

**Final Report
of
The Project for Technical Service
Center for Irrigation System in
Cambodia**

9 January 2006

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1. Background of the Project

Agriculture is the prime industry in Cambodia that accounts for 35% of gross national product (2004) and absorbs 67% of the working population (2001). Agricultural development is one of the key agenda in the national development policy. Agricultural productivity in the country has been low due largely to poor distribution and fluctuation of rainfall and poor irrigation systems. Most of the irrigation systems constructed in the past were unfortunately destroyed or malfunctioned during the civil war lasted over 20 years. In addition, many of the irrigation systems which were constructed under the Khmer Rouge government were not properly designed based on irrigation engineering. The present irrigable area is said to be only 250,000 ha out of 2,200,000 ha of paddy field and the facilities are still not function well even in these irrigable land. Rice production is, consequently, often affected by floods and draughts.

A study by the Mekong River Commission reported that there are 841 small- and medium-scale irrigations systems in the country and the area under irrigation could be double if those irrigation systems are properly rehabilitated based on irrigation engineering and maintained by both the government and farmers. It is also necessary for the government to construct new irrigation systems properly in many areas and mitigate the damage of drought which frequently occurs these years. The government of Cambodia, therefore, requested Japanese technical cooperation for developing human resources in irrigation sector, especially raising capacity of engineers and technicians in Ministry of Water Resources and Meteorology who work in rehabilitating and constructing irrigation systems.

2. Outline of the Project

2-1. Expected Outcome:

Overall goal Irrigation projects are properly implemented by the Ministry of Water Resources and Meteorology (MOWRAM) and the Provincial Department of Water Resources and Meteorology (PDWRAM).

Project purpose The technical capacity of the engineers and technicians of MOWRAM and PDWRAM is improved in the field of survey, planning, design, construction management and water management with participation of farmers for irrigation system.

2-2 Project Activities:

1) Assessment of technical capacity

1.1) Collect data

- 1.2) Assess present technical capacity in the field of survey
- 1.3) Assess present technical capacity in the field of planning
- 1.4) Assess present technical capacity in the field of design
- 1.5) Assess present technical capacity in the field of construction management
- 1.6) Assess present technical capacity in the field of water management
- 1.7) Set the level of skills to be transferred in each field

2) Transfer of technology through OJT

- 2.1) Transfer survey techniques through OJT
- 2.2) Transfer planning techniques through OJT
- 2.3) Transfer design techniques through OJT
- 2.4) Transfer construction management techniques through OJT
- 2.5) Transfer water management techniques with participation of farmers through OJT

3) Production of manuals

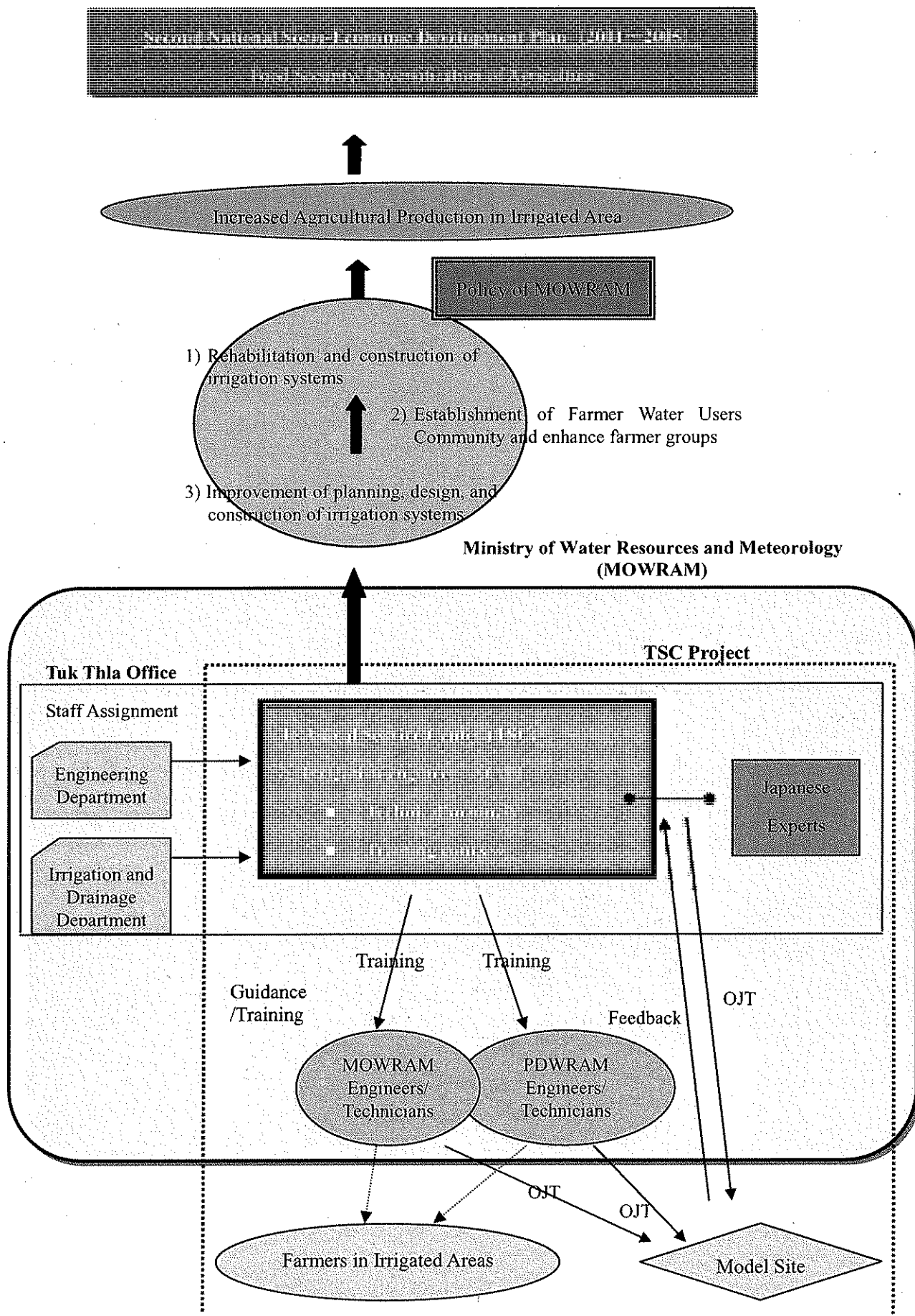
- 3.1) Produce manuals on survey techniques
- 3.2) Produce manuals on planning techniques
- 3.3) Produce design manuals on design techniques and project evaluation
- 3.4) Produce manuals on construction management techniques
- 3.5) Produce manuals on water management techniques with participation of farmers

4) Training

- 4.1) Conduct training on survey techniques
- 4.2) Conduct training on planning techniques
- 4.3) Conduct training on design techniques
- 4.4) Conduct training on construction management techniques
- 4.5) Conduct training on water management techniques with participation of farmers

2-3. Concept of Technical Service Center for Irrigation System Project

Concept of Technical Service Center for Irrigation System Project



3. Achievement of the Project

3-1. On-the-job training (OJT)

3-1-1. Purpose and methods of the OJT

As mentioned in the background of the Project, Cambodia had a long civil war and hard times and irrigation engineers and technicians have not had sufficient opportunities to learn appropriate technique and experience actual practice in developing irrigation systems. Many of the irrigation engineers and technicians still have to learn from basic subjects of irrigation engineering, such as surveying, hydraulics, hydrology, structure mechanics, soil mechanics. The C/Ps also were in the same condition at the beginning of the Project.

This OJT is therefore for the Cambodian staff in the Project (C/P) and the main activity of the Project to raise capacity of the C/Ps and establish the foundation for disseminating appropriate methods to MOWRAM and PDWRAM engineers and technicians which is the main purpose of the Project.

The purpose of the OJT is that the C/Ps learn and experience appropriate methods and process for constructing irrigation canals through the practical work of survey, planning, design, construction and water management for a irrigation system at the model site (260ha) in Kandal Stung District in Kandal Province.

Considering the existing conditions of the engineers and technicians, the technology transfer through the OJT has been done step-by-step through repeated exercise of practical job. So, JICA experts showed methods of work, such as surveying canal routes, hydraulic and structural analysis for canal design, drawing and tracing and construction control on earth and concrete work, to the C/Ps in the beginning stage. The C/Ps, then, conducted the work following instructions from experts under the careful checkup of the experts. The C/Ps have become able to conduct most of the work for the constructing small-scaled canals with slight assistance of the experts, such as suggestion and confirmation in preparation of work and checking results.

The Project considers the OJT with repeated exercise as a very effective and efficient method for introducing or transferring methods of practical work like constructing irrigation systems. Constructing irrigation systems has many and complex processes in both administrative and technical aspects. Engineers and technicians should know the order and timing of processes, relations and combinations among processes as well as theories and methodologies of each process. The OJT provides an opportunity for trainees to learn such factors of the practical work and perspective view for the processes under some experienced instructors.

Through the OJT, the Project conducted rehabilitation and construction of tertiary canals, such as T3.2.0-North and -South, T3.4.0, T3.5.0, T3.6.0 and the diversions at M8, for three dry seasons

in 2003 – 2005. The Project also set up farmer groups for the T3.2.0-North area and conducted the OJT for water management of the tertiary canal and delivery canals done by the farmer groups as well as for facilitation of the farmer group activities done by the C/Ps.

3-1-2. Survey and Planning Section

1) Transfer Survey and Planning techniques through OJT

(1) Conduct general survey of existing conditions

- a) Farmers survey: a baseline study
- b) Confirmation of existing structures: An inventory study on hydraulic structures
- c) Topographic map: Made a topographic map and land use survey
- d) Hydrology and meteorology survey

Installed a meteorological station and collected the data at the model site and Spill way (Wind, Humidity, Temperature, Rainfall, Evaporation)

(2) Water level measurement

- Conducted water level measurement along the main canal (Spillway, M1, M2, M6, M7, M8, D1, D2)
- Installed automatic water level gauge and conducted consecutive water level observation at the intake (Spillway, M1, T3.2.0)

(3) Discharge measurement

- Conducted flow rate measurement along the main canal. (M1, T3.2.0, delivery canal)
- A trial for drawing a relation curve between water levels and flow rates (H-Q Curve: M1, delivery canal).

(4) Transfer survey techniques

a) Survey skill and techniques

- Levels, plane-tables, theodolite and total station
- Conducted traverse survey (closed traverse, connected traverse)

b) Installation of control point (CP1 to CP21)

c) Route survey (T3.2.0, T3.2.0S, T3.3.0, T3.4.0, T3.5.0, T3.6.0, T3.2.4)

d) Layout survey for construction

e) Topographical mapping survey (southern part of model site)

(5) Transfer techniques of unit water requirement survey (water requirement rate)

- Conducted water requirement survey near T3.2.0
- The calculation of unit water requirement rate

- (6) Produce an irrigation plan for the model site
- Conducted a study on layout of canal system for the model site.
 - Conducted a study on the water requirement of irrigation system with a model case study

(7) Report writings

3-1-3. Design Section

- 1) Provision of training to C/Ps on basic hydraulics, structural analysis and soil engineering
- 2) Implementation of hydraulic and structural analysis
- 3) Design works for tertiary canals and related structures
 - ◊ Hydraulic and Structural calculation
 - ◊ Drawings
 - (Tertiary canal)
 - T320
 - T320-S
 - T330
 - T340
 - T350
 - T360
 - T324
 - (Water Control structures)
 - M8, PP63 (main canal)
 - D2, PP62 (main canal)
- 4) Development of training plan
- 5) Report and Design documents writing

No	Title
1.	Brief on basic hydraulic for design of irrigation canals, March 2004
2.	Completion Report of Training on Basic Hydraulic for Design of Irrigation Canals, April 2004
3.	Completion Training Report on Practical Design for Small Scale Irrigation Canals and Related structures, Nov 2005

4.	Design documents (drawings, hydraulic and structure and quantity calculation)
	1. Canal T320
	2. Canal T320-S
	3. Canal T330
	4. Canal T340
	5. Canal T350
	6. Canal T360
	7. Canal T324
	8. M8
	9. D2

3-1-4. Construction Management Section

- 1) Inner training on machinery operation and maintenance
- 2) Repairing construction road on Polpot 63 canal
- 3) Inner training for construction control such as fixed rulers and soil tests
- 4) Produce construction plan
- 5) Construction of tertiary canal and related structure
 - T3.2.0
 - T3.2.0-S
 - T3.4.0
 - T3.5.0, Drainage canal
 - T3.6.0
 - M8, Polpot 63 (main canal)
 - Polpot 62 bank rehabilitation
- 6) Construction control
 - Schedule control
 - Quality control
 - Control of finished work quality
- 7) Development of training plan
- 8) Report writing (Refer to master list of manual textbook and report)

3-1-5. Water Management Section

1) Implementation of survey/study

- Review of existing government irrigation development policy and strategy
- Implementation of stakeholder survey in the model site
- Implementation of base line survey on water usage, O&M and farming
- Implementation of study on impact and effectiveness of the irrigation canals
- Irrigation facilities inventory
- Implementation of social survey in Barku commune

2) Farmers' participation activities for outlet, crossing and turnout installation

3) Empowerment of Farmer Water User Group through convening a series of farmers' workshops

- Development of implementation strategy
- Facilitated in formulation of water user groups
- Facilitated in development of by-laws (organization and water use rule)
- Facilitated groups' maintenance works

4) Arrangement of O & M issues with concerned authorities

5) Measures against thief of metal gates in the model site

6) Development of training plan for farmers

7) Development of presentation materials for WM seminar

8) Report writing

NO	Title
1.	Farmers Survey at the Project Model Site, March 2002
2.	Farmers survey on Irrigation Situation in Model Site of TSC, May 2003
3.	Hydraulic Structures in Model site and other areas, Sep 2003
4.	Monitoring report: After Rehabilitation of T320 in Model site TSC
5.	Record of participatory activity in Model site of TSC, Aug 2003
6.	Farmer Study Tour to Chan Thnal, Aug 2003
7.	Farmer survey on Irrigation Situation and Farming in Model Site of TSC, T320-S, May 2004
8.	Workshop report on think together and work together for WM, Aug 2004

9.	Inventory of association in Barku Commune, May 2005
10.	Stakeholders in the model site, Dec 2004
11.	Workshops Record for Cohesive and Functional Water User Group, Toul Tanney and Tanoy
12.	By-laws of Sub-group 1 Toul Taney along canal T320 including Tanoy
13.	Report on Study tour to Ou Training Irrigation Systems and Roleng Chrey Regulator, June 17, 2005

3-2. Technical manuals

3-2-1. Purposes and methods of the OJT

Producing technical manuals has two purposes. One is that the C/Ps could learn theories and methodologies on the subjects which they also learn in the OJT through the production of manuals. The other is that the Project could use produced technical manuals as training materials for engineers and technicians in MOWRAM and PDWRAM.

The Project has produced technical manuals based on the needs of the OJT. There are two reasons about this. One is that the Project could not help but combine the production of technical manuals with the work in the OJT because the OJT was actually the main activity of the Project and the time shared for producing technical manuals was limited. The other is that combination of knowledge on theories and methodologies in producing technical manuals with the practical work in the OJT is considered very effective for establishing appropriate knowledge and skills in the C/Ps.

Due to the above-mentioned condition of the activity, the manuals produced are practical and useful for actual job in constructing irrigation systems, especially small-scaled canals. However, it will be necessary to produce more comprehensive and systematized technical manuals for broader needs of irrigation facilities, such as dams, embankment, spillways and large regulators in river courses, intake facilities and large-scaled canals and their structures, as the full-scaled dissemination and assistance activities of TSC.

3-2-2. Survey and Planning Section

- 1) Development of education materials for basic knowledge on meteorological observation, water discharge measurement, route survey, water requirement rate and water requirement of irrigation system.
- 2) Development of practical survey and planning manuals
- 3) Development of exercises to conduct training on survey and planning

4) Translation of developed manuals and supplementary documents

Manuals and texts of survey and planning

3-2-3. Design Section

- 1) Development of basic materials for hydraulics, structural analysis, and soil engineering
- 2) Development of practical design manuals for tertiary canals and related structures
- 3) Development of supplementary documents for practical design manuals
- 4) Translation of developed manuals and supplementary documents
- 5) Manuals and texts of Design section

N o	Title	note
1	Basic Hydraulic, Sep 2001	
2	Basic Design for Hydraulic Structures, Aug 2005	
3	Survey Practice for New C/P	updated and listed in the planning/survey section
4	Operation Manual of Current Meter and Discharge Measurement	
5	Practical Design Manual on Small Scale Irrigation Canals and Related Structures, March 2005	
6	Training material on Design of Irrigation Canals and Related Structure, Nov. 2002	
7	Manual of Design on Small Irrigation Canals and Related Structure, August 2003	
8	Side Reading: Supplementary reading Manual on Design for Small Scale Irrigation Canals, Sep 2003	
9	Practical design on small scale irrigation structures: Box culvert and concrete type slab bridge, Oct 2005	

3-2-4. Construction Management Section

- 1) Development of specifications for construction
- 2) Development of process manuals for construction works
- 3) Development of manuals on construction management
- 4) Translation of developed manuals

Refer to list of manual textbook and report

3-2-5. Water Management Section

- 1) Review of collected WM information from inland and abroad
- 2) Development of several manuals/texts on the needs identification through survey and farmers' workshops
- 3) Manuals and texts of Design section

NO	Title
1.	General Guidelines for Handover of Irrigation System, May 2005
2.	Problems and Solutions for on-farm level water management
3.	Reference paper for facilitators, May 2005
4.	Manual on outlet installation, Jun 2005
5.	Textbook for Training course of WM on-farm level
6.	Operation and Maintenance of Irrigation facilities, Dec 2005
7.	General Guidelines for Farmer's Survey, March 2002

3-3. Training

3-3-1. Purposes and methods of training

Conducting technical manuals also has two purposes. One is that the C/Ps could establish their knowledge and skills more firmly through the experiences as trainers. The other is that the Project could recognize the real situation and needs of engineers and technicians in MOWRAM and PDWRAM through their behavior in the training. It will be utilized in formulating a training system in TSC.

The Project has conducted training courses based on the contents of the OJT. So, after the

C/Ps learned a certain subject in the OJT, the C/Ps study its contents again through the production of a manual concerned and then explained the contents to participants in the training course. The Project always put focus on exercise or practices including field work on surveying, designing and construction control beside lectures on theories and methodologies when the training curriculum was prepared. Practices seemed to help the participants in keeping their concentration on the training subjects and in imagining usage of the methods they learned.

The Project conducted nine training courses and a seminar since March 2004 for one and a half years. However, it will be necessary to prepare more comprehensive and systematized training curricula and produce teaching materials for lectures and practices for the full-scaled dissemination and assistance activities of TSC.

3-3-2. Survey and Planning Section

- 1) Basic Survey
- 2) Basic Survey II
- 3) Water Requirement

3-3-3. Design Section

- 1) Basic Hydraulic for Design of Irrigation Canals, Mar 2004
- 2) Practical design for small scale canals, Mar 2005
- 3) Practical design on box culvert, Oct 2005

3-3-4. Construction Management Section

- 1) Basic construction control, Nov 2004
- 2) Practical construction control, Jan – Apr 2005
- 3) Construction management, Nov 2005

3-3-5. Water Management Section

For farmers

- 1) Farmer study visit to Chant Thanal FWUC, Nov 2003 (10 farmers)
- 2) Farmer Leader study tour, Jun 2005 (11 farmers)
- 3) Farmer training on operation and maintenance of irrigation system at on-farm level in collaboration with AQIP, Aug-Dec 2005 (19 farmers)

For MOWRAM staffs

- 4) Implementation of Seminar for Participatory Learning and Action (MOWRAM and PDWRAM staffs. total 30)

4-1-1. Survey & Planning Section

[illegible]

	Target and Indicators	Problems in this term (July 2003 - December 2003)	2003 July-December	J F M A M J J A S O N D	2004 J J A S O N D J F M A M J J A S O N D	2005 J J A S O N D J F M A M J J A S O N D	Remarks
2-2-1. Transfer techniques of unit water requirement survey (Water requirement rate)			survey near T3.2.0			Survey near T3.2.0 data arrangement minimizing existing design unit requirement	
2-2-2. Produce an irrigation plan for the model site	Making the water use plan in the kandal stung area	confirmation of irrigation plan for the model site				Search model plan confirmation Selection study	
3. Production of manuals							
3-1. Produce a manual on survey technique							
3-1-1 Produce a manual on farmers survey	manual on farmers survey					Topographical mapping by total station, CAD	Activities have been completed.
3-1-2 Produce a manual on survey	manual on survey	basic manual and applied manual	level distance plane-table traversing survey			1st Draft Final Draft Review developed manuals translating into Khmer	Basic manual have been completed
3-1-3 Produce a manual on hydrology and meteorology survey	manual on hydrology and meteorology survey	method of measurement and record				Development of contents 1st Draft Final Draft translating into Khmer	
3-1-4 Produce a manual on discharge measurement	manual on discharge measurement					translating into Khmer Review developed manuals	1st Draft have been completed
3-2 Produce manuals on planning technique							
3-2-1 Produce a manual on design water requirement and drainage discharge	manual on design water requirement and drainage discharge	water requirement survey manual and design water requirement manual				water requirement survey translating into Khmer Development of contents 1st Draft Final Draft translating into Khmer	1st Draft have been completed
4. Training							
4-1 Conduct training on survey	No. of participants	C/P's can be lecturer	12participants, Mar 2003 Basic survey skills Arrangement of training			Traversing survey Arrangement of training Training	
4-1-1 Conduct training on survey	No. of participants	C/P's can be lecturer					
4-1-2 Conduct training on hydrology and meteorology survey	No. of participants	C/P's can be lecturer	MRC training course				rainfall evaporation
4-1-3 Conduct training on discharge measurement	No. of participants	C/P's can be lecturer	Training has not been conducted.				water velocity measurement
4-2 Conduct training on planning	No. of participants	C/P's can be lecturer					
4-2-1 Training on design water requirement and drainage discharge	No. of participants	C/P's can be lecturer	MRC training course				water requirement
Long term Expert			Mr.YASUDA			Mr.HORIUCHI Topographical map (Oct-Nov) Hydrology analysis (Sep-Oct)	
Short term Expert			Mr.HORIKAWA (Jun-Feb)				
Mission from Japan (Terminal evaluation)						not yet informed	
C/P training in Japan (under consideration)						under consideration	
Equipment (N/A)							
Leave (Mr. HORIUCHI)							

[illegible]

[illegible]

[illegible]

4-1-3. Construction Management Section

Prepared on Sep 15 2004

[illegible]

[illegible]

4-2-1. Survey & Planning Section

1-7. Survey & Planning Section		Target and Indicators	Problems in this term (July 2003 - December 2003)	2003 July - December	2004												2005												Remarks
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
1. Assessment of technical capacity and setting of technical level																													
1-1. Collect data																													
1-1-1. Conduct general survey of existing conditions (construction work, operation and maintenance of facilities by the Cambodian side and international cooperation organizations)		Grasp the present Organization,Number of Members,Contents of Construction works,Budget Grasp the present Organization,Number of Members,Contents of Construction works,Budget	Collected documents from PRASAC,KOMPINGPUO Y etc related departments of MOWRAM Survey and Listening at the field	N/A																									Activities have been completed.
1-2. Assess present technical capacity in the field of Survey																													
1-2-1. Assess present technical capacity of		contents of assessment	Survey and Listening to MOWRAM, TTC,etc.	N/A																									Activities have been completed.
1-3. Assess present technical capacity in the field of planning																													
1-3-1. Assess present technical capacity of		contents of assessment	textbooks of agricultural high school are appropriate	N/A																									Activities have been completed.
2. Transfer of technology through OIT																													
2-1.Transfer survey technique thorough OIT																													
2-1-1. Conduct general survey of existing conditions (social, farm system, water use, etc.)		Confirmation of all existing structures and conditions concerning the project																											
2-1-1-A Farmers survey		situation of society, water use, Kind of crop,cropping pattern		N/A																									Activities have been completed.
2-1-1-B Confirmation of existing structures		existing design of structures in the model site		N/A																									Activities have been completed.
2-1-1-C Topographic map		design of topographic survey around the model site		N/A																									Activities have been completed.
2-1-1-D Hydrology and meteorology survey		basical data accumulation concerning temperature,rainfall,wind,evapotranspiration			rainfall, evaporation data near T3.2.0					rainfall, evaporation data near T3.2.0							rainfall, evaporation data near T3.2.0		wind,humidity,temperature,rainfall near Spillway									Observation of wind has just started.	
2-1-2. Conduct discharge survey		Confirmation of the existing discharge			Collected data at the Spillway					adjustment							repair		Collected data at the Spillway									Due to the construction of Grant Aid, the water leveling sensor has to removed.	
2-1-2-A Water level measurement		the results of water level measurement at the intake,main canal,main drainage	method of water level measurement		Collected data at T3.2.0					Collected data at the tertiary canal of T3.2.0							Collected data at the tertiary canal of T3.2.0		Collected data at the tertiary canal of T3.2.0									Activities have been completed	
2-1-2-B Discharge measurement		the results of water velocity measurement, H-Qcurve	method of water velocity measurement	H-Qcurve of tertiary canal check again because of inspection about roughness coefficient	tertiary canal					Monitoring plan(draft)							Monitoring plan(arrangement)		tertiary canal										
2-1-3. Transfer survey techniques					Traverse												closed traverse		Connected Traverse									Activities have been completed	
2-1-3-A Basic survey skill		basic operation and record basic theory of error adjustment			distance by total station					Traverse and plane table by total station							error adjustment		layout by total station										
2-1-3-B Practical survey techniques for the model site		route survey ,etc.			route survey of main canal 62					route survey of T3.3.0,T3.4.0,T3.6.0							Topographical mapping by total station,CAD		T360 T340										
2-1-3-C Application of the above techniques to the model site		additional survey for design survey for canal route selection			additional survey for design					survey of existing structures for Grant Aid									route survey of T3.2.4									Activities have been completed	

[illegible]

4-2-2. Design & Water Management Section

[illegible]

[illegible]

[illegible]

4-2-3. Construction Management Section

Activity	Target and Indicators	Problem in this term (Jul 2003-Dec 2003)	2003	2004												2005												Remarks
			Jul-Dec	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
1 Assessment of technical capacity and setting of technical level																												
1-5 Assess present technical capacity in the field of construction management																												
complete 1-5-1 Assess present technical capacity in the field of construction planning and preparation of design documents	Collected documents Conducted interviews with C/Ps and others Conducted site surveys of construction site		N/A																								Activities have been completed	
complete 1-5-2 Assess present knowledge of construction control	Conducted evaluation of		N/A																								Activities have been completed	
1-7 Set the level of skills to be transferred in each field																												
complete 1-7-3 Set the level of skill in construction management	Focus on basic skills Aim at implementation of construction work		N/A																								Activities have been completed	
2 Transfer of technology through OJT																												
2-4 Transfer construction management techniques through OJT																												
complete 2-4-1 Prepare for construction (road repair, etc)	Repaired access road as training of machinery O&M		N/A																								Activities have been completed	
2-4-2 Train operators of construction machinery																												
complete 2-4-2A Operation	result of training	Conducted training of O&M of construction machinery	N/A																								Activities have been completed	
complete 2-4-2B Maintenance	result of training	Conducted training of O&M of construction machinery	N/A																								Activities have been completed	
Weekly maintenance of machinery	logbook of machinery	C/Ps do regular maintenance of machinery with MOWRAM staff	Regular maintenance																									
2-4-3 Produce construction planning and design documents																												
2-4-3A Construction procedure	Number of documents		Work process for T3.2.0-S,T3.5.0																								Activities have been completed. Construction will not be done in 2006.	
2-4-3B Design documents	Number of documents		Construction plan Checking drawing and material list Construction schedule																								Activities have been completed. Construction will not be done in 2006.	
2-4-4 Construct facilities																												
2-4-4A Irrigation canals	constructed canals and related facilities		T3.2.0-S,T3.5.0																								Activities have been completed.	
2-4-4C Other facilities		Repair polpor63 canal broken by flood in July, 2003	Facilities related to T3.2.0-S,T3.5.0																								Activities have been completed.	
2-4-5 Take construction control																												
2-4-5A schedule control	report of construction		T3.2.0-S,T3.5.0 On-site control Data arrangement																								Activities have been completed.	
2-4-5B Quality control (Soil test, Concrete test)	report of construction	Conducted training of soil test and concrete test	Inner Training of soil test and concrete test T3.2.0-S,T3.5.0 On-site control Data arrangement																								Activities have been completed.	
2-4-5C Control of finished work quality	report of construction	Dimension were measured, but after construction	Arranging data of T3.2.0-S T3.2.0-S,T3.5.0 On-site control Data arrangement																								Activities have been completed.	
3 Production of manuals																												
3-4 Produce manuals on construction management techniques																												
3-4-1 Produce specifications for construction																												
3-4-1A General specification	Specifications for tertiary canal construction		First draft																								Activities have been completed.	
	Construction standards		First draft																								Activities have been completed.	

