) and interview						

Evaluation criteria	Inquiry Indicators and information	Detailed questions and means	Validity	Med. Eva. Importance	For data and means		
					Reliability	Difficulty	Cost
	3. system of extension of technology	Judge by Monitoring reports (MP) and interview					
	<b>B. Social factors</b>						
	1. Acceptance of improved technology for farmers	Judge by Monitoring reports (MP) and interview					
	2. Expected change in living conditions	Judge by Monitoring reports (MP) and interview					
	3. Expected problems of water distribution	Judge by Monitoring reports (MP) and interview					
	2. Ration of en and women in ID	Judge by Monitoring reports (MP) and interview					
	3. Arrangement for women participation	Judge by Monitoring reports (MP) and interview					
	4. Any other problems ?	Judge by Monitoring reports (MP) and interview					
	<b>E. Environment factors</b>						
	1. Environment consideration	Judge by Monitoring reports (MP) and interview					
	Special arrangement	Judge by Monitoring reports (MP) and interview					
	Environment Impact Assessment	Judge by Monitoring reports (MP) and interview					
	2. Negative impacts	Judge by Monitoring reports (MP) and interview					
	Drainage malfunction	Judge by Monitoring reports (MP) and interview					
	Any other matters	Judge by Monitoring reports (MP) and interview					

4. 質問表回答 (英語)

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Evaluation criteria	Inquiry Indicators and information	Answers
<p><b>Actual results (Present Status)</b> To raise agriculture productivity through improvement of irrigation technology</p>	<p><b>A. Achievement of overall goal</b> 1. The present efficiency of water use 2. The present yields (ex. country average) <b>A' Achievement of intermediate goal</b></p>	<p>The average irrigation efficiency in the country is 65% at the present.  The average paddy yield is 3.75 ton/ha.</p>
<p>To establish appropriate water management technology in the five irrigation areas</p>	<p>1. Three irrigation areas (areas information) 2. Accumulated numbers of trainees by 2009 3. Total number of trainees targeted in ID <b>B. Achievement of Project purpose</b></p>	<p>Priority irrigation areas are Tabuhla (52,000acres), Zalehtaw (2,000acres), and Mazin (650acres) projects. The areas are close by the project site. ID staff trainees will be 202 persons, and farmer trainees will be 1,093 persons.  Training on effective use of irrigation water was conducted for gatekeepers and operators.</p>
	<p>1. Efficiency of water use in Ngamoeyeik</p>	<p>The present water use efficiency for irrigation is 60%, and the targeted one is 65%.</p>
	<p>2. Present level of ID Engineers</p>	<p>ID engineers are mostly civil engineers and did not learn sufficiently water management (WM). So in ID, no experts for this field. Some counterparts received training on WM through the project.</p>
	<p>3. The present status of water management</p>	<p>Agriculture Coordinating Committees are established in Division, District and Township levels, respectively, and cooperate each other for proper water management. Hlegu Township Agriculture Coordinating Committee is established by the departmental persons from ID, MAS, SLRD, AMD functioning well in Ngamoeyeik Area. The chairman of Township Peace and Development Council is the chairman of Water Users Management.</p>
	<p><b>C. Achievement of outputs (Main facilities)</b></p>	
	<p>1. The present achievement</p>	<p>The present achievement is about 50%.</p>



Irrigation technology of water management and maintenance in main facilities is improved	<p>2. Final achievement? (Expected)</p> <p>3. CPs' learning achievement and their capacity?</p> <p>4. ID engineers' learning achievement and their capacity?</p> <p><b>(Terminal facilities)</b></p>	<p>The chief counterpart explained that the section output would be expected to achieve by end of the project.</p> <p>The counterparts use techniques that experts provided technical transfer to them. One of the short-term experts suggests developing their problem-solving methodology through a new training.</p> <p>Training on effective use of irrigation water was conducted for gatekeepers and operators.</p>
Study method for water management of terminal irrigation system is improved	<p>1. The present achievement</p> <p>2. Final achievement? (Expected)</p> <p>3. CPs' learning achievement and their capacity?</p> <p>4. ID engineers' learning achievement and their capacity?</p> <p><b>(System development)</b></p>	<p>The section carried out investigation on the present water management and its study, constructed the first test farm on schedule. The second test farm construction is under way.</p> <p>The chief counterpart explained that the section output would be expected to achieve by end of the project.</p> <p>According to the expert, CPs' learning achievements are quite well. The chief CP intends to disseminate his learning to the ID engineers.</p> <p>(no training so far)</p>
Technical supporting system for water management is improved	<p>1. The present achievement</p> <p>2. Final achievement? (Expected)</p> <p>3. CPs' learning achievement and their capacity?</p> <p>4. ID engineers' learning achievement and their capacity?</p> <p><b>(Irrigation information management)</b></p>	<p>The present achievement is 50%.</p> <p>The chief counterpart explained that the section output would be expected to achieve by end of the project.</p> <p>According to the expert, CPs' technical achievement is to learn operation of a data base system, remote sensing technology, use of GPS, hydraulic phenomena program revised for Myanmar etc.</p> <p>(no training so far)</p>
Irrigation information management technology is	<p>1. The present achievement</p> <p>2. Final achievement? (Expected)</p>	<p>The section achieved 50% for improvement of data collection and processing of irrigation projects monitoring and 50% for monitoring on water management.</p> <p>The chief counterpart explained that the section output would be expected to achieve by end of the project.</p>