Activity	Target and Indicators		Problem in this term (Jul 2003-Dec 2003)	2003	2004												2005												Remarks
				Jul-Dec	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
3-4-1B Construction Process	Work process	Flow chart of construction Description of each work																											Activities have been completed.
	Fixed ruler	Making fixed ruler		First draft										Final	into														
	Earth work	Soil mix Controlling water content Spread soil Compaction													Develop										First	into Khmer			Activities have been completed.
	Concrete structure	Concrete mixed design Setting form Placing process Arrangement of steel bar Curing		Studying concrete mix design											Develop											First			Translation into Khmer has not been finished, because establishment of manuals to use the training course has priority.
3-4-2 Produce manuals on construction management techniques																													
3-4-2A Schedule control	manuals on construction management	Making schedule Controlling schedule													First draft	into									review				
3-4-2B Quality control	manuals on construction management	Controlling quality of concrete Controlling quality of earth work													First draft	into Khmer									review				Activities have been completed.
3-4-2C Control of finished work	manuals on construction management	Controlling dimension at each step Measuring dimension													First draft	into Khmer									review				
4 Training																													
4-4 Conduct training on construction management																													
4-4-1 Conduct training on construction planning and design document	No. of participants	C/Ps can be lecturer																											
4-4-1A Construction process		Fixed ruler													Arrangement	Training													Activities have been completed.
		Practical Construction Control														Arrangement	Training at site									Workshop			Activities have been completed.
		Banking and concrete structure																											
4-4-1B Construction planning		Construction flow, specification, construction sequence control, quality control, Control of finished work																							Arrangement	Training			Activities have been completed.
4-4-2 Conduct training on construction management	No. of participants																												
Inputs																													
Long term Expert																Mr. Sekijima													
Short term Expert				Mr.					Mr. Shimura												Mr. Kihara						Mr. Hayashida		
Mission from Japan (Final evaluation)																													
C/P training in Japan																	Mr. Vannarith												
Equipment		Small size Excavator																											
Leave (Mr. SEKIJIMA)																													

5. Achievement of Input

5-1. Dispatch of Japanese Experts

5-1-1. Long-term Japanese Experts

No.	Name of Expert	Field	Period of Assignment							
			From	To	2001	2002	2003	2004	2005	2006
1	Mr. Mamoru Ishikawa	Chief Advisor	01 February 2001	31 March 2002	■					
2	Mr. Akira Miyazaki	Chief Advisor	02 June 2002	09 January 2006		■	■	■	■	■
3	Ms. Mikayo Yamazaki	Coordinator / Farmers Survey and Training	10 January 2001	09 January 2004	■	■	■			
4	Mr. Kenji Yasuda	Survey / Planning	01 April 2001	31 March 2004	■	■	■			
5	Mr. Yoji Ebihara	Design / Water Management	10 January 2001	30 April 2004	■	■	■			
6	Mr. Yoichi Ihara	Construction Management	10 January 2001	31 May 2003	■	■	■			
7	Mr. Kenji Sekijima	Construction Management	26 May 2003	09 January 2006			■	■	■	■
8	Mr. Koji Kanemaru	Coordinator / Farmers Survey and Training	20 December 2003	09 January 2006				■	■	■
9	Mr. Masayuki Horiuchi	Survey / Planning	10 April 2004	09 January 2006				■	■	■
10	Mr. Kenji Tsujishita	Design / Water Management	04 May 2004	09 January 2006				■	■	■

5-1-2. Short-term Japanese Experts

No.	Name of Expert	Field	Period of Assignment							
			From	To	2001	2002	2003	2004	2005	2006
1	Mr. Satoru Nishio	Topographical Survey / Topographical Mapping	15 November 2001	12 December 2001	■					
2	Mr. Kazuhiko Kamachi	Operation and Maintenance of Construction Machinery	13 February 2002	12 April 2002		■				
3	Mr. Kiyoji Asai	Planning Theory	30 March 2002	13 April 2002		■				
4	Mr. Kiyoji Asai	Planning Theory	05 September 2002	24 September 2002		■				
5	Mr. Yasushi Osato	Design on Small Scale Canals and Related Structures	30 September 2002	16 November 2002		■				
6	Mr. Yoichi Hayashida	Construction Material Test	25 November 2002	21 December 2002		■				
7	Mr. Norihumi Shinmura	Operation and Maintenance of Construction Machinery	16 March 2003	13 April 2003			■			
8	Mr. Yasushi Osato	Design on Small Scale Irrigation Structures	01 July 2003	31 August 2003			■			
9	Mr. Yukihiro Yamamoto	Participatory Water Management	01 September 2003	04 October 2003			■			
10	Mr. Yoichi Hayashida	Construction Material Test	18 November 2003	14 December 2003			■			
11	Mr. Norifumi Shimmura	On-Sight Construction Management	11 January 2004	24 April 2004				■		
12	Mr. Naoki Horikawa	Monitoring Planning	22 January 2004	19 February 2004				■		
13	Mr. Takashi Kurauchi	Check and maintenance for gate structures	07 March 2004	30 April 2004				■		
14	Mr. Yasushi Osato	Practical Design on Small-scale Canals and Related Structures	01 July 2004	31 August 2004				■		
15	Mr. Manabu Kawaguchi	Topographical Mapping	21 October 2004	14 December 2004				■		
16	Mr. Itsuo Kihara	On-Sight Construction Management	19 February 2005	30 March 2005					■	
17	Mr. Ryosuke Sakanashi	Practical Design on Small-scale Canals and Related Structures	7 August 2005	30 September 2005					■	
18	Mr. Yoichi Hayashida	Construction Material Tests	30 August 2005	23 September 2005					■	
19	Mr. Takeshi Tanimoto	Hydrological Analysis	9 October 2005	8 November 2005					■	

5-2. Assignment of Counterpart and Training in Japan

No.	Name of Counterpart	Field	Present Post	Remarks	Period of Assignment							Training in Japan					
			Post at assignment time		From	To	2000	2001	2002	2003	2004	2005	Year	Name of Training Course	Duration		
1	H.E. Veng Sakhon	Project Director	Secretary of State		January	2001	January	2006							2000	Capacity Building for Irrigation Engineers	10 Dec 2000 ~ 16 Dec 2000
			Under Secretary of State														
2	H.E. Bun Hean	Project Manager	Director General of Technical Affairs		January	2001	January	2006									
3	Mr. Te Ouv Kim	Project Sub-Manager	Director ,Dep. of Irrigated Agriculture		January	2001	January	2006							2001	Capacity Building for Irrigation Engineers	14 May 2001 ~ 25May 2001
4	Mr. Ngoun Pich	Project Sub-Manager	Deputy Director, Dep. Engineering		January	2001	January	2006							2001	Capacity Building for Irrigation Engineers	14 May 2001 ~ 25 May 2001
5	Mr. Klok Sam Ang	Management and Administration	Chief, International Cooperation Dep. Of Planning		January	2001	January	2006									
6	Mr. Mao Rath	Survey	Official, Engineering Dep..	Resigned	January	2001	August	2004							2002	Irrigation, Drainage and Rural Development	14 April 2002 ~ 13 July 2002
7	Mr. Uch Hing	Survey	Official, Engineering Dep..		January	2001	January	2006							2002	Irrigation, Drainage and Rural Development	13 June 2003 ~ 23 Sept 2003
8	Mr. Im Veasna	Planning	Official, Engineering Dep..	Resigned	January	2001	September	2002									
9	Mr. Sam Chhom Sang	Planning	Official, Engineering Dep..	Studying abroad	January	2001											
10	Mr. Meas Savoeun	Planning	Official ,Irrigated Agriculture Dep.		May	2002	January	2006							2004	Irrigation, Drainage and Rural Development	27 June 2004 ~ 25 Sept 2004
11	Mr. You Sotha	Planning	Official ,Irrigated Agriculture Dep.		November	2002	January	2006							2005	Irrigation, Drainage and Rural Development	9 May 2005 ~ 19 July 2005
12	Mr. Teav Vutha	Design	Official ,Irrigated Agriculture Dep.		May	2002	January	2006							2005	Irrigation, Drainage and Rural Development	9 May 2005 ~ 19 July 2005
13	Mr. Hay Bunthoeun	Design	Official, Engineering Dep..		May	2002	January	2006							2005	Irrigation, Drainage and Rural Development	9 May 2005 ~ 19 July 2005
14	Mr. Sem Samnag	Design	Official, Engineering Dep..	Resigned	January	2001	May	2002									
15	Mr. Bunpa Marylux	Design	Official, Engineering Dep..	Resigned	January	2001	May	2002									
16	Mr. Phiv Phalkun	Construction Management	Official, Engineering Dep..	Resigned	January	2001	May	2002									
17	Mr. Ung Kotaro	Construction Management	Official, Engineering Dep..	Resigned	January	2001	December	2005							2002	Irrigation, Drainage and Rural Development	14 April 2002 ~ 13 July 2002

No.	Name of Counterpart	Field	Present Post	Remarks	Period of Assignment								Training in Japan				
			Post at assignment time		From	To	2000	2001	2002	2003	2004	2005	Year	Name of Training Course	Duration		
18	Mr. Touch Bun Leng	Construction Management	Official, Engineering Dep..	Resigned	May	2002	July	2002									
19	Mr. Noun Vannarith	Construction Management	Official, Engineering Dep..		August	2002	January	2006							2004	Irrigation, Drainage and Rural Development	27 June 2004 ~ 25 Sept 2004
20	Mr. Huot Chandarith	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.	Resigned	January	2001	August	2004							2002	Operation and Management of Irrigation Canal System	15 July 2002~ 24October 2002
21	Mr. Prum Kanthel	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.	Resigned Re-assign	January	2001	August	2004							2001	Irrigation and Drainage	30 July 2001 ~ 17 October 2001
					April	2005	January	2006									
22	Mr. Teng Tong Heng	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.		Septemb	2004	January	2006									
23	Mr. Sok Korn	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.		Septemb	2004	January	2006									
24	Mr. Maen Seng	Survey	Official, Engineering Dep..		Septemb	2004	January	2006									

List of JCC members trained in Japan

25	Mr. Em Bunthoeun	JCC Member	Director, Engineering Dep.		August	2002	September	2002			■				2002	Management Methods for Irrigation System Projects	31 Aug 2002 ~ 13 Sep. 2002
26	Dr. Theng Tara	JCC Member	Director, Director of Water Resources Management and Conservation Dep.		August	2002	September	2002			■				2002	Water Resources Management	31 Aug 2002 ~ 13 Sep 2002

5-3. Provision of Equipment by Japanese side

5-3-1. Technical Equipment

Note: R/P:Route of Procurement (E: Technical Equipment from Japan)

Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, *: refer to list of equipment)

Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of	Condition	Remarks	Invoice No.
		Item	Manufacture	Model Number	R/P						Location	Person in charge				
2000 E 001	30 3 2001	4WD Vehicle (Land Cruiser Station Wagon), Chassi No.JTCB-09J71-5000085, Engine	Toyota	HZJ-105LGCMSV	E 1				USD 38,500.00	USD 38,500.00	MOWRA Parking lot M	Mr.Te Av KIM	A	A		1
2000 E 002	30 3 2001	Pickup Truck (Hi-Lux 4WD), Chassis No.JTFDE62640-0053380, Engine No.3L-5031776	Toyota	LN166L-PRMDS	E 1				USD 22,500.00	USD 22,500.00	MOWRA Parking lot M	Mr.Te Av KIM	A	A		1
2000 E 003	30 3 2001	Pickup Truck (Hi-Lux 4WD), Chassis No.JTFDE 62680053415, Engine No.3L-5032005	Toyota	LN166L-PRMDS	E 1				USD 22,500.00	USD 22,500.00	MOWRA Parking lot M	Mr.Te Av KIM	A	A		1
2000 E 004	30 3 2001	Copy Machine	Canon/Copier	NP-7210	E 1				USD 5,054.00	USD 5,054.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 005	30 3 2001	Laser Printer	Canon	LBP-800	E 1				USD 360.00	USD 360.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 006	30 3 2001	Laser Printer	Canon	LBP-800	E 1				USD 360.00	USD 360.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 007	30 3 2001	Desktop Computer	IBM	300GL	E 1				USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 008	30 3 2001	Desktop Computer	IBM	300GL	E 1				USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 009	30 3 2001	Desktop Computer	IBM	300GL	E 1				USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 010	30 3 2001	Desktop Computer	IBM	300GL	E 1				USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 011	30 3 2001	Desktop Computer	IBM	300GL	E 1				USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr.Te Av	A	A		2
2000 E 012	30 3 2001	Wireless Telephone	MOTOROLA	GP68 UHF	E 1				USD 180.00	USD 180.00	Tuk Thla TSC	Mr.Te Av	A	B		3
2000 E 013	30 3 2001	Wireless Telephone	MOTOROLA	GP68 UHF	E 1				USD 180.00	USD 180.00	MOWRAM Project office	Mr.Te Av	A	B		3
2000 E 014	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1				USD 350.00	USD 350.00	Tuk Thla TSC	Mr.Te Av	A	B		3
2000 E 015	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1				USD 350.00	USD 350.00	Tuk Thla TSC	Mr.Te Av	A	B		3
2000 E 016	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1				USD 350.00	USD 350.00	Tuk Thla TSC	Mr.Te Av	A	B		3
2000 E 017	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1				USD 350.00	USD 350.00	Tuk Thla TSC	Mr.Te Av	A	B		3
2000 E 018	30 3 2001	Motorola Mobile Antenna		UHF	E 3				USD 75.00	USD 225.00	Tuk Thla TSC	Mr.Te Av	A	B		4
2000 E 019	12 10 2001	Auto Level	Topcon	AT-M3	E 1	JPY 159,000	JPY 159,000				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 020	12 10 2001	Theodolite	Topcon	TL-20G	E 1	JPY 482,000	JPY 482,000				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 021	12 10 2001	Plate Table Set	Tamaya	TPT-SET Tamura	E 1	JPY 35,000	JPY 35,000				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 022	12 10 2001	Planimeter	Tamaya	PLANIX7	E 1	JPY 80,500	JPY 80,500				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 023	12 10 2001	Planimeter	Tamaya	PLANIX7	E 1	JPY 80,500	JPY 80,500				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 024	12 10 2001	Cone Penetrometer	Marui	MIS-243-1-01	E 1	JPY 390,000	JPY 390,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	activities completed	4
2000 E 025	12 10 2001	Motorized Direct Shear Test	Marui	MIS-233-1-02	E 1	JPY 1,615,000	JPY 1,615,000				Tuk Thla TSC	Mr.Te Av	D	A		4
2000 E 026	12 10 2001	Compaction Set Apparatus	Marui	MIS-217-1-01	E 1	JPY 287,000	JPY 287,000				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 027	12 10 2001	Falling-Head Permeameter	Marui	MIS-227-1-03	E 1	JPY 789,400	JPY 789,400				Tuk Thla TSC	Mr.Te Av KIM	C	B		4
2000 E 028	12 10 2001	Drafting Machine	MAX	MD-3000, PM-912SR	E 1	JPY 290,800	JPY 290,800				Tuk Thla TSC	Mr.Te Av	C	A		4
2000 E 029	12 10 2001	Drafting Machine	MAX	MD-3000, PM-913SR	E 1	JPY 290,800	JPY 290,800				Tuk Thla TSC	Mr.Te Av	C	A		4
2001 E 030	11 9 2001	Concrete Test Hammer	PROCEQ	NR	E 1	JPY 174,000	JPY 174,000				Tuk Thla TSC	Mr.Te Av	D	A		5
2001 E 031	11 9 2001	Record Paper (5-Rolls)			E 1	JPY 6,100	JPY 6,100				Tuk Thla TSC	Mr.Te Av	D	A		5
2001 E 032	11 9 2001	30cm Triangular Scale			E 9	JPY 1,700	JPY 15,300				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 033	11 9 2001	Straight Ruler with Sectional Scale&Cutter		SC-40	E 4	JPY 1,950	JPY 7,800				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 034	11 9 2001	30Cm Triangles Set			E 4	JPY 900	JPY 3,600				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 035	11 9 2001	Flexible Curve Ruler			E 4	JPY 950	JPY 3,800				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 036	11 9 2001	Protactor			E 4	JPY 2,550	JPY 10,200				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 037	11 9 2001	50m Measuring Tape			E 4	JPY 3,550	JPY 14,200				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 038	11 9 2001	100m Measuring Rope			E 1	JPY 3,000	JPY 3,000				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 039	11 9 2001	Roller with Case for Measuring Rope			E 1	JPY 3,000	JPY 3,000				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 040	11 9 2001	Aluminum Staff with Circular 5-Section		ALM-55, SB-60	E 2	JPY 9,200	JPY 18,400				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 041	11 9 2001	2m Pole, 2-Sections, Graduation 20cm			E 4	JPY 950	JPY 3,800				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 042	11 9 2001	3m Pole, 3-Sections, Graduation 20cm			E 4	JPY 2,000	JPY 8,000				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 043	11 9 2001	Compass(Damping Fluid)			E 2	JPY 1,000	JPY 2,000				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 044	11 9 2001	50m Tape Rod, Graduation 20cm			E 4	JPY 3,700	JPY 14,800				Tuk Thla TSC	Mr.Te Av	B	A		5
2001 E 045	4 12 2001	4WD Vehicle (Land Cruiser Station Wagon), Chassi No.JTECB-09203004306, Engine	Toyota	GX HZJ105L-GCMNS	E 1				USD 38,950.00	USD 38,950.00	MOWRA Parking lot M	Mr.Te Av KIM	A	A		6
2001 E 046	21 12 2001	Software Autodesk	Autocad 2002 (E)	Autocad 2002 (E)	E 1	JPY 515,500	JPY 515,500				Tuk Thla TSC	Mr.Te Av	C	B		7
2001 E 047	21 12 2001	Printer	HP	Deskjet 1125C	E 1	JPY 41,100	JPY 41,100				Tuk Thla TSC	Mr.Te Av	A	B		7
2001 E 048	21 12 2001	Compression Apparatus	Marui	MIC-101-0-02	E 1	JPY 5,030,000	JPY 5,030,000				Tuk Thla TSC	Mr.Te Av	D	C		8
2001 E 049	21 12 2001	Concrete Mixer	Marui	MIC-109-1-61	E 1	JPY 3,490,000	JPY 3,490,000				Tuk Thla TSC	Mr.Te Av	D	A		8
2001 E 050	21 12 2001	Crawler Carrier	Komatsu	CD60R-1A	E 1	JPY 8,500,000	JPY 8,500,000				Tuk Thla TSC	Mr.Te Av	C	A		8
2001 E 051	21 12 2001	Spare Parts for Crawler Carrier	Komatsu	CD60R-1A	E						Tuk Thla Storehouse	Mr.Te Av	*	A	spare parts	8
2001 E 051.1		6735-11-1821 Gasket		6735-11-1821		1	JPY 3,690	JPY 3,690								8

[illegible]

2001	E	051.66		01643-31032 Washer		2	JPY	15	JPY	30							8
2001	E	051.67		6165-11-5290 Seal		1	JPY	6,030	JPY	6,030							8
2001	E	051.68		6732-81-8220 Clamp		1	JPY	2,960	JPY	2,960							8
2001	E	051.69		203-03-41280 Cap		1	JPY	3,810	JPY	3,810							8
2001	E	051.70		20Y-04-11160 Cap		1	JPY	13,600	JPY	13,600							8
2001	E	051.71		07056-18416 Strainer		1	JPY	3,990	JPY	3,990							8
2001	E	051.72		07288-21018 Hose		1	JPY	6,500	JPY	6,500							8
2001	E	051.73		07281-00197 Clamp		2	JPY	480	JPY	960							8
2001	E	051.74		07700-50345 Valve		1	JPY	4,050	JPY	4,050							8
2001	E	051.75		07288-21005 Hose		1	JPY	1,650	JPY	1,650							8
2001	E	051.76		07281-00197 Clamp		2	JPY	480	JPY	960							8
2001	E	051.77		07288-20531 Hose		1	JPY	10,500	JPY	10,500							8
2001	E	051.78		07285-00085 Clip		2	JPY	55	JPY	110							8
2001	E	051.79		07288-21020 Hose		1	JPY	6,480	JPY	6,480							8
2001	E	051.80		07281-00197 Clamp		2	JPY	480	JPY	960							8
2001	E	051.81		07288-21201 Hose		1	JPY	1,120	JPY	1,120							8
2001	E	051.82		07281-00197 Clamp		2	JPY	480	JPY	960							8
2001	E	051.83		07288-20809 Hose		1	JPY	2,120	JPY	2,120							8
2001	E	051.84		07281-00167 Clamp		2	JPY	440	JPY	880							8
2001	E	051.85		07288-21006 Hose		1	JPY	1,700	JPY	1,700							8
2001	E	051.86		08088-30000 Switch		1	JPY	7,510	JPY	7,510							8
2001	E	051.87		22W-06-13590M Diode		1	JPY	370	JPY	370							8
2001	E	051.88		13S-06-11372 Lamp		1	JPY	3,090	JPY	3,090							8
2001	E	051.89		13S-06-11460 Bulb		2	JPY	860	JPY	1,720							8
2001	E	051.90		13S-06-11610 Lamp		1	JPY	1,950	JPY	1,950							8
2001	E	051.91		13S-06-11412 Lamp		1	JPY	3,090	JPY	3,090							8
2001	E	051.92		20T-06-81230 Link		3	JPY	550	JPY	1,650							8
2001	E	051.93		13S-06-15150 Lamp		2	JPY	1,800	JPY	3,600							8
2001	E	051.94		23F-06-11650 Bulb		2	JPY	900	JPY	1,800							8
2001	E	051.95		201-06-71280 Lamp Ass'y		2	JPY	8,900	JPY	17,800							8
2001	E	051.96		206-06-61130 Switch		4	JPY	4,530	JPY	18,120							8
2001	E	051.97		13S-06-15310 Switch		1	JPY	11,000	JPY	11,000							8
2001	E	051.98		07002-12434 O-Ring		2	JPY	340	JPY	680							8
2001	E	051.99		07000-12135 O-Ring		9	JPY	340	JPY	3,060							8
2001	E	051.100		01010-81025 Bolt		3	JPY	80	JPY	240							8
2001	E	051.101		01643-31032 Washer		3	JPY	15	JPY	45							8
2001	E	051.102		07063-51054 Element		9	JPY	5,300	JPY	47,700							8
2001	E	051.103		07002-14234 O-Ring		1	JPY	440	JPY	440							8
2001	E	051.104		07000-12105 O-Ring		2	JPY	230	JPY	460							8
2001	E	051.105		07000-13045 O-Ring		2	JPY	65	JPY	130							8
2001	E	051.106		07000-13042 O-Ring		1	JPY	60	JPY	60							8
2001	E	051.107		07000-13032 O-Ring		2	JPY	50	JPY	100							8
2001	E	051.108		07000-13025 O-Ring		4	JPY	45	JPY	180							8
2001	E	051.109		424-16-11140 Element		4	JPY	2,350	JPY	9,400							8
2001	E	051.110		424-16-11130 O-Ring		4	JPY	600	JPY	2,400							8
2001	E	051.111		419-15-14860 O-Ring		4	JPY	480	JPY	1,920							8
2001	E	051.112		419-15-14870 Gasket		4	JPY	790	JPY	3,160							8
2001	E	051.113		07002-11223 O-Ring		4	JPY	220	JPY	880							8
2001	E	051.114		07002-12434 O-Ring		1	JPY	340	JPY	340							8
2001	E	051.115		07002-12034 O-Ring		1	JPY	320	JPY	320							8
2001	E	051.116		07000-12015 O-Ring		2	JPY	40	JPY	80							8
2001	E	051.117		07000-12018 O-Ring		2	JPY	45	JPY	90							8
2001	E	051.118		07002-11423 O-Ring		3	JPY	240	JPY	720							8
2001	E	051.119		07000-12105 O-Ring		8	JPY	230	JPY	1,840							8
2001	E	051.120		20T-973-7370 Switch		1	JPY	4,250	JPY	4,250							8
2001	E	051.121		201-06-71440 Switch		1	JPY	5,010	JPY	5,010							8
2001	E	051.122		201-06-71230 Switch		1	JPY	5,010	JPY	5,010							8
2001	E	051.123		201-06-71210 Switch		1	JPY	3,000	JPY	3,000							8
2001	E	051.124		13S-06-11320 Flasher		1	JPY	7,110	JPY	7,110							8
2001	E	051.125		20Y-06-24680 Switch		1	JPY	7,230	JPY	7,230							8
2001	E	051.126		22W-06-13590M Diode		2	JPY	370	JPY	740							8
2001	E	051.127		283-06-16190 Fuse		4	JPY	80	JPY	320							8
2001	E	051.128		205-06-73180 Fuse		3	JPY	115	JPY	345							8
2001	E	051.129		22W-06-13160M Fuse		2	JPY	105	JPY	210							8

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2001	E	059	28	12	2001	Hydraulic Excavator, Chassis No.CAT0312CT, Engine No.2150	Caterpillar	312C	E	1	JPY	13,700,000	JPY	13,700,000			Tuk Thla	TSC	Mr.Te Av KIM	C	A		10
2001	E	060	28	12	2001	Bulldozer, Chassis No.4JS00602,Engine No.2DY01958	Caterpillar	D5MXL	E	1	JPY	13,500,000	JPY	13,500,000			Tuk Thla	TSC	Mr.Te Av KIM	C	A		11
2001	E	061	28	12	2001	Spare Part for312C & Buldozer D5M XL	Caterpillar	D5MXL	E		JPY	2,700,000	JPY	2,700,000			Tuk Thla	Storehouse	Mr.Te Av	.	A	spare parts	11
2001	E	061.1				1R0739 Filter A				16	JPY	3,630	JPY	58,080									11
2001	E	061.2				1968236 Filter A				8	JPY	8,965	JPY	71,720									11
2001	E	061.3				1R0751 filterA				8	JPY	2,640	JPY	21,120									11
2001	E	061.4				1352403 element				8	JPY	13,200	JPY	105,600									11
2001	E	061.5				1080671 element				2	JPY	7,700	JPY	15,400									11
2001	E	061.6				1080672 element				4	JPY	8,910	JPY	35,640									11
2001	E	061.7				517886 Breather				1	JPY	7,095	JPY	7,095									11
2001	E	061.8				1570670 Cap				1	JPY	1,650	JPY	1,650									11
2001	E	061.9				517584 Cap				1	JPY	715	JPY	715									11
2001	E	061.10				6V0852 Cap				1	JPY	1,980	JPY	1,980									11
2001	E	061.11				1138490 Fuse				22	JPY	242	JPY	5,324									11
2001	E	061.12				1138491 fuse				7	JPY	242	JPY	1,694									11
2001	E	061.13				1412759 fuse				9	JPY	176	JPY	1,584									11
2001	E	061.14				1709417 Lens A				3	JPY	3,740	JPY	11,220									11
2001	E	061.15				9X3463 Bulb				6	JPY	1,650	JPY	9,900									11
2001	E	061.16				7N0718 Switch A				1	JPY	16,500	JPY	16,500									11
2001	E	061.17				1296466 Switch A				2	JPY	8,140	JPY	16,280									11
2001	E	061.18				1636785 Switch A				2	JPY	3,960	JPY	7,920									11
2001	E	061.19				1251302 Switch A				2	JPY	13,750	JPY	27,500									11
2001	E	061.20				1060107 Switch A				2	JPY	13,200	JPY	26,400									11
2001	E	061.21				9G7641 Switch G				2	JPY	9,130	JPY	18,260									11
2001	E	061.22				8H5306 Key				1	JPY	340	JPY	340									11
2001	E	061.23				1229625 Belt G				1	JPY	28,050	JPY	28,050									11
2001	E	061.24				1352409 Vee Belt Set				2	JPY	4,554	JPY	9,108									11
2001	E	061.25				9M1091 V Belt				2	JPY	2,970	JPY	5,940									11
2001	E	061.26				8E6258 Pin				15	JPY	605	JPY	9,075									11
2001	E	061.27				1U3252 Tip				15	JPY	4,730	JPY	70,950									11
2001	E	061.28				8E6259 Retainer A				15	JPY	770	JPY	11,550									11
2001	E	061.29				1376114 Shoe				43	JPY	5,830	JPY	250,690									11
2001	E	061.30				4I7538 Bolt				172	JPY	165	JPY	28,380									11
2001	E	061.31				5I6125 Nut				172	JPY	77	JPY	13,244									11
2001	E	061.32				7Y0204 Sidecutter				3	JPY	17,600	JPY	52,800									11
2001	E	061.33				7Y0203 Side cutter				3	JPY	17,600	JPY	52,800									11
2001	E	061.34				967074 Bolt				24	JPY	1,320	JPY	31,680									11
2001	E	061.35				8T4131 Nut				24	JPY	528	JPY	12,672									11
2001	E	061.36				1932749 Nozzle A				6	JPY	13,970	JPY	83,820									11
2001	E	061.37				1458862 Separator G				1	JPY	11,550	JPY	11,550									11
2001	E	061.38				5I7940 Cartridge A				2	JPY	80,554	JPY	161,108									11
2001	E	061.39				1352427 Seal O-Ring				2	JPY	106	JPY	212									11
2001	E	061.40				931342 Seal O-Ring				4	JPY	968	JPY	3,872									11
2001	E	061.41				931433 Seal				4	JPY	2,090	JPY	8,360									11
2001	E	061.42				960131 Seal				2	JPY	2,090	JPY	4,180									11
2001	E	061.43				9X7298 Seal A				1	JPY	1,870	JPY	1,870									11
2001	E	061.44				1659282 Seal				1	JPY	1,760	JPY	1,760									11
2001	E	061.45				6V8467 Seal O-Ring				1	JPY	528	JPY	528									11
2001	E	061.46				951625 Seal O-Ring				1	JPY	450	JPY	450									11
2001	E	061.47				1709941 Seal Kit				1	JPY	17,600	JPY	17,600									11
2001	E	061.48				4J5267 Seal O-Ring				1	JPY	363	JPY	363									11
2001	E	061.49				7J9108 Seal O-Ring				1	JPY	330	JPY	330									11
2001	E	061.50				1661494 Seal				2	JPY	2,860	JPY	5,720									11
2001	E	061.51				931433 Seal				2	JPY	2,090	JPY	4,180									11
2001	E	061.52				960131 Seal				2	JPY	2,090	JPY	4,180									11
2001	E	061.53				4J5267 Seal O-Ring				2	JPY	363	JPY	726									11
2001	E	061.54				7J9108 Seal O-Ring				1	JPY	330	JPY	330									11
2001	E	061.55				1R0739 Filter A				12	JPY	3,630	JPY	43,560									11
2001	E	061.56				1174089 Element				6	JPY	5,280	JPY	31,680									11
2001	E	061.57				1R0751 filterA				12	JPY	2,640	JPY	31,680									11
2001	E	061.58				1328876 Element				6	JPY	5,830	JPY	34,980									11
2001	E	061.59				1R0719 Element A				6	JPY	2,200	JPY	13,200									11
2001	E	061.60				4H9105 Seal O-Ring				6	JPY	968	JPY	5,808									11

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2001	E	107	23	7	2002	Infrared Moisture Meter	KettoKagaku	FD-600	E	1	JPY	143,700	JPY	143,700				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	108	23	7	2002	Beaker		82-0045-1	E	30	JPY	210	JPY	6,300				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	109	23	7	2002	Beaker		82-0046-1	E	30	JPY	220	JPY	6,600				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	110	23	7	2002	Beaker		82-0047-1	E	30	JPY	280	JPY	8,400				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	111	23	7	2002	Beaker		82-0048-1	E	30	JPY	420	JPY	12,600				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	112	23	7	2002	Pycnometer		SS-604	E	10	JPY	1,500	JPY	15,000				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	113	23	7	2002	Digital Thermometer		SK-1250MCII	E	1	JPY	24,350	JPY	24,350				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	114	23	7	2002	Porcelain Mortar with Pestle		95-3707-4	E	5	JPY	4,460	JPY	22,300				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	115	23	7	2002	Wash Bottle		927-22-16-31	E	5	JPY	130	JPY	650				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	116	23	7	2002	Wash Bottle		927-22-16-33	E	5	JPY	160	JPY	800				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	117	23	7	2002	Filters for Automatic Water Distiller		01301055	E	5	JPY	420	JPY	2,100				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	118	23	7	2002	Filters for Automatic Water Distiller		01301090	E	5	JPY	420	JPY	2,100				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	119	23	7	2002	Automatic Water Distiller	Toyo	GS-2000	E	1	JPY	512,800	JPY	512,800				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	120	23	7	2002	Mechanical Analysis Stirrer		LS-334	E	1	JPY	94,500	JPY	94,500				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	121	23	7	2002	Hydrometer		JC-9288	E	3	JPY	5,400	JPY	16,200				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	122	23	7	2002	Measuring Cylinder		74-0578-S	E	2	JPY	1,400	JPY	2,800				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	123	23	7	2002	Measuring Cylinder		74-0581-S	E	5	JPY	5,100	JPY	25,500				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	124	23	7	2002	Caliper		19913	E	3	JPY	9,900	JPY	29,700				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	125	23	7	2002	Dispersion Powder			E	5	JPY	10,200	JPY	51,000				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	126	23	7	2002	Stop Watch		SVAS001	E	1	JPY	13,600	JPY	13,600				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	127	23	7	2002	Liquid Limited Test Set	Tokyo Shinohara	SS-S-243	E	1	JPY	32,200	JPY	32,200				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	128	23	7	2002	Gapping Glass		SS-S-243	E	3	JPY	750	JPY	2,250				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	129	23	7	2002	Sample Extractor		SS-S-222	E	1	JPY	4,600	JPY	4,600				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	130	23	7	2002	Staight Edge		SS-S-252	E	5	JPY	1,680	JPY	8,400				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	131	23	7	2002	Scoop		SS-S-253A	E	5	JPY	980	JPY	4,900				Tuk Thla	TSC	Mr.Te Av	D	A			15
2001	E	132	23	7	2002	Recedes Depth Meter	Daikirkakouguyo	DIK-4300	E	1	JPY	140,000	JPY	140,000				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	133	23	7	2002	Recedes Depth Meter	Daikirkakouguyo	DIK-4300	E	1	JPY	140,000	JPY	140,000				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	134	23	7	2002	Chapman Flask		74-0484-0	E	20	JPY	8,600	JPY	172,000				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	135	23	7	2002	Sand Absorption Cone		SS-S-464	E	1	JPY	5,800	JPY	5,800				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	136	23	7	2002	Coarse Aggregate Hydrometer	TokyoShinohara	SS-C-468	E	1	JPY	157,000	JPY	157,000				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	137	23	7	2002	Volumetric Flask		74-0169-0	E	20	JPY	1,900	JPY	38,000				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	138	23	7	2002	Slump Tester	TokyoShinohara	SS-C-508A	E	2	JPY	22,400	JPY	44,800				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	139	23	7	2002	Rool-in Meter	TokyoShinohara	SS-C-516A	E	1	JPY	243,760	JPY	243,760				Tuk Thla	TSC	Mr.Te Av KIM	C	B			15
2001	E	140	23	7	2002	Vibrator	TokyoShinohara	SS-C-507	E	1	JPY	63,000	JPY	63,000				Tuk Thla	TSC	Mr.Te Av	C	B			15
2001	E	141	23	7	2002	Streghth Test Mould		SS-C-529B	E	3	JPY	5,200	JPY	15,600				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	142	23	7	2002	Streghth Test Mould		SS-C-529C	E	3	JPY	11,500	JPY	34,500				Tuk Thla	TSC	Mr.Te Av	D	B			15
2001	E	143	23	7	2002	Instrument Shelter	Hisanaga	H3-SF	E	1	JPY	102,000	JPY	102,000				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	144	23	7	2002	Thermo-Hydrograph, Chart Paper&Cartridge	Otakeiki	No.3, I 型	E	1	JPY	72,900	JPY	72,900				Tuk Thla	TSC	Mr.Te Av	C	A			15
2001	E	145	23	7	2002	Rain Gauge, Chart Paper& Cartridge 73-A	Ootakeiki	No.34	E	1	JPY	132,500	JPY	132,500				Tuk Thla	TSC	Mr.Te Av	A	A			15
2001	E	146	23	7	2002	Evaporation Pan	Ootakeiki	No.41	E	1	JPY	38,800	JPY	38,800				Tuk Thla	TSC	Mr.Te Av KIM		A			15
2002	E	147	12	3	2003	Water Level Logger	Topcon	RT510-W	E	1	JPY	350,000	JPY	350,000				Tuk Thla	TSC	Mr.Te Av	A	A			16
2002	E	148	12	3	2003	Water Level Logger	Topcon	RT510-W	E	1	JPY	350,000	JPY	350,000				Tuk Thla	TSC	Mr.Te Av	A	A			16
2002	E	149	12	3	2003	Card Reader			E	1	JPY	29,000	JPY	29,000				Tuk Thla	TSC	Mr.Te Av	A	A			16
2002	E	150	12	3	2003	Storage Box			E	2	JPY	49,000	JPY	98,000				Tuk Thla	TSC	Mr.Te Av	A	A			16
2002	E	151	12	3	2003	Assembly parts			E	2	JPY	330,000	JPY	660,000				Tuk Thla	TSC	Mr.Te Av	A	A			16
2002	E	152	31	3	2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E	1				USD 932.00	USD 932.00		Tuk Thla	TSC	Mr.Te Av	A	A			17	
2002	E	153	31	3	2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E	1				USD 932.00	USD 932.00		Tuk Thla	TSC	Mr.Te Av	A	A			17	
2002	E	154	31	3	2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E	1				USD 932.00	USD 932.00		Tuk Thla	TSC	Mr.Te Av	A	A			17	
2002	E	155	31	3	2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E	1				USD 932.00	USD 932.00		Tuk Thla	TSC	Mr.Te Av	A	A			17	
2002	E	156	31	3	2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E	1				USD 932.00	USD 932.00		Tuk Thla	TSC	Mr.Te Av	A	A			17	
2002	E	157	25	3	2003	Laser Jet Printer	HP	1200	E	1				USD 313.00	USD 313.00		Tuk Thla	TSC	Mr.Te Av	A	A			18	
2002	E	158	25	3	2003	Laser Jet Printer	HP	1200	E	1				USD 313.00	USD 313.00		Tuk Thla	TSC	Mr.Te Av	A	A			18	
2002	E	159	14	7	2003	Meteorological Station	JS-360, D1-015-8A	JS-360, D1-015-8A	E	1	JPY	3,204,500	JPY	3,204,500				Tuk Thla	TSC	Mr.Te Av	A	A			19
2002	E	160	14	7	2003	Hydro Scale	102257	102257	E	2	JPY	7,800	JPY	15,600				Tuk Thla	TSC	Mr.Te Av KIM		A			19
2002	E	161	14	7	2003	Truck (UNIC),Chassis No.JALPTR33M 3700 0055,Engine No.8-9439-075 (41123-0020)	ISUZU	FTR33M	E	1	JPY	7,400,000	JPY	7,400,000				Tuk Thla	TSC	Mr.Te Av KIM		C	A		19
2002	E	162	14	7	2003	Spare Parts for Truck:	ISUZU	FTR33M	E		JPY	1,480,000	JPY	1,480,000				Tuk Thla	Storehouse	Mr.Te Av	*	A	spare parts		19
2002	E	162.1				Belt: colling F 1-13671400-0				4															19
2002	E	162.2				Element Kit:Fuse 1-87810976-0				5															19
2002	E	162.3				Element: Oil filter1-13240217-0				6															19
2002	E	162.4				Element: Oil filter1-13240234-0				6															19
2002	E	162.5				Starter ASM 1-811-00345-3				1															19
2002	E	162.6				Generator ASM 1-81200522-3				1															19

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2003	E	180	9 4	2004	Step-down Transformer			for Water-level Meter	E 1	JPY	13,000	JPY	13,000			Tuk Thla	TSC	Mr.Te Av	C	A		20
2003	E	181	9 4	2004	Battery Box			for Water-level Meter	E 1	JPY	22,000	JPY	22,000			Tuk Thla	TSC	Mr.Te Av	A	A		20
2003	E	182	9 4	2004	Manual (English/Japanese)	Ogasawara Keki		for Water-level Meter	E 1	JPY	172,000	JPY	172,000			Tuk Thla	TSC	Mr.Te Av	C	A		20
2003	E	183	29 7	2004	Dump Truck, Chassis No.FH215C-A00157	Mitsubishi		FH215CDBL	E 1	JPY	2,880,000	JPY	2,880,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	184	29 7	2004	Spare Parts for Dump Truck:	Mitsubishi		for FH215CDBL		JPY	288,000	JPY	288,000			Tuk Thla	TSC	Mr.Te Av	*	A	spare parts	21
2003	E	184.1			Gasket kit ME995382				1													21
2003	E	184.2			Element Air ME073160				2													21
2003	E	184.3			Jack Oil MH060003(7T)				1													21
2003	E	184.4			Handle MH 060033				1													21
2003	E	184.5			Linning Kit MK428816				1													21
2003	E	184.6			Shoa&Linning MCB37658				2													21
2003	E	184.7			Fuel FilterME016841				2													21
2003	E	184.8			Oil Filter ME034611				3													21
2003	E	184.9			Belt Alter ME902741				1													21
2003	E	184.10			Hose MC447476				1													21
2003	E	184.11			HoseMC018128				1													21
2003	E	184.12			Hose ME290143				1													21
2003	E	184.13			Hose MC064315				1													21
2003	E	184.14			Hose ME290097				1													21
2003	E	184.15			Dust Seal ME036562				10													21
2003	E	184.16			M/Cyl MC809496				1													21
2003	E	184.17			Hose MC424443				1													21
2003	E	184.18			Hose ME290064				1													21
2003	E	184.19			Hose ME291205				1													21
2003	E	184.20			Hose MC449993				1													21
2003	E	184.21			Hose MH030882				1													21
2003	E	184.22			Rubber MR300008				2													21
2003	E	184.23			Hose MH033251				2													21
2003	E	184.24			Hose MH033236				1													21
2003	E	184.25			Hose MH030885				1													21
2003	E	184.26			Hose ME290144				1													21
2003	E	184.27			Hose MH033267				1													21
2003	E	184.28			Hose MC414557				1													21
2003	E	184.29			Hose MC435571				1													21
2003	E	184.30			Hose MC432404				1													21
2003	E	184.31			Pipe Tank ME290129				1													21
2003	E	184.32			Bulb MH056201				4													21
2003	E	184.33			W/Cyl MC808925				1													21
2003	E	184.34			Boot ME636074				1													21
2003	E	184.35			Hose MC418411				1													21
2003	E	184.36			Kit safety MC822593				1													21
2003	E	184.37			Brush ME701452				2													21
2003	E	184.38			Gasket MH035000				20													21
2003	E	184.39			Gasket MH035018				10													21
2003	E	184.40			Gasket MH035007				10													21
2003	E	184.41			Gasket MF660064				10													21
2003	E	184.42			Gasket MH035006				10													21
2003	E	184.43			Gasket 3096102300				6													21
2003	E	184.44			Tool Box MC420083				1													21
2003	E	184.45			Tool Box MC458344				1													21
2003	E	185	29 7	2004	Total Station	TOPCON		GTS 229, Main unit	E 1	JPY	742,000	JPY	742,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	186	29 7	2004	Tripod	TOPCON		TP-110	E 1	JPY	18,500	JPY	18,500			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	187	29 7	2004	Compass	TOPCON		Type 6	E 1	JPY	8,900	JPY	8,900			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	188	29 7	2004	Reflector	TOPCON			E 1	JPY	114,000	JPY	114,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	189	29 7	2004	Reflector	TOPCON			E 1	JPY	114,000	JPY	114,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	190	29 7	2004	Transit Compass	TOPCON		Trough Compass-3	E 1	JPY	5,000	JPY	5,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	191	29 7	2004	Transit Compass	TOPCON		Trough Compass-3	E 1	JPY	5,000	JPY	5,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	192	29 7	2004	Transit Compass	TOPCON		Trough Compass-3	E 1	JPY	5,000	JPY	5,000			Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	193	29 7	2004	Current Meter	SANEI SOKURYOUKI		Type 3	E 1	JPY	254,000	JPY	254,000			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	194	29 7	2004	Tape Measure (main unit)	Hisanaga		Expert (Main Unit) STE-100	E 1	JPY	27,300	JPY	27,300			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	195	29 7	2004	Tape Measure (main unit)	Hisanaga		Expert (Main Unit) STE-101	E 1	JPY	27,300	JPY	27,300			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	196	29 7	2004	Tape Measure (Clamp Handle)	Hisanaga		CLH-S	E 1	JPY	1,000	JPY	1,000			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	197	29 7	2004	Tape Measure (Clamp Handle)	Hisanaga		CLH-S	E 1	JPY	1,000	JPY	1,000			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	198	29 7	2004	Tape Measure (Thermometer for measure)	Hisanaga		GRH-S	E 1	JPY	6,000	JPY	6,000			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	199	29 7	2004	Tape Measure (Thermometer for measure)	Hisanaga		GRH-S	E 1	JPY	6,000	JPY	6,000			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	200	29 7	2004	Tape Measure (Spring Balance)	Hisanaga		SPB	E 1	JPY	4,300	JPY	4,300			Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	201	29 7	2004	Tape Measure (Spring Balance)	Hisanaga		SPB	E 1	JPY	4,300	JPY	4,300			Tuk Thla	TSC	Mr.Te Av	D	A		21

2003	E	202	29 7	2004	Tape Measure	Hisanaga	NS-50H	E	1	JPY	7,500	JPY	7,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	203	29 7	2004	Tape Measure	Hisanaga	NS-50H	E	1	JPY	7,500	JPY	7,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	204	29 7	2004	Tape Measure	Hisanaga	NS-50H	E	1	JPY	7,500	JPY	7,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	205	29 7	2004	Curvimeter	Hisanaga	6936	E	1	JPY	2,300	JPY	2,300				Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	206	29 7	2004	Curvimeter	Hisanaga	6936	E	1	JPY	2,300	JPY	2,300				Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	207	29 7	2004	Curvimeter	Hisanaga	6936	E	1	JPY	2,300	JPY	2,300				Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	208	29 7	2004	Curvimeter	Hisanaga	6936	E	1	JPY	2,300	JPY	2,300				Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	209	29 7	2004	Curvimeter	Hisanaga	6936	E	1	JPY	2,300	JPY	2,300				Tuk Thla	TSC	Mr.Te Av	D	A		21
2003	E	210	29 7	2004	Distance Meter	Hisanaga	MODEL-2	E	1	JPY	33,700	JPY	33,700				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	211	29 7	2004	Level Gauge	Hisanaga	E-30	E	1	JPY	2,500	JPY	2,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	212	29 7	2004	Level Gauge	Hisanaga	E-30	E	1	JPY	2,500	JPY	2,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	213	29 7	2004	Level Gauge	Hisanaga	E-30	E	1	JPY	2,500	JPY	2,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	214	29 7	2004	Staff Table	Hisanaga	SSB-S	E	1	JPY	1,300	JPY	1,300				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	215	29 7	2004	Staff Table	Hisanaga	SSB-S	E	1	JPY	1,300	JPY	1,300				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	216	29 7	2004	Staff Table	Hisanaga	SSB-S	E	1	JPY	1,300	JPY	1,300				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	217	29 7	2004	Binocular	Hisanaga	UCF ZOOM	E	1	JPY	24,500	JPY	24,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	218	29 7	2004	Binocular	Hisanaga	UCF ZOOM	E	1	JPY	24,500	JPY	24,500				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	219	29 7	2004	Stand	Hisanaga	SS-01	E	1	JPY	14,300	JPY	14,300				Tuk Thla	TSC	Mr.Te Av	C	A		21
2003	E	220	27 2	2005	Standard Tool for Dump Truck	Mitsubishi		E	1	JPY	71,242	JPY	71,242				Tuk Thla	TSC	Mr.Te Av	C	A		22
2004	E	221	18 5	2005	Boat for Observation Study		FMI-305	E	1	JPY	156,000	JPY	156,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	222	18 5	2005	Electric Pump			E	1	JPY	4,500	JPY	4,500				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	223	18 5	2005	Equipment for Inspection			E	1	JPY	39,000	JPY	39,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	224	18 5	2005	Kit for Repair			E	1	JPY	3,000	JPY	3,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	225	18 5	2005	Outboat Motor		E8DMH-S	E	1	JPY	150,000	JPY	150,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	226	18 5	2005	Manual (English/Japanese)			E	1	JPY	2,500	JPY	2,500				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	227	18 5	2005	Service Manual (English,Japanese)			E	1	JPY	5,000	JPY	5,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	228	18 5	2005	Spare Parts for out boat motor:			E		JPY	15,000	JPY	15,000				Tuk Thla	TSC	Mr.Te Av	*	A	spare parts	23
2004	E	228.1			Ignition Coil Assy				1														23
2004	E	228.2			Gasket				2														23
2004	E	228.3			Calibrator repair kit				1														23
2004	E	228.4			Water Pump Repair kit				1														23
2004	E	228.5			Plug Spark				10														23
2004	E	229	18 5	2005	Hydraulic Excavator,Engine No.	Caterpillar	CAT303CR	E	1	JPY	2,945,000	JPY	2,945,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	230	18 5	2005	Quick Coupler	Caterpillar		E	1	JPY	256,000	JPY	256,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	231	18 5	2005	Bucket for Excavator	Caterpillar		E	1	JPY	69,000	JPY	69,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	232	18 5	2005	Service Manual	Caterpillar		E	1	JPY	3,000	JPY	3,000				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	233	18 5	2005	Spare Parts for excavator:	Caterpillar											Tuk Thla	TSC	Mr.Te Av	*	A	spare parts	23
2004	E	233.1			1992239 Filter A				8	JPY	2,350	JPY	18,800						Mr.Te Av				23
2004	E	233.2			1992286 Element A				4	JPY	8,000	JPY	32,000						Mr.Te Av				23
2004	E	233.3			1208757 Filter				4	JPY	16,400	JPY	65,600						Mr.Te Av				23
2004	E	233.4			1467472 Element				2	JPY	9,500	JPY	19,000						Mr.Te Av				23
2004	E	233.5			1710493 Element A				2	JPY	5,950	JPY	11,900						Mr.Te Av				23
2004	E	233.6			1429572 Bulb				8	JPY	3,130	JPY	25,040						Mr.Te Av				23
2004	E	233.7			1992376 V Belt				4	JPY	1,340	JPY	5,360						Mr.Te Av				23
2004	E	233.8			2466823 Belt A				2	JPY	28,200	JPY	56,400						Mr.Te Av				23
2004	E	233.9			2028432 Side Cutter				4	JPY	5,000	JPY	20,000						Mr.Te Av				23
2004	E	233.10			2028431 Side Cutter				4	JPY	5,000	JPY	20,000						Mr.Te Av				23
2004	E	233.11			7X2553 Bolt				24	JPY	500	JPY	12,000						Mr.Te Av				23
2004	E	233.12			9X8257 Washer				24	JPY	90	JPY	2,160						Mr.Te Av				23
2004	E	233.13			8T4132 Nut				24	JPY	260	JPY	6,240						Mr.Te Av				23
2004	E	234	18 5	2005	Measuring Rope		5469	E	2	JPY	7,900	JPY	15,800				Tuk Thla	TSC	Mr.Te Av	C	A		23
2004	E	235	18 5	2005	Weight for Rope		5480	E	2	JPY	3,350	JPY	6,700				Tuk Thla	TSC	Mr.Te Av	C	A		23
2005	E	236	27 10	2005	Spare Parts for Back Hoe	Caterpillar	312C	E									Tuk Thla	Storehouse	Mr.Te Av	*	A	spare parts	24
2005	E	236.1			Air filter (secondary)		Parts No.131-8902		6					USD	95.00	USD	570.00						24
2005	E	236.2			Air filter (prim)		Parts No.131-8903		3					USD	52.00	USD	156.00						24
2005	E	236.3			Hydraulic filter		Parts No.518670		10					USD	32.00	USD	320.00						24
2005	E	236.4			Hydraulic filter		Parts No.093-7521		10					USD	50.00	USD	500.00						24
2005	E	236.5			Nut (m14 x2thd)		Parts No.096-4876		100					USD	0.68	USD	68.00						24
2005	E	236.6			Bolt		Parts No.099-0707		10					USD	5.91	USD	59.10						24
2005	E	236.7			Bolt		Parts No.099-0724		20					USD	5.35	USD	107.00						24
2005	E	236.8			Ring (96 mm)		Parts No.093-1342		40					USD	7.64	USD	305.60						24
2005	E	236.9			Fuel filter		Parts No.1R0751		10					USD	25.00	USD	250.00						24
2005	E	236.1			Oil filter		Parts No.1R0739		10					USD	22.00	USD	220.00						24
2005	E	237	2 11	2005	Spare Parts for Bulldozer	Caterpillar	D5M	E									Tuk Thla	Storehouse	Mr.Te Av	*	A	spare parts	24