improved to monitor irrigation projects	3.CPs' learning achievement and their capacity? 4. ID engineers' learning achievement and their capacity? <b>(Training)</b>	Irrigation information management technology is improved to monitor other irrigation projects  (no training so far)
Water management technology is disseminated to technical staff of Irrigation Department and farmers in test farm through training	1. The present achievement	A draft master plan is completed.
	2. Final achievement (Expected)	The section waits the training materials that the above four sections will prepare.
	3. CP training results	Most of training is being conducted with the counterpart's initiative.
	4. ID training results	Training on effective use of irrigation water was conducted for gatekeepers and operators.
	5. Farmers training results	The farmers are satisfied with the training.
<b>Implementation Process</b>	<b>A. Activities progress</b>	Judgement: An integrated schedule control becomes more important issues of the project management to achieve the outputs. Most of activities are being carried out on schedule.
	1. As planned	
	2. Actual problems	No major problems are reported.
	3. Inputs as planned	Most of inputs were provided on schedule.
	<b>B. Monitoring</b>	
	1. M&E organization	No independent project-monitoring organization and evaluation organization is reported.
	2. M&E method	Monitoring is being conducted periodically as planned and the results are reported to JCC.
	2.Changes in PDM	The PDM revised twice from PDM (0). PDM (1) was revised on June 2000 and PDM(2) was authorized on 16 November 2001 at JCCM.
	3.Changes in detailed activities	No change is reported.

	4. Changes in externalities	No change is reported.
	<b>C. Co-operation between experts and counterparts</b>	
	1. Daily communication	Communications among experts and counterparts are well. In particular, communication of ID high authorities and the Japanese team leader is considerably well functioned.
	2. Work together	The experts and counterpart parts are working at the same rooms except training section. But all sections are found to work together efficiently.
	3. Change in counterparts	All counterparts have strong initiatives to learn from the experts. Their expectations to transfer of technology from the experts are deemed quite high.
	<b>D. Beneficiary Participation</b>	
	1. Understandings of Farmers	The farmers of the test farm understand the project quite well and follow the advice and suggestion from the project.
	2. Understandings of Water Users Association	The chairman of WUA participated in the focus group interview held at the site and he understood the project purpose.
	<b>E. Ownership of ID</b>	
	1. Attendance and initiative at JCC	DG chaired the JCC and all members participated as planned. MAS and JICA attended as observer.
	2. Preparation of budgets as planned	The project budgets have been arranged for five years.
	3. CP arrangement	Counterparts are arranged in accordance with R/D.
	<b>A. Development plan</b>	
<b>Relevance</b>	1. Change in the development planning	A new five-year development plan (2001/2-2005/6) is under review. The plan will reportedly continue the same national policy as the present plan (1996-2001).
	2. Change in agriculture policy	Under the new plan, the same agricultural policy will continue to target four crops development (rice, legume, cotton, sugar cane) and to add other three crops (coffee, black peppers and maize).

	<b>B. Extension to other areas</b>	
	1. Policy of ID	ID intends to extend water management developed by the project in not only lower Myanmar but also Upper Myanmar.
	2. Opinions of experts, CPs	Experts have positive opinions on applying the methods of studying a project technical report to other areas on Lower Myanmar with financial and logical support by ID high authority.
	<b>C. Meet the development needs</b>	
	1. Direction of ID	To meet the above development needs, ID will continue to construct new dams and improve efficiency of water management use.
	<b>D. Japanese aid policy</b>	
	1. JICA policy	Japanese country policy for Myanmar is to aid the sectors such as agriculture, health, education, lifelines, and environment and drug prevention.
	<b>E. Technical advantages of Japan</b>	
	1. ID Engineers' opinions	Through the counterparts training in Japan, ID engineers recognize irrigation technology especially in paddy in Japan is quite developed.
	<b>Effectiveness</b>	
	<b>A. Achievement of the project purpose</b>	
	1. Expected progress and attainment	ITC facility and laboratory constructed by the phase I are used by the project. Basic data collection and analysis are underway to prepare a technical book. Counterparts training is being carried out as planned.
	<b>B. Roles of outputs</b>	
	1. Expected progress	The progress of outputs is ongoing.
	2. Unexpected externalities	No unexpected externalities are reported.
	<b>C. Influence of important assumptions</b>	
	1. dissemination of technology	ID recognizes importance of efficient water management and to extend the project results for other irrigation areas.

<b>Efficiency</b>	<b>A. Balance of inputs and outputs</b>	
	1. Achievement of outputs	Each section reported their achievement.
	2. Expeted progress and attainment	The progress of implementation of the project is satisfied so far.
	3. Unneeded inputs	No unneeded inputs are found.
	4. Delay of timing of inputs	Timing of inputs are as scheduled except minor delay on construction of test farms. However, the project managed this delay to catch up with the planned schedule.
	5. Total input cost estimate	See attachment of Annex of Minutes of Meeting
	6. Comparison with other similar projects	No similar project is underway in Myanmar.
	7. Staying of project staff	The project staff and counterparts will stay in the project until the project ends. However, ID should keep the staffs for water management program after the project.
	8. Changes in collaboration among ID	ID high authority promised to continue sufficient support for the project.
	9. Collaboration with other agricultural institutes	Good collaborations are reported and delay of collection of land data was solved by ID itself.
	(1) Myanmar Agriculture Service	MAS provided training to farmers with ID.
	(2) Settlement & Land Records Department	SLRD provided land data to ID.
	(3) Agriculture Planning	DAP intends to provide any coordination for the project implementation.
	(4) Cooperation of farmers	Farmers in the test farm areas accepted to use the farm as test farm, and participated in the training of water management.
	(5) Preparation of land for test farms	Preparation of land for test farms was done without problems.
<b>Impact</b>	<b>A. Improvement of efficiency of water use and extension of technology</b>	
	1. Satisfaction of farmers	Farmers appreciated Japanese aids and Myanmar government assistance, and expressed their satisfaction with the project.

	2. Extension of water management technology	(See Relevance)
	3. Continuity of Agriculture development policy	(See Relevance)
	4. Expected achievement of overall goal	(So far no information)
	5. Impacts on decision taking of policies and directions of MAJ and ID	Efficient water management requires more cooperation and coordination within ID and to develop farmers' ownership for irrigation through water user association.
	6. Unexpected positive impacts	No unexpected positive impacts are reported.
	7. Unexpected negative impacts	No unexpected negative impacts are reported.
<b>Sustainability</b>	<b>A. Continuity of supporting policy</b>	
	1. Role of irrigation policy	The Myanmar government has constructed many dams and its water management of irrigation areas become more important issues. MAJ and ID will continue the same policy.
	<b>B. Institutional capability</b>	
	1. Arrangement of staff	(See Efficiency 7.)
	2. Ratio of retirement	No information
	3. Expected budget preparation and financial support	No information
	4. Monitoring system	The project monitoring system is well established within the project. For extending water management technology, the monitoring system also will be created in each project.
	<b>C. Establishment and extension of technology</b>	
	1. ID staff learning of technology	ITC will provide the training to ID staffs.
	2. Status of equipment maintenance	Provided equipment and facilities are well maintained.

	3. system of extension of technology	A training master plan was prepared and is expected to be authorized by ID high authority.
	<b>B. Social factors</b>	
	1. Acceptance of improved technology for farmers	The farmers are satisfied with the project. However, they requested to re-leveling of test farms.
	2. Expected change in living conditions	The farmers will be able to increase their incomes by giving summer paddy.
	3. Expected problems of water distribution	In this area, irrigation started in 1996 so water user cooperation still needs to improve their management and operation.
	2. Ration of men and women in ID	About 10% of farmers' training participants will be expected. Needs of special training courses for women is considered.
	3. Arrangement for women participation	For ID staff, a part of dormitory is arranged specially for women trainees.
	4. Any other problems ?	Efficient water management requires farmers' ownership, rules and regulations, and proper maintenance of irrigation facilities. These matters should be reviewed by ID.
	<b>E. Environment factors</b>	
	1. Environment consideration	
	Special arrangement	Local materials use and labor based method will be introduced in the project as far as possible. The project considers to study local soil improvement of canals through ITC laboratory and training.
	Environment Impact Assessment	ID recognizes importance of Environment Impact Assessment. However, ID engineers need EIA knowledge. The project considers the training for environment in Japan.
	2. Negative impacts	
	Drainage malfunction	Some areas are expected under water logging.
	Any other matters	