2005	E	237.1				Fuel filter		Parts No.1R0751		10			USD	25.00	USD	250.00							24
2005	E	237.2				Oil filter		Parts No.1R0739		10			USD	22.00	USD	220.00							24
2005	E	237.3				Air filter		Parts No.612499		3			USD	78.00	USD	234.00							24
2005	E	237.4				Air filter		Parts No.612500		2			USD	90.00	USD	180.00							24
2005	E	238	27	10	2005	Spare Parts for Crawler Carrier	Komatsu	CD60R-1A		E							Tuk Thla	Storehouse	Mr.Te Av	*	A	spare parts	24
2005	E	238.1				Oil Filter		6735-51-5143		10			USD	28.97	USD	289.70							24
2005	E	238.2				Fuel Filter		6732-71-6112		6			USD	32.25	USD	193.50							24
2005	E	238.3				Air Cleaner		600-181-6740		3			USD	223.97	USD	671.91							24
2005	E	238.4				Hydraulic Tanks		07063-51054		9			USD	68.23	USD	614.07							24
2005	E	239	18	11	2005	Spare Parts for Denyo Air Compressor	Denyo			E							Tuk Thla	Storehouse	Mr.Te Av	*	A	spare parts	24
2005	E	239.1				Pin Handle		61458-34004		1			USD	140.00	USD	140.00							24
2005	E	239.2				Spring Handle		00400-30000		1			USD	39.00	USD	39.00							24
2005	E	239.3				Hexagon Tanks		00300-30000		2			USD	40.50	USD	81.00							24
Total												JPY	128,322,277			USD	155,526.88						
												Total USD	1,224,879.19				/ JPY	146,985,503					1\$= ¥ 120

List of Equipment

Spare Parts

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Condition	Reason of idle
		Item	Manufacture	Model Number	R/P						Location	Person in charge		
2001 E 051	21 12 2001	Spare Parts for Crawler Carrier			E		JPY 850,035	JPY 850,035			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 053	21 12 2001	Spare Parts for Concrete Breaker			E		JPY 2,800	JPY 2,800			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 056	21 12 2001	Spare Parts for Air Compressor			E		JPY 272,000	JPY 272,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 058	21 12 2001	Spare Parts for Generator			E		JPY 328,000	JPY 328,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 061	28 12 2001	Spare Part for 312C & Bulldozer D5M XL			E		JPY 2,700,000	JPY 2,700,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 064	28 12 2001	Spare Parts for 115AD&75S			E		JPY 400,000	JPY 400,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 066	25 2 2002	Spare Parts for Dump Truck			E		JPY 272,000	JPY 272,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 162	14 7 2003	Spare Parts for Truck			E		JPY 1,480,000	JPY 1,480,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 164	14 7 2003	Spare Parts for Bulldozer			E		JPY 2,500,000	JPY 2,500,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 166	14 7 2003	Spare Part for Truck			E		JPY 2,720,000	JPY 2,720,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 168	14 7 2003	Spare Parts for Plotter			E		JPY 97,000	JPY 97,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2003 E 184	29 7 2004	Spare Parts for Dump Truck	Mitsubishi	for FH215CDBL	E		JPY 288,000	JPY 288,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2004 E 228	18 5 2005	Spare Parts for out boat motor:			E		JPY 15,000	JPY 15,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2004 E 233	18 5 2005	Spare Parts for excavator:	Caterpillar				JPY 294,500	JPY 294,500			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
	27 10 2005	Spare Parts for Back Hoe:	Caterpillar	312C	E				USD 2,555.70	USD 2,555.70	Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2005 E 236				D5M					USD 884.00	USD 884.00	Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2005 E 237	2 11 2005	Spare Parts for Bulldozer:	Caterpillar		E						Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
	27 10 2005			CD60R-1A					USD 1,769.18	USD 1,769.18	Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2005 E 238		Spare Parts for Crawler Carrier:	Komatsu		E						Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2005 E 239	11 2005	Spare Parts for Denyo Air Compressor	Denyo		E				USD 260.00	USD 260.00	Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts

5-3. Provision of Equipment by Japanese side

5-3-2. 1) Equipment for JICA Experts

Note: R/P: Route of Procurement (J: Equipment for JICA Experts)

Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year)

Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description			R/P	QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number							Location	Person in charge			
2000 J 001	14 3 2001	Paddy Field Receded Tester	Daiki	DIK-4300	J	1			USD 1,875.00	USD 1,875.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 002	14 3 2001	Laptop Computer	IBM	ThinkPad I Series 1800	J	1			USD 2,408.00	USD 2,408.00	Tuk Thia TSC	Mr. Te Av KIM	-	C	since May 2003, broken
2000 J 003	14 3 2001	Laptop Computer	IBM	ThinkPad I Series 1800	J	1			USD 2,408.00	USD 2,408.00	Tuk Thia TSC	Mr. Te Av KIM	A	B	
2000 J 004	14 3 2001	Color Printer	Canon	BJ-F6600	J	1			USD 307.00	USD 307.00	Tuk Thia TSC	Mr. Te Av KIM	B	B	
2000 J 005	14 3 2001	Color Scanner	Canon	CanoScan N1220U	J	1			USD 140.00	USD 140.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 006	14 3 2001	Wireless Print Server	BUFFALO	AirP's LPV-WL11	J	1			USD 192.00	USD 192.00	Tuk Thia TSC	Mr. Te Av KIM	-	C	since May 2001, broken
2000 J 007	14 3 2001	Wireless Lan Station	BUFFALO	AirStation WLAR-L11-M	J	1			USD 275.00	USD 275.00	Tuk Thia TSC	Mr. Te Av KIM	-	C	since April 2003, broken
2000 J 008	14 3 2001	Digital Camera	Canon	IXY Digital	J	1			USD 492.00	USD 492.00	Tuk Thia TSC	Mr. Te Av KIM	-	C	since Jan 2005, broken
2000 J 009	14 3 2001	Laptop Computer	Fujitsu	FMV-BIBLO NE5/650R	J	1			USD 2,292.00	USD 2,292.00	Tuk Thia TSC	Mr. Te Av KIM	C	C	
2000 J 010	14 3 2001	Laptop Computer	IBM	ThinkPad I Series 1800	J	1			USD 1,917.00	USD 1,917.00	Tuk Thia TSC	Mr. Te Av KIM	-	C	since May 2003, broken
2000 J 011	14 3 2001	Glassfibre Tape Measure 50m	KDS	211-1952	J	1			USD 48.00	USD 48.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 012	14 3 2001	Measure Rope 100m	Sekisui	210-1603	J	1			USD 90.00	USD 90.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 013	14 3 2001	Aluminum Measurement Rod	Harakeikisha	252-2135	J	1			USD 79.00	USD 79.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 015	14 3 2001	Current Meter	Harakeikisha	type 10	J	1			USD 2,250.00	USD 2,250.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 016	14 3 2001	Curve Ruler	Harakeikisha	103-2011	J	1			USD 150.00	USD 150.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 017	14 3 2001	Drawing Instruments	Harakeikisha	120-3581	J	1			USD 111.00	USD 111.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 018	14 3 2001	Barometer	Harakeikisha	271-3581	J	1			USD 350.00	USD 350.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2000 J 019	14 3 2001	Iron Spirit Level	Harakeikisha	4621	J	1			USD 34.00	USD 34.00	Tuk Thia TSC	Mr. Te Av KIM	C	B	
2001 J 020	27 4 2001	Laptop Computer	NEC	LAVIEC LC700J/64DR	J	1			USD 2,067.00	USD 2,067.00	Tuk Thia TSC	Mr. Te Av KIM	D	B	
2001 J 021	21 12 2001	Computer Software	Sokia	12D-Earthworks 50K Base	J	1			USD 1,920.00	USD 1,920.00	Tuk Thia TSC	Mr. Te Av KIM	D	B	
2001 J 022	21 12 2001	Computer Software	Autodesk	Autocad2002	J	1			USD 4,144.00	USD 4,144.00	Tuk Thia TSC	Mr. Te Av KIM	D	B	
2001 J 023	21 12 2001	Color Printer	HP	desk jet 1125C	J	1			USD 399.00	USD 399.00	Tuk Thia TSC	Mr. Te Av KIM	C	B	
2001 J 024	19 3 2002	Mechanical Tool Set	KQ6010	KQ6010	J	1			USD 2,520.00	USD 2,520.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 025	12 11 2002	Plate Table Set	Tamaya	TPT-SET	J	1			USD 292.00	USD 292.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 026	28 4 2003	Digital Camera	FUJIFILM	DS-260HD	J	1			USD 1,070.00	USD 1,070.00	Tuk Thia TSC	Mr. Te Av KIM	A	B	
2002 J 027	28 4 2003	Super Plate	TOPCON	SUP-S	J	1			USD 270.00	USD 270.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 028	5 5 2003	Current Meter	Cat.No.3-2	Cat.No.3-2	J	1			USD 3,000.00	USD 3,000.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 029	5 5 2003	GPS	e-Trex Vista	e-Trex Vista	J	1			USD 542.00	USD 542.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 030	5 5 2003	GPS	e-Trex Vista	e-Trex Vista	J	1			USD 542.00	USD 542.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 031	5 5 2003	GPS	e-Trex Vista	e-Trex Vista	J	1			USD 542.00	USD 542.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2002 J 032	5 5 2003	Mirror Stereoscope	Type III	Type III	J	1			USD 1,186.00	USD 1,186.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2003 J 033	26 5 2003	Laptop Computer	Toshiba	DynaBook V7513LMDW	J	1			USD 3,000.00	USD 3,000.00	Tuk Thia TSC	Mr. Te Av KIM	A	A	
2003 J 034	14 7 2003	Total Station	Topcon	GTS-229	J	1			USD 8,600.00	USD 8,600.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2003 J 035	14 7 2003	Prisms Target for Total Station	Topcon		J	1			USD 1,300.00	USD 1,300.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2003 J 036	14 7 2003	Prisms Target for Total Station	Topcon		J	1			USD 1,300.00	USD 1,300.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2003 J 037	21 12 2003	Desktop Computer with 17 inch Monitor	NEC	Value Star PC-VC500/7D	J	1	JPY 264,000	JPY 264,000			Tuk Thia TSC	Mr. Te Av KIM	A	A	
2003 J 038	21 12 2003	Extension Memory 512MB	Princeton	PDD333-512	J	1	JPY 20,000	JPY 20,000			Tuk Thia TSC	Mr. Te Av KIM	A	A	
2003 J 039	21 12 2003	Extension Memory 512MB	Princeton	PDD333-512	J	1	JPY 20,000	JPY 20,000			Tuk Thia TSC	Mr. Te Av KIM	A	A	
2003 J 040	21 12 2003	Hard Disk Drive	Buffalo	DIU2-B160GB	J	1	JPY 27,000	JPY 27,000			Tuk Thia TSC	Mr. Te Av KIM	A	A	
2003 J 041	31 3 2004	Digital Depth Sounder with accessory kit	Hondex	PS-7FL 90101	J	1			USD 529.00	USD 529.00	Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 042	11 4 2004	Desktop Computer with 17 inch Monitor	Fujitsu	Value Star PC-VC500/7D	J	1	JPY 298,000	JPY 298,000			Tuk Thia TSC	Mr. Te Av KIM	A	A	
2004 J 043	11 4 2004	Hard Disk Drive	Buffalo	HD-250IU2	J	1	JPY 33,200	JPY 33,200			Tuk Thia TSC	Mr. Te Av KIM	A	A	
2004 J 044	5 5 2004	Rack Stick for Concrete Testing Machine	Amsler Type	Amsler Type	J	1	JPY 61,200	JPY 61,200			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 045	5 5 2004	Joint Cable for Digital Current Meter	for UCM-1, sensor	for UCM-1, sensor	J	1	JPY 30,000	JPY 30,000			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 046	5 5 2004	Notebook Computer	Toshiba	Dynabook PAVX1W15LEDW	J	1	JPY 270,000	JPY 270,000			Tuk Thia TSC	Mr. Te Av KIM	A	B	Display failure, use USB display
2004 J 047	21 10 2004	Target Plate	Topcon	Targetplate-3	J	1	JPY 24,700	JPY 24,700			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 048	21 10 2004	Prism Adapter	Topcon	S2	J	1	JPY 21,680	JPY 21,680			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 049	21 10 2004	Tribrach w/Optical Plummet wild Type	Topcon		J	1	JPY 44,800	JPY 44,800			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 050	21 10 2004	Aluminium Tripod	Topcon	TP-110	J	1	JPY 24,500	JPY 24,500			Tuk Thia TSC	Mr. Te Av KIM	C	A	Reserved as spare
2004 J 051	7 10 2004	Notebook Computer	IBM	Thinkpad T41-2373-7KA	J	1			USD 1,785.00	USD 1,785.00	Tuk Thia TSC	Mr. Te Av KIM	A	A	
2004 J 052	9 3 2004	Sand Density Apparatus	LS-499	LS-499	J	1	JPY 66,600	JPY 66,600			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 053	9 3 2004	Sand Density Apparatus	LS-499	LS-499	J	1	JPY 66,600	JPY 66,600			Tuk Thia TSC	Mr. Te Av KIM	C	A	
2004 J 054	9 3 2004	Sieve		75,106,250,425,850µm,2.4,74mm	J	1	JPY 44,700	JPY 44,700			Tuk Thia TSC	Mr. Te Av KIM	D	A	
2004 J 055	9 3 2004	Sieve		9.5,19,26.5,37.5,53mm	J	1	JPY 33,700	JPY 33,700			Tuk Thia TSC	Mr. Te Av KIM	D	A	
2004 J 056	9 3 2004	Sieve		75,150,300,600µm,1.18,1.7,2.36,4.75mm	J	1	JPY 50,400	JPY 50,400			Tuk Thia TSC	Mr. Te Av KIM	D	A	
2004 J 057	9 3 2004	Sieve		9.5,16,19,26.5,31.5,37.5,53,63,75,106	J	1	JPY 56,600	JPY 56,600			Tuk Thia TSC	Mr. Te Av KIM	D	A	
2005 J 058	11 11 2005	ROM for English display	Advan Tec		J	1	JPY 31,500	JPY 31,500			Tuk Thia TSC	Mr. Te Av KIM	A	A	
Total:								JPY 1,489,180		USD 50,426					
										Total USD 62,835.83 / JPY 7,540,300	1\$=¥120				

5-3. Provision of Equipment by Japanese side

5-3-2. 2) Books

Note: R/P: Route of Procurement (J: Equipment for JICA Experts)

Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year)

Condition (A: Good - B: Fair - C: Bad)

Condition		(A: Good - B: Fair - C: Bad)																		Place of Storage		Frequency of Use	Condition	Remarks							
No.	Date of Arrival	Description										Model Number	R/P	QTY.	Unit Price JPY		S-total JPY		Unit Price US\$		S-total US\$		Location	Person in charge							
		Item	Manufacture												Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$													
2000	J	001	16	3	2001	Nougyo suiri enshuu・nougyo suimonn	Korona sha									J	1	JPY	2,300	JPY	2,300	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	002	16	3	2001	Nougyo suiri enshuu・kangai	Korona sha									J	1	JPY	1,751	JPY	1,751	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	003	16	3	2001	Nougyo suiri	Jikkoyou shuppan									J	1	JPY	645	JPY	645	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	004	16	3	2001	Nougyo suiri sisutemu no kanri	Nougyou doboku kikaika kyokukai									J	1	JPY	4,000	JPY	4,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	005	16	3	2001	Nougyo doboku sekou	Jikkoyou shuppan									J	1	JPY	1,140	JPY	1,140	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	006	16	3	2001	Nougyo doboku sekou tore-ningu	Korona sha									J	1	JPY	1,400	JPY	1,400	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	007	16	3	2001	Nougyo doboku sekkei tore-ningu	Korona sha									J	1	JPY	1,400	JPY	1,400	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	008	16	3	2001	Suimon kansoku	Zennihon kensetu gijutu kyokukai									J	1	JPY	2,900	JPY	2,900	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	009	16	3	2001	Suiri kousiki reidaishuu	Doboku gakkai									J	1	JPY	7,000	JPY	7,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	010	16	3	2001	Dositu siken	Jiban kougakukai									J	1	JPY	1,429	JPY	1,429	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	011	16	3	2001	Dositu rikigaku no kiso	Gihoudou shuppan									J	1	JPY	3,000	JPY	3,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	012	16	3	2001	Dositu kougaku enshuu note	Nihon rikou shuppan kai									J	1	JPY	2,400	JPY	2,400	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	013	16	3	2001	Dositu siken no tebiki	Doboku gakkai									J	1	JPY	1,262	JPY	1,262	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	014	16	3	2001	Konkuri-to binran	Gihoudou shuppan									J	1	JPY	30,900	JPY	30,900	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	015	16	3	2001	Konkuri-to hyoujun sihouso sekkeihen	Doboku gakkai									J	1	JPY	5,340	JPY	5,340	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	016	16	3	2001	Konkuri-to hyoujun sihouso sekouhen	Doboku gakkai									J	1	JPY	5,340	JPY	5,340	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	017	16	3	2001	Konkuri-to hyoujun sihouso kijunhen	Doboku gakkai									J	1	JPY	6,000	JPY	6,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	018	16	3	2001	Doboku Seizu	Korona sha									J	1	JPY	2,500	JPY	2,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	019	16	3	2001	Chikeizu no Seizu to Tore-su	Rikougakusha									J	1	JPY	2,800	JPY	2,800	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	020	16	3	2001	Gendai Sokuryo gaku (I)	Chikyuu Sha									J	1	JPY	4,300	JPY	4,300	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	021	16	3	2001	Gendai Sokuryo gaku (II)	Chikyuu Sha									J	1	JPY	4,429	JPY	4,429	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	022	16	3	2001	TS・GPS ni yoru kijun ten sokuryou	Touyou shoten									J	1	JPY	2,800	JPY	2,800	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	023	16	3	2001	Nougyou sokuryou	Jikkoyou shuppan									J	1	JPY	1,400	JPY	1,400	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	024	16	3	2001	Sokuryou jissuu yougo jiten	Sankaidou									J	1	JPY	3,500	JPY	3,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	025	16	3	2001	Sokuryou jissuu sidousho	Doboku Gakkai									J	1	JPY	1,400	JPY	1,400	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	026	16	3	2001	Yokuwakaru dobokukouji sekisan no jiturei	Kougaku Shuppan									J	1	JPY	3,495	JPY	3,495	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	027	16	3	2001	yokuwakaru dobokushoukouzoubutu no sekkei to keisan	Kougaku Shuppan									J	1	JPY	3,200	JPY	3,200	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	028	16	3	2001	Tochikairyou kouji no sekisan to sekou	Tatemono Bukka chousa kai									J	1	JPY	5,048	JPY	5,048	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	029	16	3	2001	Suiri sisetukanri no riron to jitemu	Chikyuu Sha									J	1	JPY	3,914	JPY	3,914	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	030	16	3	2001	Haisou sisutemu kaisei nyuumon	Gihoudou shuppan									J	1	JPY	2,500	JPY	2,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	031	16	3	2001	Nouka ni dekiru ankyo haisui	Noubunkyou									J	1	JPY	1,500	JPY	1,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	032	16	3	2001	Ouyou chisitu yougoshuu	Touyoushoten									J	1	JPY	3,806	JPY	3,806	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	033	16	3	2001	Nougyou doboku yougoshuu	Touyoushoten									J	1	JPY	3,900	JPY	3,900	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	034	16	3	2001	Sekai no kangai to haisui	Ieno hikari kyokukai									J	1	JPY	4,120	JPY	4,120	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	035	16	3	2001	Shoukibokangai to yousui kigu	Nougyou doboku jigyou kyokukai									J	1	JPY	3,000	JPY	3,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	036	16	3	2001	Tochi kairyou jigyou sekkei isisin tameike seibi	Nougyou doboku gakkai									J	1	JPY	3,200	JPY	3,200	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	037	16	3	2001	Reforming water resources policy	FAO									J	1	JPY		JPY		US\$	11.00	US\$	11.00	Tuk Thla	TSC	Mr.Te Av KIM	C	A	
2000	J	038	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun nougyou yousui suiden	Nougyou doboku gakkai									J	1	JPY	2,340	JPY	2,340	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	039	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun nougyou yousui hatake	Nougyou doboku gakkai									J	1	JPY	4,500	JPY	4,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	040	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun suion suisitu	Nougyou doboku gakkai									J	1	JPY	960	JPY	960	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	041	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun keikaku haisui	Nougyou doboku gakkai									J	1	JPY	2,130	JPY	2,130	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	042	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun hojou seibi suiden	Nougyou doboku gakkai									J	1	JPY	5,000	JPY	5,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	043	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun hojou seibi hatake	Nougyou doboku gakkai									J	1	JPY	1,320	JPY	1,320	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	044	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun noudou	Nougyou doboku gakkai									J	1	JPY	1,930	JPY	1,930	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	045	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun toushukou	Nougyou doboku gakkai									J	1	JPY	5,600	JPY	5,600	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	046	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun suirokou sono1	Nougyou doboku gakkai									J	1	JPY	3,460	JPY	3,460	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	047	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun suirokou	Nougyou doboku gakkai									J	1	JPY	8,000	JPY	8,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	048	16	3	2001	Tochi kairyou jigyou keikaku sekkei kijun noudou	Nougyou doboku gakkai									J	1	JPY	8,900	JPY	8,900	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	049	16	3	2001	konkuri-to kouji poketto bukku	Sankaidou									J	1	JPY	3,800	JPY	3,800	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	050	16	3	2001	Hinsitukanri to ISO poketto bukku	Sankaidou									J	1	JPY	3,600	JPY	3,600	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	051	16	3	2001	Doboku sekou kanri poketto bukku	Sankaidou									J	1	JPY	3,700	JPY	3,700	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	052	16	3	2001	Kasen kouji poketto bukku	Sankaidou									J	1	JPY	4,500	JPY	4,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	053	16	3	2001	Dokouji pokettobukku	Sankaidou									J	1	JPY	4,500	JPY	4,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	054	16	3	2001	Anzen kanri poketto bukku	Sankaidou									J	1	JPY	4,000	JPY	4,000	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		
2000	J	055	16	3	2001	Survey Research Methods	Wadsworth Publishing Company									J	1	JPY		JPY		US\$	60.00	US\$	60.00	Tuk Thla	TSC	Mr.Te Av KIM	C	A	
2000	J	056	16	3	2001	Designing and Conducting Survey Research	Jossey-Bass Publishers									J	1	JPY		JPY		US\$	35.00	US\$	35.00	Tuk Thla	TSC	Mr.Te Av KIM	C	A	
2000	J	057	16	3	2001	Managing Canal Irrigation	Cambridge University Press									J	1	JPY		JPY		US\$	32.00	US\$	32.00	Tuk Thla	TSC	Mr.Te Av KIM	C	A	
2001	J	001	26	4	2001	Nougyou doboku handobukku	Nougyou doboku gakkai									J	1	JPY	22,500	JPY	22,500	US\$		US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A		

No.	Date of Arrival	Description				QTY.	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2001 L 001	3 9 2001	Koukouzou no sekkei	O-mu sha		L	1	JPY 2,800	JPY 2,800	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 002	3 9 2001	Dobokusekou	O-mu sha		L	1	JPY 2,400	JPY 2,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 003	3 9 2001	Dobokusekou kanri	O-mu sha		L	1	JPY 2,500	JPY 2,500	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 004	3 9 2001	Doboku keikaku	O-mu sha		L	1	JPY 2,500	JPY 2,500	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 005	3 9 2001	Suirigaku	O-mu sha		L	1	JPY 2,600	JPY 2,600	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 006	3 9 2001	Tekkinn konkuri-to no sekkei	O-mu sha		L	1	JPY 2,400	JPY 2,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 007	3 9 2001	Dositu konkuri-to siken handobukku	O-mu sha		L	1	JPY 3,500	JPY 3,500	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 008	3 9 2001	Dositu rikigaku	O-mu sha		L	1	JPY 2,500	JPY 2,500	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 009	3 9 2001	Konkuri-to	O-mu sha		L	1	JPY 2,400	JPY 2,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 010	26 11 2001	Mechanics of Fluids	McGRAW-HILL		L	1	JPY	JPY	US\$ 77.50	US\$ 77.50	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2001 L 011	26 11 2001	Hydrology for Engineers	McGRAW-HILL		L	1	JPY	JPY	US\$ 59.75	US\$ 59.75	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 E 001	14 7 2003	Douro kouzourei no kaisetu to unyou	Nihon douro kyokukai		E	1	JPY 3,000	JPY 3,000	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 E 002	14 7 2003	kaitei kaisetu kasen kanri sisetutu kouzourei	Nihon kasen kyokukai yamakawadou		E	1	JPY 3,700	JPY 3,700	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 001	3 7 2002	Nougyou doboku handobukku	Nougyou doboku kyokukai		J	1	JPY 22,500	JPY 22,500	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 002	3 7 2002	2002nendo JIS handobukku doboku I konkuri-to seihin	Nihon kikaku kyokukai		J	1	JPY 7,200	JPY 7,200	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 003	3 7 2002	2003nendo JIS handobukku doboku III dobokusizaihoka	Nihon kikaku kyokukai		J	1	JPY 8,000	JPY 8,000	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 004	3 7 2002	Eiyaku JIS handobukku QUALITY-2000	Nihon kikaku kyokukai		J	1	JPY 14,000	JPY 14,000	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 005	17 9 2002	Water Supply Management	Kluwer Academic Publishers		J	1	JPY 29,400	JPY 29,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 006	17 9 2002	Handbook of Hydraulics	Mc Grew Hill		J	1	JPY 15,830	JPY 15,830	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 007	17 9 2002	Hydrology and Hydraulic Systems	Waveland Press Inc.		J	1	JPY 16,420	JPY 16,420	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 008	17 9 2002	Dams and Disease	E & FN Spon		J	1	JPY 16,630	JPY 16,630	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 009	17 9 2002	Paddy Irrigation and Water Management in SEAsia	World Bank		J	1	JPY 3,960	JPY 3,960	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 010	17 9 2002	Hydrology and Water Management in the Humid Tropics	Cambridge University Press		J	1	JPY 29,700	JPY 29,700	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 011	17 9 2002	Pillar of Sand	W.W. Norton		J	1	JPY 2,760	JPY 2,760	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2002 J 012	17 9 2002	Crafting Institutions for Self-Governing Irrigation Systems	ICS Press		J	1	JPY 3,950	JPY 3,950	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 001	27 4 2004	Sokuryo1	Jikkyou shuppan		J	1	JPY 980	JPY 980	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 002	27 4 2004	Sokuryo2	Jikkyou shuppan		J	1	JPY 720	JPY 720	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 003	27 4 2004	Sinpan Nougyou Sokuryou	Jikkyou shuppan		J	1	JPY 1,333	JPY 1,333	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 004	27 4 2004	Suiri	Jikkyou shuppan		J	1	JPY 870	JPY 870	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 005	27 4 2004	Nougyou Suiri	Jikkyou shuppan		J	1	JPY 620	JPY 620	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 006	27 4 2004	Nouchi Kaihatsu	Jikkyou shuppan		J	1	JPY 540	JPY 540	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 007	27 4 2004	Doshitsu Rikigaku	Jikkyou shuppan		J	1	JPY 1,020	JPY 1,020	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 008	27 4 2004	Nougyou Doboku Sekkei	Jikkyou shuppan		J	1	JPY 1,425	JPY 1,425	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 009	27 4 2004	Nougyou Doboku Sekou	Jikkyou shuppan		J	1	JPY 1,155	JPY 1,155	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 010	27 4 2004	Sokuryou Enshuu Note	Jikkyou shuppan		J	1	JPY 800	JPY 800	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 011	27 4 2004	Doboku Jisshu 1	Jikkyou shuppan		J	1	JPY 1,714	JPY 1,714	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 012	27 4 2004	Doboku Jisshu 2	Jikkyou shuppan		J	1	JPY 1,714	JPY 1,714	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 013	27 4 2004	Sinpan Nougyou Suiri Training Note	Korona sha		J	1	JPY 1,400	JPY 1,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 014	27 4 2004	Sinpan Nougyou Doboku Sekkei Training Note	Korona sha		J	1	JPY 1,400	JPY 1,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 015	27 4 2004	Sinpan Nougyou Doboku Sekou Training Note	Korona sha		J	1	JPY 1,400	JPY 1,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 016	27 4 2004	101dai Kiso Sokuryou Enshuu Note	Nihon Rikou Shuppan Kai		J	1	JPY 2,400	JPY 2,400	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 017	27 4 2004	Zukai Doboku Kouza Doshitsu Rikigaku no Kiso	Gihoudou shuppan		J	1	JPY 3,300	JPY 3,300	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 018	27 4 2004	Nougyou Suiri Enshuu1 Nougyou Suimon	Korona sha		J	1	JPY 1,660	JPY 1,660	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 019	27 4 2004	Nougyou Suiri Enshuu2 kangai	Korona sha		J	1	JPY 1,700	JPY 1,700	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 020	30 3 2004	Handi bukku Doboku Doboku	Ohmu sha		J	1	JPY 4,000	JPY 4,000	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 021	30 3 2004	Doboku gijutusha no tameno it's super Cad3	Sankai dou		J	1	JPY 6,200	JPY 6,200	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 022	30 3 2004	Auto CAD LT Auto CAD ressun bukku	Socym		J	1	JPY 2,900	JPY 2,900	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 023	30 3 2004	Sasin Doboku Seizu	Jikkyou shuppan		J	1	JPY 4,000	JPY 4,000	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 024	30 3 2004	Douga de manabu doboku CAD nyuumon	Sankai dou		J	1	JPY 6,000	JPY 6,000	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 025	30 3 2004	Henbousuru mekon deruta	Kokusai nourin suisangyou kenkyu senta		J	1	JPY 1,800	JPY 1,800	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 026	30 3 2004	Etoki suirigaku	Ohmu sha		J	1	JPY 2,600	JPY 2,600	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 020	8 9 2004	Inside Auto Cad 2002	New Riders Publishing		J	1	JPY	JPY	US\$ 49.99	US\$ 49.99	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 021	8 9 2004	Irrigation water Management / Principles and Practice	Prentice Hall of India Private Ltd.		J	1	JPY	JPY	US\$ 11.50	US\$ 11.50	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 022	8 9 2004	Fundamentals of Surveying	Prentice Hall of India Private Ltd.		J	1	JPY	JPY	US\$ 11.50	US\$ 11.50	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 023	8 9 2004	Reinforced Concrete Design / Second Revised Edition	McGraw-Hill Education (Asia)		J	1	JPY	JPY	US\$ 14.00	US\$ 14.00	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 027	8 10 2004	Kiso Sokuryougaku	Denki Shoin		J	1	JPY	JPY	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
2004 J 028	8 10 2004	Medemirusokuryou (Sokuryou Kyouiku notameno CD-ROM)	Nihon Sokuryou Kyokukai		J	1	JPY 7,167	JPY 7,167	US\$	US\$	Tuk Thla	TSC	Mr.Te Av KIM	C	A
								JPY 491,227	US\$	US\$ 362					

Total US\$ 4,455.80 / JPY 534,895.80

5-3. Provision of Equipment by Japanese side

5-3-3. Equipment of Local Purchase

Note: R/P:Route of Procurement (L: Equipment of Local Activities)

Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year)

Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description			QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number						Location	Person in charge			
2000	L	001	7/3/2001	Water Cooler and Heater	National	Milux	L	1	USD 150.00	USD 150.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	002	7/3/2001	Electric Pot	National	3-21	L	1	USD 30.00	USD 30.00	MOWRAM Project office	Mr.Te Av KIM	A	A
2000	L	003	9/3/2001	Sofa Set	Cheer Luck		L	1	USD 275.00	USD 275.00	MOWRAM Project office	Mr.Te Av KIM	A	A
2000	L	004	9/3/2001	Refrigerator	Hitachi	180J	L	1	USD 250.00	USD 250.00	MOWRAM Project office	Mr.Te Av KIM	A	A
2000	L	005	20/3/2001	Refrigerator	Hitachi	180J	L	1	USD 250.00	USD 250.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	006	20/3/2001	Sofa Set	Cheer Luck		L	1	USD 275.00	USD 275.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	007	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	008	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	009	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	010	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	011	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	012	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	013	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	014	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	015	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	016	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	017	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	018	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	019	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	020	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	021	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	022	26/3/2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L	1	USD 255.00	USD 255.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	023	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	024	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	025	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	026	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	027	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	028	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	029	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	030	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	031	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	032	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	033	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	034	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	035	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	036	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	037	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	038	26/3/2001	Office Chair	LEECO	LSC421	L	1	USD 65.00	USD 65.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	039	26/3/2001	Bookshelf	LEECO	304SGB	L	1	USD 135.00	USD 135.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	040	26/3/2001	Bookshelf	LEECO	304SGB	L	1	USD 135.00	USD 135.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	041	26/3/2001	Bookshelf	LEECO	304SGB	L	1	USD 135.00	USD 135.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	042	26/3/2001	Desk	LEECO	AT1600	L	1	USD 170.00	USD 170.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	043	26/3/2001	Leather Chair	LEECO		L	1	USD 380.00	USD 380.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	044	26/3/2001	Safety Box	LEECO	ES20	L	1	USD 150.00	USD 150.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2000	L	045	29/3/2001	Camera	Olympus	200M115	L	1	USD 210.00	USD 210.00	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	046	29/3/2001	Electric Fan	Toshiba	934-2533	L	1	USD 37.00	USD 37.00	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	047	29/3/2001	Electric Fan	Toshiba	934-2533	L	1	USD 37.00	USD 37.00	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	048	29/3/2001	Electric Fan	Toshiba	934-2533	L	1	USD 37.00	USD 37.00	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	049	29/3/2001	Electric Fan	Toshiba	934-2533	L	1	USD 37.00	USD 37.00	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	050	29/3/2001	Hall Puncher	KW-trio		L	1	USD 4.80	USD 4.80	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	051	29/3/2001	Hall Puncher	KW-trio		L	1	USD 14.90	USD 14.90	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	052	29/3/2001	Stapler	Kangaro	DS-12S/17	L	1	USD 35.00	USD 35.00	Tuk Thia TSC	Mr.Te Av KIM	C	A
2000	L	053	29/3/2001	Paper Cutter	ALFAX		L	1	USD 38.00	USD 38.00	Tuk Thia TSC	Mr.Te Av KIM	B	A
2000	L	054	29/3/2001	Fax Machine	Panasonic	KX-FF105	L	1	USD 270.00	USD 270.00	Tuk Thia TSC	Mr.Te Av KIM	A	B
2001	L	055	12/4/2001	UPS	Power Tree	600VAN	L	1	USD 47.00	USD 47.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2001	L	056	12/4/2001	UPS	Power Tree	600VAN	L	1	USD 47.00	USD 47.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2001	L	057	12/4/2001	UPS	Power Tree	600VAN	L	1	USD 47.00	USD 47.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2001	L	058	12/4/2001	UPS	Power Tree	600VAN	L	1	USD 47.00	USD 47.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2001	L	059	12/4/2001	UPS	Power Tree	600VAN	L	1	USD 47.00	USD 47.00	Tuk Thia TSC	Mr.Te Av KIM	A	A
2001	L	060	4/5/2001	Transformer	HANSHIN	TR2002	L	1	USD 21.00	USD 21.00	Tuk Thia TSC	Mr.Te Av KIM	A	A

No.	Date of Arrival	Description			QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number						Location	Person in charge			
2001	L 061	4 5 2001	Cupboard		L 1			USD 28.00	USD 28.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 062	22 5 2001	Electric Drill	Makita	6222DWE	L 1		USD 115.00	USD 115.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 063	4 5 2001	Transformer	HANSHIN	TR2002	L 1		USD 21.00	USD 21.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 064	12 7 2001	Codeless Telephone	Sony	SPP-88	L 1		USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	-	C	since April 2003, new
2001	L 065	17 10 2001	Computer Table	COM-690	COM-690	L 1		USD 75.00	USD 75.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 066	17 10 2001	Filing Cabinet	Leeco	FC-014	L 1		USD 78.00	USD 78.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 067	17 10 2001	Book Shelf	Otani	S-504	L 1		USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 068	17 10 2001	Book Shelf	Otani	S-502	L 1		USD 48.00	USD 48.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 069	17 10 2001	Book Shelf	Otani	S-502	L 1		USD 48.00	USD 48.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 070	17 10 2001	Table			L 1		USD 85.00	USD 85.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 071	17 10 2001	Table			L 1		USD 85.00	USD 85.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 072	17 10 2001	Shelf	S-2136	S-2136	L 1		USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 073	6 11 2001	Wireless Lan Station	BUFFALO	AirStation WLAR-L11-M	L 1		USD 315.00	USD 315.00	Tuk Thla TSC	Mr.Te Av KIM	-	C	since Apr 2003, broken
2001	L 074	20 11 2001	Desktop Computer	MRT	Desktop Computer PIII 800	L 1		USD 1,580.00	USD 1,580.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 075	20 11 2001	Desktop Computer	MRT	Desktop Computer PIII 800	L 1		USD 1,330.00	USD 1,330.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 076	20 11 2001	Printer	HP	842C	L 1		USD 250.00	USD 250.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 077	29 11 2001	Paper Shredder	DOCU-SHRED	RDS-545	L 1		USD 135.00	USD 135.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2001	L 078	25 12 2001	Desk	Otani		L 1		USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 079	12 3 2002	Key Box	Lucky		L 1		USD 50.00	USD 50.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 080	29 3 2002	CD-Writer	HP	4*4*6 Plus (USB)	L 1		USD 240.00	USD 240.00	Tuk Thla TSC	Mr.Te Av KIM	C	B	
2001	L 081	29 3 2002	2 Door Locker	SH-104	SH-104	L 1		USD 240.00	USD 240.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 082	29 3 2002	2 Door Locker	SH-104	SH-104	L 1		USD 240.00	USD 240.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 083	29 3 2002	2 Door Locker	SH-104	SH-104	L 1		USD 240.00	USD 240.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 084	29 3 2002	2 Door Locker	SH-104	SH-104	L 1		USD 240.00	USD 240.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 085	29 3 2002	2 Door Locker	SH-104	SH-104	L 1		USD 240.00	USD 240.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2001	L 086	29 3 2002	TV/VCR Table			L 1		USD 70.00	USD 70.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 087	14 5 2002	Book Shelf	30366B	30366B	L 1		USD 115.00	USD 115.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 088	14 5 2002	Book Shelf	30366B	30366B	L 1		USD 115.00	USD 115.00	MOWRAM Project office	Mr.Te Av KIM	A	A	
2002	L 089	15 5 2002	Cup Board Partition	LK-402	LK-402	L 1		USD 115.00	USD 115.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 090	12 6 2002	Fax machine	KXF105	KXF105	L 1		USD 215.00	USD 215.00	MOWRAM Project office	Mr.Te Av KIM	A	B	
2002	L 091	19 9 2002	General Table	UTF-80180	UTF-80180	L 1		USD 85.00	USD 85.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 092	19 9 2002	General Table	UTF-80180	UTF-80180	L 1		USD 85.00	USD 85.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 093	19 9 2002	General Table	UTF-80180	UTF-80180	L 1		USD 85.00	USD 85.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 094	19 9 2002	General Table	UTF-80180	UTF-80180	L 1		USD 85.00	USD 85.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 095	23 9 2002	Printer	Canon	S4500	L 1		USD 515.00	USD 515.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 096	5 2 2003	Floppy Disk Drive	Mitsumi		L 1		USD 45.00	USD 45.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 097	12 2 2003	Mobile Wireless Phone	Motorola	GP68	L 1		USD 180.00	USD 180.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 098	12 2 2003	Mobile Wireless Phone	Motorola	GP68	L 1		USD 180.00	USD 180.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 099	12 2 2003	Mobile Wireless Phone	Motorola	GP68	L 1		USD 180.00	USD 180.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 100	12 2 2003	Mobile Wireless Phone	Motorola	GP68	L 1		USD 180.00	USD 180.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 101	24 3 2003	Desk 1200*700*740	LEECO	BD127	L 1		USD 118.00	USD 118.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 102	24 3 2003	Desk 1200*700*740	LEECO	BD127	L 1		USD 118.00	USD 118.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 103	24 3 2003	Desk 1600*700*740	LEECO	BD167CH	L 1		USD 135.00	USD 135.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 104	24 3 2003	Desk 1200*700*740	LEECO	BD167CH	L 1		USD 90.00	USD 90.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 105	24 3 2003	Printer Table 1000*700*710	LEECO	BD107CE	L 1		USD 90.00	USD 90.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 106	24 3 2003	Printer Table 1000*700*710	LEECO	BD108CE	L 1		USD 90.00	USD 90.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 107	24 3 2003	Chair	LEECO	LSC-421 LG-F400	L 1		USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 108	24 3 2003	Chair	LEECO	LSC-421 LG-F400	L 1		USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 109	24 3 2003	File Shelf	LEECO	FS-410	L 1		USD 90.00	USD 90.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 110	24 3 2003	File Shelf	LEECO	FS-410	L 1		USD 90.00	USD 90.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 111	24 3 2003	File Shelf	LEECO	FS-410	L 1		USD 90.00	USD 90.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 112	15 3 2003	Book Shelf	OTANI	S-502	L 1		USD 50.00	USD 50.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 113	28 3 2003	Floppy Disk Drive	Mitsumi		L 1		USD 50.00	USD 50.00	Tuk Thla TSC	Mr.Te Av KIM	B	B	
2002	L 114	30 3 2003	Rattan chair			L 1		USD 44.00	USD 44.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 115	30 3 2003	Rattan chair			L 1		USD 44.00	USD 44.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 116	31 3 2003	Cupboard	LEECO	304SOB	L 1		USD 123.00	USD 123.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 117	31 3 2003	Cupboard	LEECO	304SOB	L 1		USD 123.00	USD 123.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 118	31 3 2003	Cupboard	LEECO	304SOB	L 1		USD 123.00	USD 123.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 119	31 3 2003	Cupboard	LEECO	304SOB	L 1		USD 123.00	USD 123.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 120	31 3 2003	Cupboard	LEECO	304SOB	L 1		USD 123.00	USD 123.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 121	31 3 2003	Locker	LEECO	CB07	L 1		USD 78.00	USD 78.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 122	31 3 2003	Table 1.8m			L 1		USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 123	31 3 2003	Table 1.8m			L 1		USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 124	31 3 2003	Table 1.8m			L 1		USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 125	31 3 2003	Table 1.8m			L 1		USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/V						Location	Person in charge			
2002	L 126	31 3 2003	Table 1.8m			L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 127	31 3 2003	Table 1.8m			L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 128	31 3 2003	Table 1.8m			L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 129	31 3 2003	Table 1.8m			L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 130	31 3 2003	Table 1.8m			L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 131	31 3 2003	Table 1.8m			L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 132	31 3 2003	Meeting table	AT2010	AT2010	L 1			USD 160.00	USD 160.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 133	31 3 2003	Telephone table	AT420	AT420	L 1			USD 55.00	USD 55.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 134	31 3 2003	Telephone table	AT420	AT420	L 1			USD 55.00	USD 55.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 135	31 3 2003	Telephone table	AT420	AT420	L 1			USD 55.00	USD 55.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 136	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 137	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 138	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 139	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 140	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 141	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 142	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 143	31 3 2003	Meeting chair	MSN-S	MSN-S	L 1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 144	31 3 2003	Storage shelf	S-2136	S-2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 145	31 3 2003	Storage shelf	S-2136	S-2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 146	31 3 2003	Storage shelf	S-2136	S-2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 147	31 3 2003	White board (1905cm)	BS-90180	BS-90180	L 1			USD 130.00	USD 130.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 148	31 3 2003	White board (1905cm)	BS-90180	BS-90180	L 1			USD 130.00	USD 130.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 149	31 3 2003	White board (1905cm)	BS-90180	BS-90180	L 1			USD 130.00	USD 130.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 150	31 3 2003	White board (1600cm)	BS-90150	BS-90150	L 1			USD 120.00	USD 120.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 151	31 3 2003	White board (1600cm)	BS-90150	BS-90150	L 1			USD 120.00	USD 120.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 152	31 3 2003	Camera	Olympus	MU 7000m 140 pano	L 1			USD 190.00	USD 190.00	Tuk Thla TSC	Mr.Te Av KIM	D	B	
2002	L 153	31 3 2003	Camera	Olympus	MU 7000m 140 pano	L 1			USD 190.00	USD 190.00	Tuk Thla TSC	Mr.Te Av KIM	D	B	
2002	L 154	31 3 2003	Digital camera	Canon	IXUS V2	L 1			USD 380.00	USD 380.00	Tuk Thla TSC	Mr.Te Av KIM	-	C	since December 2004, broken
2002	L 155	31 3 2003	Digital camera	Canon	IXUS V2	L 1			USD 380.00	USD 380.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 156	31 3 2003	Digital camera	Canon	IXUS V2	L 1			USD 380.00	USD 380.00	Tuk Thla TSC	Mr.Te Av KIM	A	B	
2002	L 157	31 3 2003	Printer	HP	DeskJet 1200 Color	L 1			USD 380.00	USD 380.00	Tuk Thla TSC	Mr.Te Av KIM	C	B	
2002	L 158	31 3 2003	Printer	Canon	ixu i320	L 1			USD 129.00	USD 129.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 159	31 3 2003	Auto Level	TOPCON	AT-G4	L 1			USD 1,277.00	USD 1,277.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2002	L 160	31 3 2003	Auto Level	TOPCON	AT-G4	L 1			USD 1,277.00	USD 1,277.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2002	L 161	31 3 2003	Auto Level	TOPCON	AT-G4	L 1			USD 1,277.00	USD 1,277.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2002	L 162	27 3 2003	Generator	Denyo		L 1			USD 21,500.00	USD 21,500.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 163	31 3 2003	Telephone PBX System	Panasonic	KX-TA3089	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 164	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 165	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 166	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 167	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 168	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 169	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 170	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 171	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 172	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2002	L 173	31 3 2003	Telephone	Panasonic	KX-T7730	L 1					Tuk Thla TSC	Mr.Te Av KIM	A	A	
2003	L 174	10 9 2003	Locker	CB-1	CB-1	L 1			USD 87.00	USD 87.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 175	10 9 2003	Locker	CB-1	CB-1	L 1			USD 87.00	USD 87.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 176	10 9 2003	Locker	CB-1	CB-1	L 1			USD 87.00	USD 87.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 177	10 9 2003	Locker	CB-1	CB-1	L 1			USD 87.00	USD 87.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 178	10 9 2003	Locker	CB-1	CB-1	L 1			USD 87.00	USD 87.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 179	11 9 2003	Water pump			L 1			USD 100.00	USD 100.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 180	11 9 2003	Storage shelf	S2136	S2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 181	11 9 2003	Storage shelf	S2136	S2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 182	11 9 2003	Storage shelf	S2136	S2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 183	11 9 2003	Bookshelf	304SGB	304SGB	L 1			USD 130.00	USD 130.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 184	11 9 2003	Bookshelf	304SGB	304SGB	L 1			USD 130.00	USD 130.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 185	19 9 2003	File cabinet	FC013	FC013	L 1			USD 68.00	USD 68.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 186	19 9 2003	Closet	304S	304S	L 1			USD 70.00	USD 70.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 187	21 1 2004	Concrete Mixer			L 1			USD 680.00	USD 680.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 188	2 2 2004	Uninterrupted Power Supply	Sun Pac	star 1200VA	L 1			USD 91.00	USD 91.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003	L 189	25 2 2004	Storage shelf	S2136	S2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 190	19 4 2004	Uninterrupted Power Supply	Sun Pac	star 1200VA	L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/F						Location	Person in charge			
2004	L 191	28 7 2004	Uninterrupted Power Supply	Sun Pac	star 850VA	L 1			USD 45.00	USD 45.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 192	3 8 2004	On-Board Battery	TOPCON	BT-52QA	L 1			USD 214.23	USD 214.23	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 193	3 8 2004	On-Board Battery	TOPCON	BT-52QA	L 1			USD 214.23	USD 214.23	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 194	18 11 2004	Water Pump	HONDA	WB30XT	L 1			USD 220.00	USD 220.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 195	18 11 2004	Water Pump	HONDA	WB30XT	L 1			USD 220.00	USD 220.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 196	22 11 2004	Mobile Phone	Nokia	N1100 Bule-353754006020809	L 1			USD 73.00	USD 73.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 197	22 11 2004	Mobile Phone	Nokia	N1100 Let Black-35375400645472	L 1			USD 73.00	USD 73.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 198	2 12 2004	Hard Disk Drive		40GB, IEEE, USB, desk type, metal case	L 1			USD 73.00	USD 73.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 199	13 1 2005	Water tank	1000L	1000L	L 1			USD 70.00	USD 70.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 200	13 1 2005	Water tank	1000L	1000L	L 1			USD 70.00	USD 70.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 201	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L 1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 202	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L 1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 203	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L 1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 204	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L 1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 205	21 1 2005	Concrete Mixer			L 1			USD 680.00	USD 680.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 206	3 2 2005	Digital Camera	Canon	Digital IXUS 330, S/N(21)5041301288	L 1			USD 465.00	USD 465.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2004	L 207	16 2 2005	Water tank	300L	300L	L 1			USD 32.00	USD 32.00	Tuk Thla TSC	Mr.Te Av KIM	C	A	
2004	L 208	4 3 2005	Hard Disk Drive unit	40GB, 7200rpm	40GB, 7200rpm, for construction section	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2005	L 209	1 12 2005	Bookshelf	Leeco	304 SGB	L 1			USD 190.00	USD 190	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2005	L 210	1 12 2005	Bookshelf	Leeco	304 SGB	L 1			USD 190.00	USD 190	Tuk Thla TSC	Mr.Te Av KIM	A	A	
2005	L 211	1 12 2005	Bookshelf	Leeco	304 SGB	L 1			USD 190.00	USD 190	Tuk Thla TSC	Mr.Te Av KIM	A	A	
Total										0	USD 53,274.16				

Total USD 53,274.16 / JPY 6,392,699

5-4. Local Cost Implementation by Japanese Side

Unit: United States Dollar US\$

No.	Category	Budgetary Year						Amount
		JFY 2000	JFY 2001	JFY 2002	JFY 2003	JFY 2004	JFY 2005	
1	General Budget (Running Expenses)	19,089.99	48,208.50	61,536.68	65,114.00	53,136.66	91,382.69	338,468.52
2	General Budget (Facilities, Activities)	9,848.70	14,805.40	0.00	0.00	91,662.10		116,316.20
3	Project Budget (Facilities)	0.00	0.00	38,836.00	61,540.40			100,376.40
4	Project Budget (Activities)	0.00	10,994.25	0.00	8,730.00			19,724.25
Total		28,938.69	74,008.15	100,372.68	135,384.40	144,798.76	91,382.69	574,885.37

*JFY: Japanese Fiscal Year (from April to March)

5-5. Allocation of Budget by Cambodian Side

Unit: Cambodia Riel / United States Dollars

No.	Description		2001	2002	2003	2004	2005	Total
1	Salary of counterparts and supporting staff	Received Budget (in Riel)	26,880,360	52,997,250	5,541,125	56,065,300	68,663,184	210,147,219
		Expenditure (in Riel)	26,880,360	52,997,250	5,541,125	56,065,300	68,663,184	210,147,219
2	TSC Building Construction	Received Budget (in US\$)	US\$155,227.00					US\$155,227.00
		Expenditure (in US\$)	US\$155,172.95					US\$155,172.95
3	Electricity / Water charges	Received Budget	Electricity/water for project office	Electricity/water for project office	Electricity/water for project office	Electricity/water for project office	Electricity/water for project office	
		Expenditure						
4	Local Telephone Charges (2 lines)	Received Budget (in US\$)	US\$120.00	US\$480.00	US\$480.00			US\$1,080.00
		Expenditure (in US\$)	US\$120.00	US\$480.00	US\$480.00			US\$1,080.00
5	Fuel for Project Vehicles and Heavy Equipment	Received Budget (in Riel)	5,182,656	13,039,488	12,526,164	22,634,872	35,533,760	88,916,940
		Expenditure (in Riel)	5,182,656	13,039,488	12,526,164	22,634,872	35,533,760	88,916,940
Total Received Budget			32,063,016/US\$155,347.00	66,036,738/US\$480	18,067,289/US\$480	78,700,172	104,196,944	299,064,159/US\$156,307.00
Total Expenditure			32,063,016/US\$155,292.95	66,036,738/US\$480	18,067,289/US\$480	78,700,172	104,196,944	299,064,159/US\$156,252.95
Total Expenditure (Equivalent in US\$/ 4,000riel= \$1)			US\$163,308.71	US\$16,989.19	US\$4,996.83	US\$19,675.04	US\$26,049.24	US\$217,994.37

6. Lessons from management in the Project

6-1. Start from basic subjects and put focus on practices

Human resources development on an issue like irrigation engineering and water management is time consuming and complex work. The issue has many factors, and has relations with many authorities and people. The C/Ps have acquired their experience one by one from the basic subjects to applied or practical subjects through the activities of the Project. In Cambodia, technical cooperation should start from basic subjects and put focus on practices rather than theories and conceptual framework even though such a way might seem to be unsophisticated or inefficient.