5. 評価結果 (英語)

Myanmar Irrigation Technology Center Project (II)  
Mid term Evaluation Rating

Bold: Myanmar    *Italic*: Japan    Underline: Evaluation

Evaluation Criteria	Evaluation item	Rating	Comments	
Actual Results (Present Status)	Achievement of Overall Goal (expected)		Not available	
	Achievement of intermediate goal (expected)		Not available	
	Achievement of project purpose (expected)	Highly satisfactory/ <b>Satisfactory</b> / Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory		
	Achievement of outputs	Highly satisfactory/ <b>Satisfactory</b> / Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory		
Implementing Process	Activities progress as planned	Highly satisfactory/ <b>Satisfactory</b> / Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory		
	Monitoring operation	Highly satisfactory/ <b>Satisfactory</b> / Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory		
	Cooperation of experts and counterparts	<b>Highly satisfactory</b> / Marginally unsatisfactory/ Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Highly unsatisfactory		
	Beneficiary participation	Highly satisfactory/ <b>Satisfactory</b> / Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory		
	Ownership of implementation agencies	<b>Highly satisfactory</b> / Marginally unsatisfactory/ Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Highly unsatisfactory		



Evaluation Criteria	Evaluation item	Rating	Comments
Relevance	national development objectives	<i>Highly satisfactory/ Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	expansion potential of project results to other areas	Highly satisfactory/ Satisfactory/ <i>Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	target group's needs	Highly satisfactory/ <i>Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	Japanese country aid strategy	Highly satisfactory/ <i>Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	technical advantages of Japan	<i>Highly satisfactory/ Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
Effectiveness project purpose and outputs	effectiveness to be expected	<i>Likely/ Uncertain/ Unlikely</i>	
	the project achievement to be expected	<i>Likely/ Uncertain/ Unlikely</i>	
	externalities influence to be expected	Likely/ <i>Uncertain/ Unlikely</i>	
Efficiency outputs and inputs	Degree of achievement of outputs	Highly satisfactory/ <i>Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	Usage of activities	Highly satisfactory/ <i>Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	Timing of inputs	Highly satisfactory/ <i>Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	Cost - effectiveness	Highly satisfactory/ <i>Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	
	length of assignment of project management staff	<i>Highly satisfactory/ Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory</i>	

Impact of efficiency of irrigation water use improved?	collaboration among the department and sections within ID	<i>Highly satisfactory</i> Marginally unsatisfactory/ Satisfactory/ Marginally satisfactory/ Marginally unsatisfactory	
	institutional collaboration between ID and others in MAI	Highly satisfactory/ <i>Satisfactory</i> Unsatisfactory/ Highly unsatisfactory	
	understandings and cooperation of farmers	Highly satisfactory/ <i>Satisfactory</i> Marginally satisfactory/ Marginally unsatisfactory/ Highly unsatisfactory	
	Preparation of lands for test farms	Highly satisfactory/ Satisfactory/ Marginally unsatisfactory/ Unsatisfactory/ Highly unsatisfactory	
	farmers' satisfaction	<i>Likely</i> / Uncertain/ Unlikely	
	extension service for water management	<i>Likely</i> / Uncertain/ Unlikely	
	favorable change of agriculture development policy	<i>Likely</i> / Uncertain/ Unlikely	
	achievement of overall goal	<i>Likely</i> / Uncertain/ Unlikely	
	good influence on policies of MAI and ID	<i>Likely</i> / Uncertain/ Unlikely	
	Unexpected positive impacts	<i>Likely</i> / Uncertain/ Unlikely	
	Unexpected negative impacts	Likely/ <i>Uncertain</i> / Unlikely	
	Continuity of policy support	<i>Likely</i> / Uncertain/ Unlikely	
	Sustainability		
Sufficient institutional capability	<i>Likely</i> / Uncertain/ Unlikely		
Technical absorption and spreading system	<i>Likely</i> / Uncertain/ Unlikely		
Positive Social factors	<i>Likely</i> / Uncertain/ Unlikely		
Negative environment factors	Likely/ Uncertain/ <i>Unlikely</i>		

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