After the C/Ps build some appropriate experiences in learning some basic subjects and doing the practical work in the OJT, their attitudes for learning subjects and doing activities has apparently changed. The C/Ps conducted the recent training courses and seminar with confident manner.

6-2. Meeting among the experts and the C/Ps

In the beginning of the project period, the experts gave instructions on the activities to be done on the day to the C/Ps everyday.

After a series of work for constructing the first canal, the Project gradually introduced periodical meetings, such as monthly meeting among all the experts and C/Ps chaired by Project Sub-Manager Mr. Te Auv Kim and weekly meeting of each section, to discuss progress of work, a monthly or weekly action plan and issues to be solved.

The C/Ps has gradually been able to make their schedule for the target activities, and to have some perspective views for the activities through the discussion of the meetings. These meetings have encouraged the C/Ps to take responsibilities on their work in the Project.

6-3. Monthly Reports for the activities

In the beginning of the project period, the JICA Coordinator prepared monthly reports in Japanese and sent the reports to the Japanese side including JICA Office, JICA Headquarters, MAFF, and Embassy.

From August 2002, the C/Ps has made monthly reports on their monthly activities with captions in Khmer and English and pictures of the activities. The Project has sent the monthly report to the MOWRAM executives including Minister, Secretary of State, Undersecretary of State, Director Generals and Directors, and the Japanese side, JICA Headquarters and Office, Embassy and MAFF.

These monthly reports have helped sharing information among the Project and other authorities and officials concerned, and the C/Ps has confirmed their progress of learning and work

in the Project.

The monthly reports can be seen on the website of the Project:

<http://www.jica.org.kh/tsc/index.htm>

Such a kind of information service should be continued and extended.

6-4. Lessons from management of the Project

6-4-1. Establishment of an official organization

Establishing an official organization of TSC as a main body for dissemination and technical assistance in the irrigation sector is essential to ensure sustainability and extension of the activities in the Project. The Project has made sufficient progress in laying the foundations of the full-scaled dissemination and technical assistance, and therefore, the official body is now required to coordinate and collaborate with other organizations effectively and efficiently.

It could also ensure the sustainability of the activities in the Project.

6-4-2. Sustainability and extension of the activities in the Project

Sustainability and extension of the activities in the Project are essential for human resources development in the irrigation sector. However, investment and concern for software projects do not seem to be big enough in the government. Work conditions for officials engaging in such projects are always a major constraint to ensure outcomes and sustainability of activities in the projects.

The Cambodian authorities concerned should mainly tackle this issue and make sufficient investment for stable management of the projects. However, the donor concerned should also help and support the Cambodian authorities in tackling the issue in order to keep stable management, create sufficient achievements, prove usefulness of the activities, and ensure sustainability of the activities.

6-4-3. Introduction of technologies

In the beginning of the project period, most of the officials concerned expected that Japanese experts will introduce highly computerized engineering into the Project. Some donors, especially international consultants, actually use computer software for engineering. As mentioned above, it is however very important to learn the basic subjects and fundamental skills in irrigation engineering. Anybody should not laugh at an engineer who makes drawings by hand and calculates hydraulics, structural analysis and soil mechanics by the calculator. When an engineer learns knowledge and skills from the basic subjects, he should check all the processes of calculation and drawing by calculators and his hands to drive such knowledge and skills in his brain and body. Computerized methods are useful and efficient way for many engineers only after they have learned subjects with more primitive measures.

In technology transfer in Cambodia, learning with such a primitive measures before

introducing computerized engineering should be emphasized and respected among the donors and engineers concerned.

7. Revision of PDM&P.O. (See Annex)

7-1. PDM1

PDM version1 and Tentative Schedule of Implementation (TSI) was formed at the time of discussion held on 21 September 2000, between Japanese Implementation Study Team dispatched by JICA and Ministry of Water Resources and Meteorology, the Royal Government of Cambodia.

7-2. PDM 2

Japanese Project Consultation Team dispatched by JICA, Japanese experts and Cambodia side discussed the PDM and proposed the revised PDM to the Joint Coordinating Committee held on December 18, 2001. As a result of discussion among the member of the Joint Coordinating Committee, the proposed PDM was modified as PDM2.

The reasons of modification of PDM are as follows:

The previous Verifiable Indicators for Overall Goal did not mention the extension of the project's outcomes in Kandal Stung irrigation area that includes project's model site. So, another indicator "Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project." was added to see how the project's outcomes are extending around the model site.

The original Verifiable Indicators for output 1 is difficult to get, so it was into "Technology in the fields of Survey, Planning, Design, Construction management and Water management is transferred to 10C/Ps (engineers and technicians), and 10C/Ps become trainers and hold training courses"

7-3. PDM 3

PDM for the mid-term evaluation was formed as PDM 3 by the joint evaluation team based on the PDM 2, at the time of the Mid- Term Evaluation held on 28 October 2003.

A PDM for the mid-term evaluation was formed by the joint evaluation team based on the former PDM 2 in order to make indicators more specific. Changes and reasons of change are listed in the table below.

Changes from PDM2 to PDM3

Position	Change	Reason
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In general	The term PBSWRAM was changed into PDWRAM. Counterparts working full-time for the project at TSC were clearly defined as “full-time” counterparts.	1. These days, provincial offices of MOWRAM were called not PBSWRAM (Provincial Bureau Services of Water Resources and Meteorology), but PDWRAM (Provincial Department of Water Resources and Meteorology). 2. In order to distinguish the counterparts at management level and the “full-time” counterparts.
Out of the matrix	Basic factors of the project were listed.	
Overall Goal's indicator	The second indicator, “Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project.” was deleted. The phrase of the other, “Number of rehabilitation projects undertaken by engineers and technicians of MOWRAM and PBSWRAM” was changed into a sentence defining number and timing as “More than 10 projects will be implemented with techniques that were transferred at the TSC project by 2011.”	Firstly, it is difficult to forecast the area of each future project. Secondly, as the targets of this project are medium and small-scale, impact in the area will not be so big. Therefore the area is not appropriate as an indicator. The former expression of the indicator did not specify the number and timing, so those were defined. And the phrase of “with techniques that were transferred the TSC project” was added to clearly indicate the relationship with the project.
Project Purpose's indicator	“The 10 full-time C/Ps obtain the technical capacity to conduct training on irrigation systems by the end of the project.” was added as the first indicator. The phrase of the other, “Number of engineers and technicians who acquired sufficient knowledge and skill through training” was changed into a sentence defining number and timing as “More than 100 engineers and technicians of MOWRAM &	Since fostering the “Full-time” C/Ps is a very important pillar for the project, the indicator was added to evaluate that. The former expression of the indicator did not specify the number and timing, so those are defined.

	PDWRAM improve their technical capacity through trainings by the end of the project.”	
Output 2	The expression, “A training system is developed...” was changed into “Series of training courses are organized...”	The project should concentrate more on fostering 10 C/Ps than creation of a training system at this stage of support.
Outputs’ indicators	Three (3) of them were numbered.	In order to specify the relationship between each output and indicator.
Indicator 1.1	“Technology in the field of Survey, Planning, Design, construction management and Water management is transferred to 10 C/Ps (engineers and technicians), and 10 C/Ps become trainers and hold training courses.” was changed to “1.1 Small scale irrigation facilities are appropriately built by C/Ps with the use of techniques learned through OJT by the end of the project.”	Capacity improvement of C/Ps is measured at the level of the project purpose as explained above. Therefore, the content of the indicator was changed to the facility that will be actually produced.
Indicator 1.2	The expression “are produced by the end of the project” is added at least.	The former phrase did not have verb and did not specify timing, so those are defined.
Indicator 2.	“...are prepared.” was changed to “...are produced by the end of the project.”	More appropriate verb was selected and the timing was specified.
Means of Verification	Means of verification for each indicator was changed.	They were changed according to the changes of indicators.
Outputs’ important assumption	“Sufficient number of engineers and technicians of MOWRAM and PBSWRAM take the training courses.” was deleted.	As the number of trainees should be controlled within the project framework, so it should not be noted as an important assumption.

8. Record of Joint Coordinating Committee

8-1. 1st Joint Coordinating Committee Meeting

Date: 18 December 2001

Venue: Conference Room, MOWRAM

Participants:

1. H.E. Mr. Y Ky Heang Secretary of State, MOWRAM
2. H.E. Mr. Veng Sakhon Under Secretary of State, MOWRAM (Project Director)
3. H.E. Mr. Bun Hean Director General of Technical Affairs, MOWRAM (Project Manager)
4. Mr. Pich Veasna Director, Department of Planning and International Cooperation, MOWRAM
5. Mr. Em Bunthoeun Director, Department of Engineering, MOWRAM
6. Mr. Te Ouv Kim Director, Department of Irrigation and Drainage, MOWRAM (Sub-Manager)
7. Mr. Ngoun Pich Deputy Director, Department of Engineering, MOWRAM (Sub-Manager)
8. Mr. Chun Penlong Director, Kandal Provincial Bureau Services of Water Resources and Meteorology, MOWRAM
9. Representative MAFF
10. Mr. Mamoru Ishikawa Chief Advisor, TSC
11. Mr. Kenji Yasuda Expert, Survey/Planning, TSC
12. Mr. Yoji Ebihara Expert, Design/Water Management, TSC
13. Mr. Yoichi Ihara Expert, Construction Management, TSC
14. Ms. Mikayo Yamazaki Project Coordinator, TSC
15. Mr. Yukihiro Koizumi Assistant Resident Representative, JICA
16. Ms. Atsuko Nonoguchi Project Formulation Advisor, JICA
17. Mr. Yasunari Ueda First Secretary, J. Embassy
18. Mr. Hiroshi Kudo Advisor, Department of Planning, Statistics and International Cooperation, MAFF
19. Ms. Heng Sokhun Director, Bilateral Aid Coordination, CRDB, CDC
20. Mr. Itsu Adachi JICA Expert on Aid Coordination & Management, CRDB, CDC
21. Mr. Tadashi Kunieda Team Leader / Survey / Planning, Project Consultation Team, JICA
22. Mr. Hirofumi Taniguchi Construction Management / Design / Water Management, JICA
23. Mr. Hiroshi Ishii Technical Cooperation, JICA

8-2. 2nd Joint Coordinating Committee Meeting

Date: 28 October 2003

Venue: Conference Room, MOWRAM

Participants:

1. H.E. Mr. Y Ky Heang Secretary of State, MOWRAM

2. H.E. Mr. Veng Sakhon Under Secretary of State, MOWRAM (Project Director)
3. H.E. Mr. Bun Hean Director General of Technical Affairs, MOWRAM (Project Manager)
4. Mr. Prum Sarueun Deputy General Inspector, MOWRAM
5. Mr. Pich Veasna Director, Department of Planning and International Cooperation, MOWRAM
6. Mr. Em Bunthoeun Director, Department of Engineering, MOWRAM
7. Mr. Te Ouv Kim Director, Department of Irrigation and Drainage, MOWRAM (Project Sub-Manager)
8. Mr. Ngoun Pich Deputy Director, Department of Engineering, MOWRAM (Project Sub-Manager)
9. Mr. Chun Penlong Director, Kandal Provincial Bureau Services of Water Resources and Meteorology, MOWRAM
10. Representative MAFF
11. Mr. Akira Miyazaki Chief Advisor, TSC
12. Mr. Kenji Yasuda Expert, Survey/Planning, TSC
13. Mr. Yoji Ebihara Expert, Design/Water Management, TSC
14. Mr. Kenji Sekijima Expert, Construction Management, TSC
15. Ms. Mikayo Yamazaki Project Coordinator, TSC
16. Mr. Jiro Takeichi Project Formulation Advisor, JICA
17. Mr. Mitsunori Ida Team Leader, JICA
18. Mr. Yoichi Kakita Irrigation Technology, JICA
19. Mr. Tsuneo Kuwahara Evaluation Analysis, JICA
20. Mr. Mamoru Watanabe Cooperation Planning, JICA
21. H.E. Chhieng Yanara Deputy Secretary General, CDC
22. Ms. Heng Sokhun Director, Bilateral Aid Coordination Department, CDC
23. Ms. Harumi Okawa JICA Expert, CDC

8-3. 3rd Joint Coordinating Committee Meeting

Date: 26 July 2005

Venue: Conference Room, MOWRAM

Participants:

1. H.E. Veng Sakhon Secretary of State, MOWRAM (Project Director)
2. H.E. Nei Lorn General Inspector, MOWRAM
3. Mr. Prum Saroeun Deputy General Inspector, MOWRAM
4. Mr. Chuon Bithol Deputy Director General of Technical Affairs, MOWRAM
5. Mr. Mey Ly Huoth Deputy Director General of Administration Affaires, MOWRAM
6. Mr. Sok Moni Ratana Director of Department Water Supply and Sanitation, MOWRAM

7. Mr. Pich Veasna Director, Department of Planning and International Cooperation, MOWRAM
8. Mr. Chea Chhunkeat Director of Administration and Human Resource Department, MOWRAM
9. Mrs. Seth Vanna Reth Director of Department of Meteorology, MOWRAM
10. Mr. Te Auv Kim Director of Department Irrigation and Drainage, MOWRAM (Sub-Manager)
11. Mr. Moy Monin Deputy Director of Finance, MOWRAM
12. Mr. Klok Sam Ang Head Office International Cooperation Office, MOWRAM (Counterpart)
13. Mr. Ing Try Deputy Director, DoF/ MAFF
14. Mr. Long SaraVuth Deputy Director of Hydrology and River Works , MOWRAM
15. Mr. Chun Peng Long Director of Kandal provincial Department, PDWRAM
16. Mr. Ngoun Pich Deputy Director of Department Engineering, MOWRAM (Project Sub-Manager)
17. Mr. Lim Virak Deputy Director of Engineering Department, MOWRAM
18. Mr. Nobuhiro Moriyama JICA Advisor , MOWRAM
19. Mr. Kenji Tsujishita JICA Expert, TSC
20. Mr. Koji Kanemaru Project Coordinator TSC
21. Mr. Kenji Sekijima JICA Expert TSC
22. Mr. Akira Miyazaki Chief Advisor, TSC
23. Mr. Jiro Takeichi Project Formulation Advisor, JICA Cambodia Office
24. Mr. Isao Dojun Mission member JICA Evaluation Team JICA
25. Mr. Kenji Sakurai JICA Evaluation Team JICA Headquarter
26. Mr. Yoshihiro DOI Deputy Director, Overseas Land Improvement Cooperation Office, MAFF, JAPAN
27. Mr. Ryuzo Nishimaki Senior Researcher, Rural Development Department, JICA Headquarter
28. Mr. Masayuki Horiuchi JICA Expert, TSC
29. Mr. Ngin Chhay Deputy Director Department of Agronomy, MAFF
30. Mr. Huy Vatharo Assistant of JICA Expert, CDC
31. Mr. Chet Sophorn Staff, CDC
32. Mr. Mean Seng Survey Section, TSC (Counterpart)
33. Mr. Sok Korn Water management Section, TSC (Counterpart)
34. Mr. Teng Tong heng Water management Section, TSC (Counterpart)
35. Mr. Meas Savoeun Planning Section, TSC (Counterpart)
36. Mr. You Sotha Planning Section, TSC (Counterpart)
37. Mr. Ung Kotoro Construction Section, TSC (Counterpart)
38. Mr. Teav Vutha Designing Section, TSC (Counterpart)

- 39. Mr. Prum Kan Thel Water Management Section, TSC (Counterpart)
- 40. Mr. Uch Hing Survey section, TSC (Counterpart)
- 41. Mr. Hey Bunthoeun Designing Section, TSC (Counterpart)
- 42. Mr. Noun Vannarith Construction Section, TSC (Counterpart)
- 43. Mr. Prey Sovann Staff of Administration and Human Resource Department, MOWRAM

9. Activity Photo

Meteorological survey



Water level measurement



Discharge measurement



Transfer survey techniques



Water requirement rate survey



Layout of canal system



Basic survey I

Explanation of survey instrument



Plane table survey

Profile and cross section survey



Drawing of longitudinal and cross section



Basic survey II

Explanation of Traverse survey



Operation of Theodolite



Traverse survey



Error adjustment of a traverse



Water requirement

Meteorological observation



Calculation of evapotranspiration (Penman method)



Measurement of flow rate



Explanation of Water level gauge



Practice of making H-Q curve



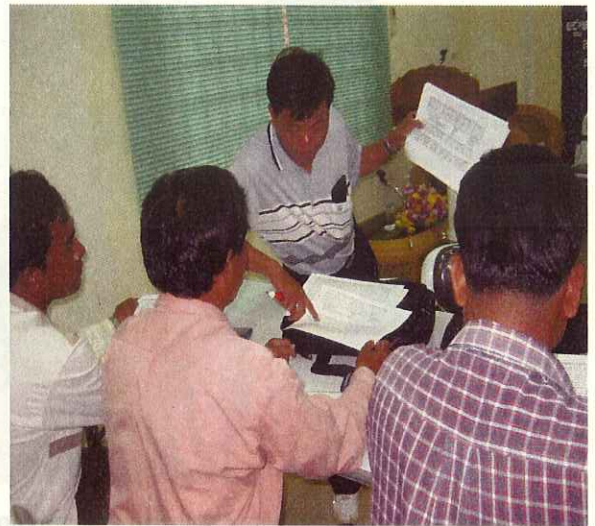
Water requirement rate survey (evaporation measurement)



Water requirement rate survey (measurement of N-type, evapotranspiration, etc)



Water requirement rate survey (analysis of data)



Calculation of water requirement



Water Management section activities' photos



Interview with farmers



Farmers' participation activity
Outlet installation



Problems identification facilitated by C/P,
Group Toul Tanney



Farmer training on O&M at the site
Explaining of Check structure



Water Flow Map with Group Tanoy
members



Providing their experience by the leader of
Toul Tanney during WM seminar

Picture of OJT on Construction Management Section



Inner training on machinery operation and maintenance



Repair construction road on Pol pot 63



Inner training on setting fixed rulers



Inner training on material test



Check design documents with design section



Meeting of construction with beneficiaries



Quality control (Settled fixed rulers)



Quality control
(Field density test on bank)



Control of finished work quality



Finished canal

Picture of Training on Construction Management Section
Training course on Basic Construction Control



Lecture on construction control



Lecture on reading drawings



Leveling survey practice



Practice on Setting fixed rulers



Discussion after lecture



Explanation for the result of training

Training course on Practical Construction Control



Construction survey



Concrete compression test

Training course on Construction Management



Lecture on soil structure



Practice on soil compaction test



Practice on field density test



Data arrangement

Design section activities' photos



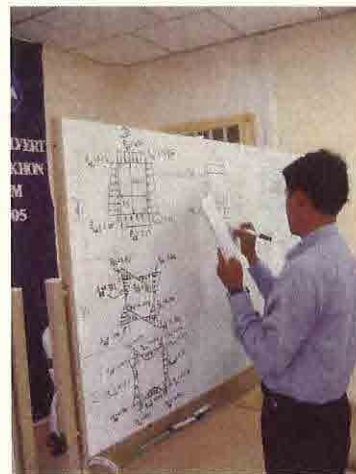
Clarification of design values with Expert



Observation of box culvert by participants during training



Self-study by counterparts themselves



Presentation of previous day's study, Box culvert training



Canal T340, Length=790m
Bed width=0.5m Embankment H=0.85m



Practice of Planimeter use during training

ANNEX

List of Manual / Textbook and Report

1. Manual / Text Book

Field	No	Title	Categories	Language	
				English	Khmer
Survey	1	Exercises in Theodolites and Traverse Survey	M/T	Finished	Finished
	2	The text of basic survey course I	T	—	Finished
	3	The Text of Basic Survey II Course (Basic Topographic Survey , Survey study, Theodolites Survey, Traverse Survey)	M/T	Finished	—
	4	Manual of Route Survey (Oct 2005)	M	Finished	Finished
	5	Manual of Traverse Survey (Generalization, Procedure) Mar.2005	M/T	Finished	Finished
	6	Manual of Theodolites Survey	M/T	Finished	Finished
	7	Manual of Meteorology Observation	M/T	Finished	Finished
	8	Manual on Discharge Measurement	M/T	Finished	Finished
	9	Survey Practice for New C/P	M/T	Finished	—
	10	Manual of Topographic Survey	M	Finished	Finished
	11	Exercises in Water requirement Training course (Nov. 2005)	M	Finished	—
Plan	12	Manual of Practical Training for measurement technique of Evapotranspiration and percolation in paddy field	M/T	Finished	Finished
	12	Water Requirements and Their determination	M/T	Finished	Finished
	13	Manual of Calculation for Water Balance	M/T	Finished	Finished
Design	14	Basic Hydraulic, Sep 2001	M/T	Finished	Finished
	15	Basic Design for Hydraulic Structures, Aug 2005	M/T	Finished	Finished
	16	Training Material on Design of Irrigation Canals and Related Structure, Nov 2001	M/T	Finished	—
	17	Manual on Design of Small Irrigation Canals and Related Structure, Aug 2003	M/T	Finished	—
	18	Side Reading: Supplementary reading Manual on Design for small scale irrigation Canals Sep 2003	M/T	Finished	Finished
	19	Practical Design Manual on Small Scale Irrigation Canals and Related Structures ,Mach 2005	M/T	Finished	Finished
	20	Practical Design on Small scale irrigation structures: Box culvert and concrete type slab bridge, Oct 2005	M/T	Finished	—
	—	Survey Practice for New C/P (Produced by Mr. Ebihara and updated by Survey Planning Section, refer to No.9)	—	—	—
	—	Operation Manual of Current Meter and Discharge Measurement (Produced by Mr. Ebihara and updated by Survey Planning Section, combined to No.9)	—	—	—
Construction Management	21	The Example of construction plan	M	Finished	—
	22	Manual on Construction Process	M/T	Finished	Finished
	23	Manual for Marking Fixed Ruler	M/T	Finished	Finished
	24	Manual on Earth Work Process	M/T	Finished	Finished
	25	Manual on Concrete Work Process	M/T	Finished	—
	26	Outline of Construction Management	M/T	Finished	Finished
	27	Manual for Construction Management	M	Finished	—
	28	Manual on Field Density test	M	Finished	Finished
	29	Manual on Concrete Tests	M	Finished	—
Water Management	30	General Guideline of Farmers Survey Mach 2002	M	Finished	—
	31	Operation and maintenance of irrigation facilities Dec 05	M	Finished	—
	32	Text book for Training course of WM on farm level	M	—	Finished
	33	General Guideline for Handover of Irrigation Systems , May 2005	M	Finished	—
	34	Problems and Solutions for on-farm level Water Management	M	Finished	—
	35	Reference paper for facilitators, May 2005	M	Finished	—
	36	Manual on outlet installation, June 2005	M/T	Finished	—

Categories: M.....Manual

T... Text Book

R.....Report

D.....Data

2. Report

Field	No	Title	Categories	Language	
				English	Khmer
Survey	1	Report of Discharge Measurement 2002	R	Finished	—
	2	RR 2002 Report of FYJ 2003 Water Level 2003-2004	R	Finished	—
	3	Report of Training Activity in Basic Course Survey I	R	Finished	—
	4	Report of Training Activity in Basic Course Survey II	R	Finished	—
	5	Drawing (T3.3.0,T3.4.0,T3.5.0(2002),T3.6.0,T3.2.0s	R	Finished	—
		PP 63 (2001),T3.2.0,			
		T3.2.06,T3.2.7,T3.3.0, T3.4.0 (2003)			
		T3.3.0,T3. 4.0,T3.6.0 (2003)			
		T3.3.0,T3..4.0 (2004)			
		T3. 4.0 (2004)			
	6	Report on Water level April,2005	R	Finished	—
	7	Report on water level M1 station December 2005	R	Finished	—
	8	Mapping of classified elevation in the southern Part of Model site	D	Finished	—
	9	Hydrology and Meteorology Data along Prek Thnot River	D	Finished	—
	10	Report of Training Activity in Water Requirement Course	R	Finished	—
	11	Report of Activity FYJ 2003	R	Finished	—
Plan	12	Report of Activity FYJ 2004	R	Finished	—
	13	Hydrology and Meteorology Data along Prek Thnot River 2002	D	Finished	—
	14	Seminar Report (Practical training for measurement technique of evapotranspiration and percolation in paddy field)	R	Finished	—
	15	Report of Activity 2005	R	Finished	—
	16	Map of paddy field which cannot be irrigated by gravity	R	Finished	—
Design	17	Report Irrigation Project along Prek thnot river	R	Finished	—
	18	Brief on basic hydraulic for design of irrigation canals, March 2004	R	Finished	—
	19	Completion Report of Training on Basic Hydraulic for design of Irrigation Canals, April 2004	R	Finished	—
	20	Completion Training Report on Practical Design for small Scale Irrigation Canals and Related structure, Nov 2005	R	Finished	—
	21	Design documents (drawing ,hydraulic and structure and quantity calculation) 1. Canal T320 2. Canal T320-s 3. Canal T330 4. Canal T340 5. Canal T350 6. Canal T360 7. M8 8. D2 9. Canal T3.2.4	R	Finished	—
Construction Management	22	Construction Plan (Rehabilitation Project in the Kandal Stung Irrigation Area, 2003)	R	Finished	—
	23	Construction Plan (Rehabilitation Project in the Kandal Stung Irrigation Area, 2004)	R	Finished	—
	24	Construction Plan (Rehabilitation Project in the Kandal Stung Irrigation Area, 2005)	R	Finished	—
	25	Dimension Control of T3.2.0 Canal Construction in 2002	R	Finished	—
	26	The Report of Tertiary Canal Construction at Kandal Stung Model Site in 2004	R	Finished	—
	27	The Report of Tertiary Canal Construction at Kandal Stung Model Site in 2005	R	Finished	—
	28	Completion Report of Training on Basic Construction Control	R	Finished	—
	29	Completion Report of Training on Construction Management	R	Finished	—
	30	Farmer Survey at the Project Model Site ,March 2002	R	Finished	—
	31	Farmer Survey on Irrigation Situation in Model site of TSC, May 2003	R	Finished	—
	32	Hydraulic Structure in Model Site and other areas, Sep 2003	R	Finished	—

Field	No	Title	Categories	Language	
				English	Khmer
Water Management	33	Monitoring report After Rehabilitation of T320 in Model Site TSC	R	Finished	—
	34	Record of participatory activity in Model Site of TSC Aug 2003	R	Finished	—
	35	Farmer study tour to Chan Thnal ,Aug 2003	R	Finished	—
	36	Farmer survey on Irrigation Situation and Farming in Model Site of TSC, T320-S, May 2004	R	Finished	—
	37	Workshop Report on think together and work together for WM,Aug 2004	R	Finished	—
	38	Inventory of association in Barku Commune, May 2005	R	Finished	—
	39	Stakeholders in Model the Site, Dec 2004	R	Finished	—
	40	Workshops Record for Cohesive and Functional Water User Group, Toul Tanney and Tanoy	R	Finished	—
	41	By-laws of Sub-group 1 Toul Tanay along Canal T320 including Tanoy	R	Finished	—
	42	Report on Study tour to on Training Irrigation Systems and Roleng Chrey Regulator, June 17, 2005	R	Finished	—

Categories: M.....Manual
T....Text Book
R.....Report
D.....Data

	Title of Training Course	Section in charge	Purpose	Qualifications of participants	Resource Persons /Lecturer	Duration	Number of Participant	Repeated participation	Venue
1	Basic Survey	Survey / Planning Section	To acquire the basic and general knowledge of survey. To be able to carry out basic survey such as leveling, distance and plane table survey using survey machines. To understand accuracy of survey and error correction about leveling survey. To be able to make profile and cross section views and plans.	Engineers and technicians of MOWRAM and PDWRAM, Less than thirty-five (35) years old and less than five (5)- year experience in the specific fields	4 counterparts of Survey / Planning Section in TSC Project	1-5 March, 2004	12		TSC training room in Tuk Thla office
2	Basic Hydraulic for Design of Irrigation Canals	Design section, Water management section	To understand basic hydraulic phenomena necessary for design of irrigation To understand hydraulic analysis to trace water surface, water depth and head Practice on drawing technique of profile of tertiary canal in model site of TSC by analysis data.	Engineers and technicians of MOWRAM and PDWRAM, Less than 35 years old and less than 5 year experience in the specific fields	3 counter parts of Design and Water management sections in TSC Project	15-29 March 2004	10		TSC training room in Tuk Thla office
3	Basic Construction Control	Construction Management Section	To understand necessity and outline of construction control	Engineers and technicians of MOWRAM and PDWRAM, Less than thirty-five (35) years old and less than five (5)- year experience in construction work	2 counterparts of Construction Management Section in TSC Project	15-19 November 2004	20		TSC training room and compound of Tuk Thla office
4	Practical Construction Control	Construction Management Section	To acquire the knowledge and skills which obtained in the training course for basic construction control through operation. To understand construction work flow, method and points of construction control on actual construction site.	Participants of the basic construction control course	2 counterparts of Construction Management Section in TSC Project	24 Jan. to 13 April 2005, G1(24 Jan. to 11 Feb.), G2(14 Feb. to 4 Mar.), G3(7 Mar to 25 Mar.), G4 (28 Mar to 13Apr.),Workshop on 24 June 2005	19	15 participants from course No.3, 1 participant canceled	TSC model site
5	Practical Design for Small Scale Irrigation Canals and Related Structures	Design Section	To gain practical technology on design for small scale irrigation canals and related structures for MOWRAM engineers and technicians. To develop capacity of counterparts in the field of design, through having more training experience.	Engineers and technicians of PDWRAM, Less than thirty-five (35) years old and less than five (5)- year experience in design work, no senior position	2 counterparts of Design Section in TSC Project	7-11 March 2005	15	3 participants from course No.2	TSC training room and compound of Tuk Thla office
6	Basic Survey II	Survey / Planning Section	To understand concept, theory of error, accuracy, method for calculation of coordination on the traverse survey.	Engineers and technicians of MOWRAM and PDWRAM, Less than thirty-five (35) years old and less than five (5)- year experience in the specific fields	4 counterparts of Survey / Planning Section in TSC Project	14-18 March 2005	16	10 participants from course No.1	TSC training room and compound of Tuk Thla office
7	Practical Design on Box Culvert	Design Section	To gain knowledge in practical technology on practical box culvert design for MOWRAM engineers and technicians. To develop capacity of counterparts in the field of design, through training experience.	Be MOWRAM's engineer or technician, have less than five (5) years experience in design work, be presently engaged in design work, be less than forty (40) years of age, be positioned under senior level, have structural mechanics knowledge, preferably be nominated from ex-participants of training in March 2004	2 counterparts of Design Section in TSC Project	24-28 October 2005	15	7 participants from course No.5	TSC training room in Tuk Thla office
8	Construction Management	Construction Management Section	To learn knowledge and skills in construction process, process and quality control of earthwork in building canals, soil tests for the quality control	Engineers and technicians of MOWRAM and PDWRAM, less than thirty-five (35) years old, less than five (5) years experience in construction work	2 counterparts of Construction Management Section in TSC Project	21 -25 November 2005	19	1 participants from course No.3 and 4	TSC training room in Tuk Thla office and TSC model site
9	Water Requirement	Survey / Planning Section	To gain knowledge in systematic methods in survey and planning on water requirement for MOWRAM engineers and technicians. To develop capacity of counterparts in the fields of survey and planning through the experience of conducting training.	Be MOWRAM's engineer or technician, have less than five (5) years experience in survey and planning work, be less than thirty-five (35) years of age, be positioned under senior level	4 counterparts of Survey / Planning Section in TSC Project	28 November - 2 December 2005	16	1 participants from course No.1 and 6	TSC training room in Tuk Thla office and TSC model site
10	Water Management Seminar	Water management section	To present and exchange TSC's experience on sustainable water management for the purpose of formulating a future plan.	Staff of Department of irrigation agriculture in MOWRAM, PDWRAM staff in 24 provinces	3 counter parts of Water management sections in TSC Project, leader and sub leader of farmers group in TSC model area	6-7 December 2005	27		TSC training room in Tuk Thla office
TOTAL NUMBER OF PARTICIPANTS							169	37	

3. 討議議事録 (Record of Discussion : R/D)

RECORD OF DISCUSSIONS BETWEEN JAPANESE
IMPLEMENTATION STUDY TEAM AND
AUTHORITIES CONCERNED OF THE ROYAL GOVERNMENT OF CAMBODIA
ON JAPANESE TECHNICAL COOPERATION FOR
THE TECHNICAL SERVICE CENTER FOR IRRIGATION SYSTEM PROJECT

The Japanese Implementation Study Team (hereinafter referred to as "the Team"), organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Takahito Misaki, visited the Kingdom of Cambodia from September 18, 2000 to September 22, 2000 for the purpose of working out the details of the technical cooperation program concerning the Technical Service Center for Irrigation System Project (hereinafter referred to as "the Project") in the Kingdom of Cambodia.

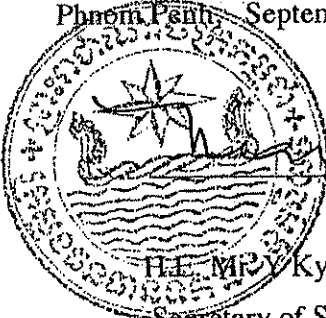
During its stay in the Kingdom of Cambodia, the Team exchanged views and had a series of discussions with the Cambodian authorities concerned with respect to desirable measures to be taken by both Governments for the successful implementation of the above-mentioned Project.

As a result of the discussions, the Team and the Cambodian authorities concerned agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

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Mr. Takahito Misaki
Leader,
Japanese Implementation Study Team,
Japan International Cooperation Agency,
Japan

Phnom Penh, September 21, 2000



HE MR. Ky Heang
Secretary of State
Ministry of Water
Resources and Meteorology,
Kingdom of Cambodia

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN BOTH GOVERNMENTS

1. The Royal Government of Cambodia will implement the Technical Service Center for Irrigation System Project (hereinafter referred to as "the Project") in cooperation with the Government of Japan.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY THE GOVERNMENT OF JAPAN

In accordance with the laws and regulations in force in Japan, the Government of Japan will take, at its own expense, the following measures through JICA according to the normal procedures under the Colombo Plan Technical Cooperation Scheme.

1. DISPATCH OF JAPANESE EXPERTS

The Government of Japan will provide the services of the Japanese experts as listed in Annex II.

2. PROVISION OF MACHINERY AND EQUIPMENT

The Government of Japan will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The Equipment will become the property of the Royal Government of Cambodia upon being delivered C.I.F. (cost, insurance and freight) to the Cambodian authorities concerned at the ports and/or airports of disembarkation.

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3. TRAINING OF CAMBODIAN PERSONNEL IN JAPAN

The Government of Japan will receive the Cambodian personnel connected with the Project for technical training in Japan.

4. SPECIAL MEASURES TO BE TAKEN BY THE GOVERNMENT OF JAPAN

To ensure the smooth implementation of the Project, the Government of Japan will take, in accordance with the laws and regulations in force in Japan, special measures through JICA with the purpose of supplementing a portion of the local cost expenditures necessary for the execution of the physical infrastructure.

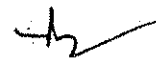
III. MEASURES TO BE TAKEN BY THE ROYAL GOVERNMENT OF CAMBODIA

1. The Royal Government of Cambodia will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The Royal Government of Cambodia will ensure that the technologies and knowledge acquired by the Cambodian nationals as a result of Japanese technical cooperation will contribute to the economic and social development of the Kingdom of Cambodia.
3. The Royal Government of Cambodia will grant in the Kingdom of Cambodia privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families, which are no less favorable than those accorded to experts of third countries working in the Kingdom of Cambodia under the Colombo Plan Technical Cooperation Scheme.
4. The Royal Government of Cambodia will ensure that the Equipment referred to in II-2 above will be utilized effectively for the implementation of the Project in

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consultation with the Japanese experts referred to in Annex II.

5. The Royal Government of Cambodia will take necessary measures to ensure that the knowledge and experience acquired by the Cambodian personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
6. In accordance with the laws and regulations in force in the Kingdom of Cambodia, the Royal Government of Cambodia will take necessary measures to provide at its own expense:
 - (1) Services of the Cambodian counterpart personnel and administrative personnel as listed in Annex IV;
 - (2) Land, buildings and facilities as listed in Annex V;
 - (3) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided through JICA under II-2 above; and
7. In accordance with the laws and regulations in force in the Kingdom of Cambodia, the Royal Government of Cambodia will take necessary measures to assist:
 - (1) The Japanese experts for official travel within the Kingdom of Cambodia;
 - (2) The Japanese experts and their families for accommodations.
8. In accordance with the laws and regulations in force in the Kingdom of Cambodia, the Royal Government of Cambodia will take necessary measures to meet:

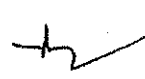


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- (1) Expenses necessary for transportation within the Kingdom of Cambodia of the Equipment referred to in II-2 above as well as for the installation, operation and maintenance thereof;
- (2) Customs duties, internal taxes and any other charges, imposed in the Kingdom of Cambodia on the Equipment referred to in II-2 above; and
- (3) Running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. The Under Secretary of State of the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM"), as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. The Director General of Technical Affairs of MOWRAM, as the Project Manager, will be responsible for the managerial and technical matters of the Project.
3. The Director of the Irrigated Agriculture Department of MOWRAM and the Deputy Director of the Engineering Department of MOWRAM, as Project Sub-Managers, will bear direct responsibility for the managerial and technical matters of the Project.
4. The Japanese Chief Advisor will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.
5. The Japanese experts will give necessary technical guidance and advice to the Cambodian counterpart personnel on technical matters pertaining to the implementation of the Project.

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6. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by the two Governments through JICA and the Cambodian authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

The Royal Government of Cambodia undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Kingdom of Cambodia except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between the two Governments on any major issues arising from, or in connection with, this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Kingdom of Cambodia, the Royal Government of Cambodia will take appropriate measures to make the Project widely known to the people of the Kingdom of Cambodia.



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IX. TERM OF COOPERATION

The duration of technical cooperation for the Project under this Attached Document will be five (5) years from January 10, 2001.

- | | |
|-----------|---|
| ANNEX I | MASTER PLAN |
| ANNEX II | LIST OF JAPANESE EXPERTS |
| ANNEX III | LIST OF MACHINERY AND EQUIPMENT |
| ANNEX IV | LIST OF CAMBODIAN COUNTERPART AND ADMINISTRATIVE
PERSONNEL |
| ANNEX V | LIST OF LAND, BUILDINGS AND FACILITIES |
| ANNEX VI | JOINT COORDINATING COMMITTEE |

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ANNEX I

MASTER PLAN

1. Super Goal

Agricultural production in irrigation areas is increased.

2. Overall Goal

Irrigation projects are properly implemented by the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Provincial Bureau Services of Water Resources and Meteorology (hereinafter referred to as "PBSWRAM").

3. Project Purpose

The technical capacity of the engineers and technicians of MOWRAM and PBSWRAM is improved in the fields of survey, planning, design, construction management and water management for irrigation systems.

4. Outputs of the Project

- (1) The technical capacity of the counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT).
- (2) A training system is developed to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PBSWRAM.

5. Activities of the Project

(1) Assessment of technical capacity and setting of technical level

- 1.1 Collect data
- 1.2 Assess present technical capacity in the field of survey
- 1.3 Assess present technical capacity in the field of planning
- 1.4 Assess present technical capacity in the field of design
- 1.5 Assess present technical capacity in the field of construction management
- 1.6 Assess present technical capacity in the field of water management
- 1.7 Set the level of skills to be transferred in each field.

(2) Transfer of technology through OJT

- 2.1 Transfer survey techniques through OJT
- 2.2 Transfer planning techniques through OJT
- 2.3 Transfer design techniques through OJT
- 2.4 Transfer construction management techniques through OJT
- 2.5 Transfer water management techniques with participation of farmers through OJT

(3) Production of manuals

- 3.1 Produce a manual on survey techniques
- 3.2 Produce a manual on planning techniques
- 3.3 Produce design standard and a manual on design techniques and project evaluation
- 3.4 Produce a manual on construction management techniques
- 3.5 Produce a manual on water management techniques with participation of farmers

(4) Training

- 4.1 Conduct training on survey techniques
- 4.2 Conduct training on planning techniques
- 4.3 Conduct training on design techniques
- 4.4 Conduct training on construction management techniques
- 4.5 Conduct training on water management techniques with participation of farmers

ANNEX II

LIST OF JAPANESE EXPERTS

1. Long-term Experts
 - (1) Chief Advisor
 - (2) Coordinator / Farmers Survey and Training
 - (3) Experts in the following fields:
 - 1) Survey / Planning
 - 2) Design / Water Management
 - 3) Construction Management
2. Short-term Experts:

For the purpose of smooth implementation of the Project, short-term experts may be dispatched when necessity arises.

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ANNEX III

LIST OF MACHINERY AND EQUIPMENT

1. Machinery and equipment necessary for the activities described above in ANNEX I for technical transfer
2. Other equipment and materials necessary for the implementation of the Project

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ANNEX IV

LIST OF CAMBODIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Project Director: Under Secretary of State, MOWRAM
2. Project Manager: Director General of Technical Affairs, MOWRAM
3. Project Sub-Managers: Director of the Department of Irrigated Agriculture, MOWRAM; and Deputy Director of the Department of Engineering, MOWRAM
4. Counterpart personnel for each Japanese long-term expert in the following fields:
 - (1) Survey
 - (2) Planning
 - (3) Design
 - (4) Construction Management
 - (5) Water Management / Farmers Survey
5. Counterpart personnel for each Japanese short-term expert
6. Administrative personnel
 - (1) Administrative staff
 - (2) Technical staff
 - (3) Other necessary support staff
7. Other necessary personnel mutually agreed upon as necessary

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ANNEX V

LIST OF LAND, BUILDINGS AND FACILITIES

1. Office and working rooms for Japanese experts
2. Seminar rooms for training
3. Laboratories for soil test and concrete test
4. Storage space for provided machinery, instruments and equipment
5. Model site in the Kandal Stung Irrigation Area for OJT training
6. Electricity, water supply and telecommunication facilities
7. Other land, buildings, facilities and equipment for the implementation of the Project

ANNEX VI

JOINT COORDINATING COMMITTEE

1. Functions

A Joint Coordinating Committee which consists of personnel from both the Japanese and Cambodian sides will meet at least once a year and when necessary for the following objectives:

- (1) To formulate an Annual Work Plan under the framework of the Record of Discussions,
- (2) To review the overall progress of the technical cooperation program as well as achievement of the Annual Work Plan of the Project,
- (3) To review and exchange opinions on important issues originated in, or in relation to, the Project, and
- (4) To provide advice to the project team for the better implementation and management of the Project

2. Composition of the Committee

The Joint Coordinating Committee will be composed of the following members:

- (1) Chairperson of the Committee: Project Director, Under Secretary of State, MOWRAM

- (2) Members:

- Cambodian side -

The Project Manager, Director General of Technical Affairs,
MOWRAM

Director of Planning and International Cooperation Dep. MOWRAM

Director of Engineering Dep., MOWRAM

Director of Irrigated Agriculture Dep., MOWRAM

Deputy Director of Engineering Dep., MOWRAM

Director of Kandal Provincial Bureau Service of Water Resources
and Meteorology

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Representatives, Ministry of Agriculture, Forestry and Fisheries

- Japanese side -

Chief Advisor

Coordinator

Experts assigned to the Project

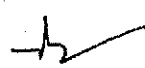
Resident Representative of the JICA Office in the Kingdom of Cambodia

Other Japanese experts and personnel concerned dispatched by JICA, as necessary

(3) Other necessary personnel mutually agreed upon as necessary

(4) Observers:

Officials of the Embassy of Japan in the Kingdom of Cambodia may attend the Joint Coordinating Committee meetings as observers. Persons who are nominated by the Chairperson may also attend the Joint Coordinating Committee meetings.

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MINUTES OF MEETING
BETWEEN THE JAPANESE PROJECT CONSULTATION TEAM
AND THE AUTHORITIES CONCERNED OF THE ROYAL GOVERNMENT
OF CAMBODIA
ON JAPANESE TECHNICAL COOPERATION FOR THE
TECHNICAL SERVICE CENTER FOR IRRIGATION SYSTEM PROJECT

The Japanese Project Consultation Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Tadashi KUNIEDA, visited the Kingdom of Cambodia from December 10, 2001 to December 20, 2001 for the purpose of formulating the Project Design Matrix (PDM), the Plan of Operations (PO) and the Monitoring and Evaluation Plan for the Technical Service Center for Irrigation System Project (hereinafter referred to as "the Project") in the Kingdom of Cambodia as well as discussing the major issues related to the implementation of the Project.

During its stay in the Kingdom of Cambodia, the Team exchanged views and had a series of discussions with the Cambodian authorities concerned in respect of various issues for sharing common understanding on the Project.

Understanding between the Team and the authorities concerned of the Cambodian is recorded as shown in the document attached hereto.

Phnom Penh, December 18, 2001

國枝 正

Mr. Tadashi KUNIEDA

Leader

Project Consultation Team

Japan International Cooperation Agency

Japan



Ministry of Water

Resources and Meteorology

Kingdom of Cambodia

ATTACHED DOCUMENT

1. Background

Agriculture is the prime industry of the Kingdom of Cambodia. Agricultural production contributes to approximately 37.6% of the country's GDP, and about 85% of the national population relies on agriculture for their living in 2000.

Despite abundant farmland and water resources, agricultural productivity of the country has rather been low mainly due to deficient irrigation systems. Rehabilitation of existing irrigation systems is one of the essential development issues of the country.

The Royal Government of Cambodia made a request to the Japanese Government for a technical cooperation that aims at technical transfer on rehabilitation of existing irrigation system such as survey, planning, design, construction, operation and maintenance.

In response to the request, JICA dispatched the Preliminary Study Team and the Supplementary Study Team to confirm the need for assistance and to discuss the details of the Project with the Cambodian side. The Implementation Study Team signed the Record of Discussions on the Project on September 21, 2000. The Project started in January 2001 will continue for five-year period until January 2006.

2. Input of the technical cooperation program

2-1. Japanese Inputs

2-1-1. Dispatch Experts

- 1) A total of five (5) long-term experts and one (1) short-term expert have been dispatched. The contribution of Japanese experts led the Project to the present stage as scheduled, and is highly appreciated by the Cambodian side. The list of dispatched experts is attached in ANNEX 1.

2-1-2. Acceptance of C/Ps for training in Japan

- 1) A total of four (4) C/Ps have visited Japan to participate in technical training. Knowing Japan through the training was very useful for collaborative work with

Japanese experts in the Project. The training in Japan also contributed to the improvement of knowledge and expansion of experience of counterparts. The list of trained counterparts is attached in ANNEX 2.

2-1-3. Provision of equipment, machinery and materials

Major equipment was provided to carry out the project activities effectively. Input of equipment was mostly adequate in timing. Surveying apparatus such as level, and transit couldn't arrive in Cambodia adequately. However, the Project managed this situation by using ones that the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") has and ones provided by Japan arrived in September. The amount of provided equipment is attached in ANNEX3.

2-1-4. Supplementary funds to cover local costs

The Japanese side paid a part of local cost to implement the Project effectively on schedule. The amount of allocated budget by Japanese Government for local cost expenditure is attached in ANNEX4.

2-2.Cambodian Inputs

2-2-1.Assignment of Counterparts

Cambodian counterparts have been assigned to the Project. The motivations of counterparts are very high but they can't work all day because of their serious economic situations. The list assigned counterparts is attached in ANNEX 5.

2-2-2.Provision of Facilities and Equipment

Cambodian side provided facilities and equipment required for the Project. The list of facilities and equipment is attached in ANNEX 6.

2-2-3. Allocation of Budget

Allocation of Budget by Cambodian side is attached in ANNEX 7.

3. Progress of project activities

The project activities have been conducted based upon the Record of Discussion(R/D) signed on September 21, 2000, with cooperation between Japanese experts and Cambodian counterparts. Major progresses of the project activities are as follows.

Renovation of the project office for smooth implementation of the Project was completed. And building including laboratory and lecture room of the Project is under construction by using Cambodian budget.

General surveys of current condition and data collection have been conducted in the field of Survey, Planning, Design, Construction management and Water management for assessing technical capacity in Cambodia.

Field training of water discharge survey and topographic survey was conducted as fundamental technique in the field of Survey, Planning, Design, Construction management and Water management.

Concerned survey of the project, such as farmer survey, water discharge survey as well as topographic survey are conducted continuously.

Actual construction work in model area using provided equipment by Japanese side will be started, and the construction should be conducted based on appropriate survey, planning, design and construction management. And after completion of the construction, participatory irrigation/water management in model site will be started.

Technical transfer and production of technical manual in the field of Survey, Planning, Design, Construction management and Water management should be conducted through the activities mentioned above (on the job training).

And training system in the field of Survey, Planning, Design, Construction

management and Water management should be developed in the Technical Service Center for Irrigation System (hereinafter referred to as "TSC").

4. Project Design Matrix (PDM)

The Team, Japanese experts and Cambodian side discussed the PDM and proposed the revised PDM to the Joint Coordinating Committee held on December 18, 2001. As a result of discussion among the member of the Joint Coordinating Committee, the proposed PDM was modified and is attached in ANNEX 8. The reasons of modification of PDM are as follows.

The previous Verifiable Indicators for Overall Goal did not mention the extension of the project's outcomes in Kandal Stung irrigation area that includes project's model site. So, another indicator "Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project." was added to see how the project's outcomes are extending around the model site.

The original Verifiable Indicators for output 1 is difficult to get, so it was into "Technology in the fields of Survey, Planning, Design, Construction management and Water management is transferred to 10C/Ps (engineers and technicians), and 10C/Ps become trainers and hold training courses."

5. Plan of Operations (PO)

The Team, Japanese experts and the Cambodian side verified the PO for the five-year project period. The PO is shown in ANNEX 9.

6. Monitoring and Evaluation Plan

The Team, Japanese experts and the Cambodian side developed the "Monitoring and Evaluation Plan" as shown in ANNEX 10. Monitoring will be implemented by the counterparts and the long-term experts every six months starting from June 2002 as indicated in the Plan, and the result will be reported to the Joint Coordinating Committee.

7. Other discussions

7-1. Official Establishment of TSC in MOWRAM

The Team confirmed the situation about official establishment of TSC.

The Cambodian side explained to the Team that they have been continuously making an effort for the official establishment of TSC, but there are difficulties of immediate establishment due to the procedures of the authorities concerned in Cambodia.

The team requested the continuous effort by Cambodian side. And Cambodian side accepted it.

7-2. Treatment of C/Ps

Since the C/Ps are facing to economic hardship, the Team and Cambodian side agreed to consider the C/Ps treatment for smooth implementation of the project.

Both side confirmed that the Project prepare documents that shows the costs of the Project so that Cambodian side could apply a budget concerning the C/Ps treatment to the Ministry of Economic and Finance.

7-3. Collaboration with agencies concerned

The Team requested Cambodian side to prepare data necessary for the implementation of the Project. And Cambodian side accepted the request and promised to prepare necessary data smoothly when TSC project needs some data.

8. Recommendations

8-1. Official Establishment of TSC in MOWRAM

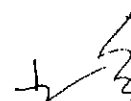
The Team recommended that TSC be officially established in MOWRAM for sustainable development of the Project.

8-2. Treatment of counterparts

The Team commented that full time C/Ps engagement be important for progressing of the Project, and recommended that the Project and Cambodian side take necessary measures for treatment of counterparts for smooth implementation of the Project.

8-3. Extension of transferred technique

The Team recommended that the translation of document concerned of the Project such as technical manual, training textbook, from English to Khmer be important for smooth extension of transferred technique.



- ANNEX 1 Assignment of Japanese Experts
- ANNEX 2 Acceptance of C/Ps for training in Japan
- ANNEX 3 Equipment Provided by Japanese Government
- ANNEX 4 Budget Allocation by the Japanese Government for Local Cost Expenditure
- ANNEX 5 Assignment of Cambodian C/Ps
- ANNEX 6 Facilities and Equipment Prepared by the Royal Government of Cambodia
- ANNEX 7 Allocation of Budget by the Royal Government of Cambodia
- ANNEX 8 Project Design Matrix
- ANNEX 9 Plan of Operations
- ANNEX 10 Monitoring and Evaluation Plan
- ANNEX 11 Project Achievement Chart

Annex 1 Assignment of Japanese Experts

Term	FY*	Expertise	Name	Duration
Long	-	Chief Advisor	Mamoru Ishikawa	1 February 2001 ~ 31 January 2003
	-	Coordinator / Farmers Survey	Mikayo Yamazaki	10 January 2001 ~ 9 January 2003
	-	Survey / Planning	Kenji Yasuda	1 April 2001 ~ 31 March 2003
	-	Design / Water Management	Yoji Ebihara	10 January 2001 ~ 9 January 2003
	-	Construction Management	Yoichi Ihara	10 January 2001 ~ 9 January 2003
Short	2001	Topographical Survey / Topographical Mapping	Satoru Nishio	15 November 2001 ~ 12 December 2001

* = Japanese Fiscal Year starts on April 1

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Annex 2 Acceptance of Cambodian C/Ps for Training in Japan

FY*	Title of Training	Name	Field	Duration
2000	Capacity Building for Irrigation Engineers	H.E. Veng Sakhon	Project Director	10 Decemver 2000 ~ 16 December 2000
2001	Capacity Building for Irrigation Engineers	Te Ouv Kim	Project Sub-Manager	14 May 2001 ~ 25 May 2001
2001	Capacity Building for Irrigation Engineers	Ngoun Pich	Project Sub-Manager	15 May 2001 ~ 25 May 2001
2001	Irrigation and Drainage	Prum Kanthel	Water Management / Farmers Survey	30 July 2001 ~ 17 October 2001

* = Japanese Fiscal Year starts on April 1

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ANNEX 3

Equipment Provided by Japanese Government

Fiscal Year 2000

Fiscal Year	Number	Name of Equipment		Date of		
		English	Maker / Model	Date	Month	Year
2000	1	4WD Vehicle	Toyota/Land Cruiser Station Wagon	30	3	2001
2000	2	Pickup Truck	Toyota/Hi-Lux 4WD	30	3	2001
2000	1	Copy Machine	Canon/Copier NP-7210	30	3	2001
2000	2	Laser Printer	Canon/LBP-800	30	3	2001
2000	5	Desktop Computer	IBM/300GL	30	3	2001
2000	6	Wireless Telephone	MOTOROLA/GM953i	30	3	2001
2000	1	Auto Level	Topukon/AT-M3	12	10	2001
2000	1	Theodolite	Topukon/TL-20G	12	10	2001
2000	1	Plate Table Set	Tamaya/TPT-SET Tamura	12	10	2001
2000	2	Planimeter	Tamaya/PLANIX7	12	10	2001
2000	1	Cone Penetrometer	Marui/MIS-243-1-01	12	10	2001
2000	1	Motorized Direct Shear Test	Marui/MIS-233-1-02	12	10	2001
2000	1	Compaction Set	Marui/MIS-217-1-01	12	10	2001
2000	1	Falling-Head Permeameter	Marui/MIS-227-1-03	12	10	2001
2000	1	Drafting Machine	MAX/MD-3000, PM-912SR	12	10	2001
2000	1	Drafting Machine	MAX/MD-3000, PM-913SR	12	10	2001
2000	1	Paddy Field Receded Tester	Daiki/DIK-4300	14	3	2001
2000	1	Laptop Computer	IBM/ThinkPad I Series 1800	14	3	2001
2000	1	Laptop Computer	IBM/ThinkPad I Series 1800	14	3	2001
2000	1	Color Printer	Canon/BJ-F6800	14	3	2001
2000	1	Color Scanner	Canon/CanoScan N1220U	14	3	2001
2000	1	Wireless Print Server	BUFFALO/AirP's LPV-WL11	14	3	2001
2000	1	Wireless Lan Station	BUFFALO/AirStation WLAR-L11-M	14	3	2001
2000	1	Digital Camera	Canon/IXY Digital	14	3	2001
2000	1	Laptop Computer	Fujitsu/FMV-BIBLO NE5/650R	14	3	2001
2000	1	Laptop Computer	IBM/ThinkPad I Series 1800	14	3	2001
2000	1	Glassfibre Tape Measure 50m	/211-1952	14	3	2001
2000	1	Measure Rope 100m	/210-1603	14	3	2001
2000	1	Aluminum Measurement Rod	/252-2135	14	3	2001
2000	1	Tape Measure 50m	/271-3581	14	3	2001
2000	1	Current Meter	/type 10	14	3	2001
2000	1	Curve Ruler	/103-2011	14	3	2001
2000	1	Drawing Instruments	/120-3581	14	3	2001
2000	1	Barometer	/271-3581	14	3	2001
2000	1	Iron Spirit Level	/4621	14	3	2001
2000	1	Water Cooler and Heater	National/Milux	7	3	2001
2000	1	Electric Pot	National/3-21	7	3	2001
2000	1	Sofa Set	Chea Luck	9	3	2001
2000	2	Refrigerator	Hitachi/180J	20	3	2001
2000	1	Sofa Set	Chea Luck	20	3	2001
2000	16	Desk and Drawers	LEEEO/BD147CH+046A+046B	26	3	2001
2000	16	Office Chair	LEEEO/LSC421	26	3	2001
2000	3	Bookshelf	LEEEO/304SGB	26	3	2001
2000	1	Desk	LEEEO/AT1600	26	3	2001
2000	1	Leather Chair	LEEEO	26	3	2001
2000	1	Safety Box	LEEEO/ES20	26	3	2001
2000	1	Camera	Olympus/200M115	29	3	2001

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2000	4	Electric Fan	Toshiba/934-2533	29	3	2001
2000	2	Hall Puncher	KW-triO	29	3	2001
2000	1	Stapler	Kangaro/DS-12S/17	29	3	2001
2000	1	Paper Cutter	ALFAX	29	3	2001
2000	1	Fax Machine	Panasonic/KX-FP105	29	3	2001

Fiscal Year 2001

Fiscal Year	Number	Name of Equipment		Date of		
		English	Maker / Model	Date	Month	Year
2001	1	Concrete Test Hammer	PROCEQ/NR	11	9	2001
2001	1	Auto Level	Topukon/AT-M3	22	10	2001
2001	1	Theodolite	Topukon/TL20G	22	10	2001
2001	1	Plate Table Set	Tamaya/TPT-SET	22	10	2001
2001	1	Planimeter	Tamaya/PLANIX7	22	10	2001
2001	1	Planimeter	Tamaya/PLANIX7	22	10	2001
2001	1	Cone Penertometer	Marui/MIS-243-1-01	22	10	2001
2001	1	Motorized Direct Shear Test	Marui/MIS-233-1-02	22	10	2001
2001	1	Compaction Set	Marui/MIS-217-1-01	22	10	2001
2001	1	Falling Head Permeameter	Marui/MIS-227-1-03	22	10	2001
2001	1	Drafting Machine	MAX/MD-3000	22	10	2001
2001	1	Drafting Machine	MAX/MD-3000	22	10	2001
2001	1	4WD Vehicle	Toyota/Land Cruiser Station Wagon	4	12	2001
2001	1	Laptop Computer	NEC/LAVIEC LC700J/64DR	27	4	2001
2001	5	UPS	Power Tree/600VAN	12	4	2001
2001	1	Transformer	HANSHIN/TR2002	4	5	2001
2001	1	Cupboard		4	5	2001
2001	1	Electric Drill	Makita/6222DWE	22	5	2001
2001	1	Transformer	HANSHIN/TR2002	4	5	2001
2001	1	Codeless Telephone	Sony/SPP-68	12	7	2001
2001	1	Computer Table	COM-690	17	10	2001
2001	1	Filing Cabinet	Leeco/FC-014	17	10	2001
2001	3	Book Shelf	Otani/S-S02	17	10	2001
2001	2	Table		17	10	2001
2001	1	Shelf	S-2136	17	10	2001
2001	1	Wireless Lan Station	BUFFALO/AirStation WLAR-L11-M	6	11	2001
2001	1	Desktop Computer	MRT Desktop Computer PIII 800	20	11	2001
2001	1	Desktop Computer	MRT Desktop Computer PIII 801	20	11	2001
2001	1	Printer	HP 842C	20	11	2001
2001	1	Paper Shredder	DOCU-SHRED/RDS-545	29	11	2001
2001	1	Electronic Modular Switching System	Panasonic/KX-T30810B	24	5	2001
2001	1	Multifunctional Telephone	Panasonic/KX-T7030	24	5	2001
2001	4	Telephone	Panasonic/KX-T2368	24	5	2001

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Annex 4 Budget Allocation by the Japanese Government for Local Cost Expenditure

(Unit : US\$)

FY*	General Cost	Counterpart Cost	LLDC Special Cost	Technical Exchange Cost	Project Security Cost	Field Activity Cost	Total
2000	16,821.15	2,268.84	9,848.70		2,025.00		30,963.69
2001	30,565.19	8,162.93		14,805.40		10,994.25	64,527.77

*FY=Japanese Fiscal Year starts on April 1

The Costs in 2001 FY is the total of 1st,2nd and 3rd quarters' costs in 2001FY.

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Annex 5 Assignment of Cambodian C/Ps

Name	FY	2000			2001			2002			2003			2004			2005										
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
Management and Administration																											
H.E. Veng Sakhon																											
H.E. Bun Hean																											
Te Onv Kim																											
Ngoun Pich																											
Klok Sam Ang																											
Survey																											
Mao Rath																											
Uch Hing																											
Planning																											
Im Veasna																											
Sam Chhom Sangha																											
Design																											
Sem Samnang																											
Bunpa Marylux																											
Construction Management																											
Phiv Phalkun																											
Ung Kotaro																											
Water Management / Farmers Survey																											
Huot Chandararith																											
Pruon Kanthel																											

==C/P Training in Japan

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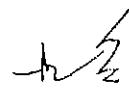
Annex 6 List of Facility and Equipment Prepared by the Royal Government of Cambodia

Institution	Facility	Equipment
Ministry of Water Resources and Meteorology	- Project Office - Parking Space for Project Vehicles - Meeting Room	- Telephone (1 line)
Ministry of Water Resources and Meteorology Tuk Thla Office	- Project Office - Chief Advisor's Office - Kitchen - Warehouse for Equipment - Parking Space for Project Vehicles - Meeting Room	- Telephone (1 line) - Network for Wireless Radio - Level (1 set) - Transit (1 set) - Staff Gauge (2 sets) - Measure Tape (1 unit) - Total Station (1 set)

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Annex 7 Allocation of Budget by the Royal Government of Cambodia

- 1 Office Construction Expenses
 - Improvement of the Tuk Thla Project Office
 - Establishment of the Chief Advisor's Office
- 2 Personnel Expenses for Counterparts and Other Supporting Staff
 - Basic Salary of All Counterparts
 - Basic Salary of 2 Secretaries
 - Basic Salary of 4 Drivers
- 3 Operation Expenses Necessary for the Implementation of the Project
 - Electricity Charges
 - Telephone Charges (2 lines)
 - Fuel for 4 Project Vehicles



Project Design Matrix (PDM)

Narrative Summary		Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Irrigation projects are properly implemented by the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Provincial Bureau Services of Water Resources and Meteorology (hereinafter referred to as "PBSWRAM").		Number of rehabilitation projects undertaken by engineers and technicians of MOWRAM and PBSWRAM	Project records	
Project Purpose The technical capacity of the engineers and technicians of MOWRAM and PBSWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems.		Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project		
Outputs 1. The technical capacity of the counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT). 2. A training system is developed to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PBSWRAM.		Number of engineers and technicians who acquired sufficient knowledge and skill through training	1. Certificates issued for completion of training courses. 2. Self-evaluation of the trainees 3. Examination	1. Engineers and technicians who received training remain at MOWRAM and PBSWRAM. 2. The financial resources for MOWRAM are secured.
		Technology in the fields of Survey, Planning, Design, Construction management and Water management is transferred to 10 C/Ps (engineers and technicians), and 10 C/Ps become trainers and hold training courses. Manuals related to survey, planning, design, construction management and water management with participation of farmers. Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are prepared.	Mutual evaluation between Japanese experts and C/Ps Report of Transferring technology through OJT Manuals Text and curricula Record of instruction by C/Ps	Sufficient number of engineers and technicians of MOWRAM and PBSWRAM take the training courses.
Activities 1. Assessment of technical capacity and setting of technical level 1.1. Collect data 1.2. Assess present technical capacity in the field of Survey 1.3. Assess present technical capacity in the field of planning 1.4. Assess present technical capacity in the field of design 1.5. Assess present technical capacity in the field of construction management 1.6. Assess present technical capacity in the field of water management 1.7. Set the level of skills to be transferred in each field 2. Transfer of technology through OJT 2.1. Transfer survey technique thorough OJT 2.2. Transfer planning techniques thorough OJT 2.3. Transfer design techniques through OJT 2.4. Transfer construction management techniques through OJT 2.5. Transfer water management techniques with participation of farmers thorough OJT 3. Production of manuals 3.1. Produce a manual on survey technique 3.2. Produce a manual on planning technique 3.3. Produce design standard and a manual on design techniques and project evaluation 3.4. Produce manuals on construction management techniques 3.5. Produce manuals on water management techniques with participation of farmers 4. Training 4.1. Conduct training on survey techniques 4.2. Conduct training on planning techniques 4.3. Conduct training on design techniques 4.4. Conduct training on construction management techniques 4.5. Conduct training on water management techniques with participation of farmers		Inputs (Japanese Side) 1. Dispatch of experts: several persons / year such as: Chief Advisor, Project Coordinator / Farmers Survey, and Experts in the fields of 1) Survey / Planning 2) Design / Water Management 3) Construction Management (2) Short-term experts will be sent according to necessity. 2. Provision of equipment 3. Training of Cambodian counterpart personnel in Japan (Cambodian Side) 1. Assignment of counterpart personnel and other supporting staff members. (1) Project Director (2) Project Manager (3) Project Sub-Manager (4) Counterpart personnel in the fields of: 1) Survey / Planning 2) Design / Water Management 3) Construction Management 4) Short-term experts (5) Administrative Staff (6) Technical Staff 2. Provision of land, buildings and facilities related to the Project 3. Provision of machinery necessary for the Project. 4. Allocation of budget for: (1) operation and maintenance of irrigation systems (2) personnel expenses of counterparts and other supporting staff (3) operating expenses necessary for the implementation of the Project	The counterparts continuously work with the Project. Preconditions 1. Adequate number of qualified counterparts is assigned. 2. Farmers are not against the Project.	

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Contents

Plan of Operations

- I. Plan of Operations for Whole Period (2000, 2001, 2002, 2003, 2004, 2005)
 - 1. Assessment of technical capacity and setting of technical level
 - 2. Transfer of technology through OJT
 - 3. Production of manuals
 - 4. Training
- II. Annual plan of Operations (2001)
 - 1. Assessment of technical capacity and setting of technical level
 - 2. Transfer of technology through OJT
 - 3. Production of manuals

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I. Plan of Operations for Whole Period (2000, 2001, 2002, 2003, 2004, 2005)

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Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Plan of Operations for Whole Period

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

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1.21: A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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1-2. A training system is developed to transfer skills in all fields to other engineers and technicians of MOUWKAM and PES WKAM

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Plan of Operations for Whole Period

ANNEX 9

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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2. Transfer of technology through OJT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

Plan of Operations for Whole Period

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Responsible persons in the project	Inputs	Remarks
		2001				2002				2003				2004						
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III			
2-2-2. Produce design water requirement and drainage discharge	adapting the concept of water requirement																	Veasna, Sangha, Yasuda		
2-2-2-A. water requirement rate at the initial irrigation period	(results of investigation)																	Veasna, Sangha, Yasuda	N-type water requirement rate measurement apparatus, Vehicle	
2-2-2-B. water requirement rate at the ordinary irrigation period	(results of investigation)																	Veasna, Sangha, Yasuda	N-type water requirement rate measurement apparatus, Vehicle	
2-2-3. Produce economic evaluation	Adopting the cost benefit concept																	Veasna, Sangha, Yasuda	Short term expert	
2-3. Transfer design techniques through OJT																				
2-3-1. Transfer survey techniques of design through OJT	Improve survey techniques																			
2-3-1-A. Transfer basic survey techniques for a model site	(Drawings)																	Sam Nang, Marylux, Ebihara	Level, Transit, Drawing table	
2-3-1-B. Transfer practical survey techniques for a model site	(Drawings)																	Sam Nang, Marylux, Ebihara	Level, Transit, Drawing table	
2-3-1-C. Apply both survey techniques to a model site	(Drawings)																	Sam Nang, Marylux, Ebihara	Level, Transit, Drawing table	
2-3-2. Transfer design techniques of irrigation & drainage canals and related structures through OJT	Improve design techniques on irrigation facilities																			
2-3-2-A. Transfer basic design techniques for a model site	(Drawings)																	Sam Nang, Marylux, Ebihara	Direct shearing testing apparatus, Concrete compression testing apparatus	
2-3-2-B. Transfer practical design techniques for irrigation & drainage canals in a model site	(Drawings)																	Sam Nang, Marylux, Ebihara	Direct shearing testing apparatus, Concrete compression testing apparatus, Short term expert	
2-3-2-C. Transfer practical design techniques for related structure in a model site	(Drawings)																	Sam Nang, Marylux, Ebihara	Direct shearing testing apparatus, Concrete compression testing apparatus, Short term expert	

Plan of Operations for Whole Period

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2) A training system is developed to transfer skills in all fields to other engineers and technicians of MUWAKAM and PHSWKAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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2-4. Transfer construction management techniques through OJT	Transferring the construction management techniques																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

12). A training system is developed to transfer skills in all fields to other engineers and technicians of MQWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																				Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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2-4-1. Construct facilities	Transferring appropriate techniques as supervision for the construction at the model site (Contents of construction)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

Plan of Operations for Whole Period

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(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

127. A training system is developed to transfer status in all fields to other engineers and technicians of MUOKAWI and PESWKAM.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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2-5-2. Produce a water management plan with participation of farmers for the model site	Improve water management method																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

Plan of Operations for Whole Period

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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3. Production of manuals																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

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(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(27) A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.																									
Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																				Responsible persons in the project	Inputs	Remarks	
		2001				2002				2003				2004				2005							
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV							
3-3-2.Design standard	Technical standards																								
3-3-2-A.Open canals	(Technical standards)																							Sam Nang, Marylux, Ebihara	
3-3-2-B.Related structures	(Technical standards)																							Sam Nang, Marylux, Ebihara	
3-3-2-C.Project evaluation	(Technical standards)																							Sam Nang, Marylux, Ebihara	
3-4.Produce manuals on construction management techniques	Manuals on construction management techniques																								
3-4-1.Produce manuals for construction machinery	Manuals for construction machinery																								
3-4-1-A.Operation	(Contents of manual)																							Kotaro, Plakoun, Ihara	Short term expert
3-4-1-B.Maintenance	(Contents of manual)																							Kotaro, Plakoun, Ihara	Short term expert
3-4-2.Produce specifications for construction	Specifications for construction																								
3-4-2-A.General specification	(Contents of specification)																							Kotaro, Plakoun, Ihara	
3-4-2-B.Special specification	(Contents of specification)																							Kotaro, Plakoun, Ihara	

3/4

Plan of Operations for Whole Period

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MUWAKAM and PHS WKAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Responsible persons in the project	Inputs	Remarks				
		2001				2002				2003				2004							2005			
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III							
3-4-3. Produce manuals for cost estimate	Manuals for cost estimate																							
3-4-3-A. Unit price	(Contents of manual)																							
3-4-3-B. Requirement per unit work	(Contents of manual)																							
3-4-3-C. Others	(Contents of manual)																							
3-4-4. Produce manuals for construction control	Manuals for construction control																							
3-4-4-A. Schedule control	(Contents of manual)																							
3-4-4-B. Quality control (soil test, concrete test)	(Contents of manual)																							
3-4-4-C. Control of finished work quality	(Contents of manual)																							
3-5. Produce manuals on water management techniques	Manuals on water management are prepared																							
3-5-1. Manual on operation and maintenance techniques of irrigation structures on farm level	(Contents of manual)																							
3-5-2. Manual on water management techniques on farm level	(Contents of manual)																							

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(27) A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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4.Training	(The textbook and curricula for training course) (10C/P become trainer) (The number of trainee) A training system is developed in the field of survey techniques																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											</

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Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Responsible persons in the project	Inputs	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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4-4. Conduct training on construction management techniques	A training system is developed in the field of construction management																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

Plan of Operations for Whole Period

ANNEX 9

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																				Responsible persons in the project	Inputs	Remarks		
		2001				2002				2003				2004				2005								
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV								
4-4-3.Training for taking construction management	A training system is developed for taking construction management																									
4-4-3-A.Schedule control	(Number of participants of training)																									
4-4-3-B.Quality control (soil test, concrete test)	(Number of participants of training)																									
4-4-3-C.Control of finished work quality	(Number of participants of training)																									
4-5.Conduct training on water management techniques with participation of farmers	A training system is developed in the field of water management techniques																									
4-5-1.Operation and maintenance techniques of irrigation structures on farm level	(Number of participants of training)																									
4-5-2.Water management techniques on farm level	(Number of participants of training)																									
																					</					

Note : 1st quarter is April to June. 2nd quarter is July to September. 3rd quarter is October to December and 4th quarter is January to March.

II. Annual plan of Operations (2001)

34

Annual Plan of Operations

ANNEX 9

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

127. A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)													Responsible persons in the project	Inputs	Remarks
		4	5	6	7	8	9	10	11	12	1	2	3				
1. Assessment of technical capacity and setting of technical level																	
1-1. Collect data	Confirmation of the present situation of irrigation system in Cambodia																
1-1-1. Conduct general survey of existing conditions (construction work, operation and maintenance of facilities by the Cambodian side)	Grasp the present Organization, Number of Members, Contents of Construction works, Budget															Veasna, Sangha, Rath, Hing, Yasuda	
1-1-2. Conduct general survey of existing conditions (construction work, operation and maintenance of facilities by the international cooperation organizations)	Grasp the present Organization, Number of Members, Contents of Construction works, Budget															Veasna, Sangha, Rath, Hing, Yasuda	
1-2. Assess present technical capacity in the field of Survey	Confirmation of the present standard or Guideline in the field of Survey																
1-2-1. Assess present technical capacity of Survey	(contents of assessment)															Rath, Hing, Yasuda	
1-2-2. Assess present technical capacity of Hydrology and Meteorology	(contents of assessment)															Rath, Hing, Yasuda	
1-3. Assess present technical capacity in the field of planning	Confirmation of the present standard or Guideline in the field of Planning																
1-3-1. Assess present technical capacity of irrigation system	(contents of assessment)															Veasna, Sangha, Yasuda	
1-3-2. Assess present technical capacity of design water requirement and drainage discharge	(contents of assessment)															Veasna, Sangha, Yasuda	
1-4. Assess present technical capacity in the field of design	Confirmation of the present technical capacity in the field of design																
1-4-1. Collect documents in the field of design	Number of documents																
1-4-1-A. Drawings	(Number and kind of drawing)															Sam Nang, Marylux, Ebiara	
1-4-1-B. Design values	(Number and kind of design value)															Sam Nang, Marylux, Ebiara	
1-4-1-C. Design standards	(Number and kind of design standard)															Sam Nang, Marylux, Ebiara	

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)												Responsible persons in the project	Inputs	Remarks
		4	5	6	7	8	9	10	11	12	1	2	3			
1-4-2 Examine and interpret documents in the field of design	(Summary report)													Sam Nang, Marylux, Ebihara		
1-5. Assess present technical capacity in the field of construction management	Confirmation of the present technical capacity in the field of construction management															
1-5-1. Assess present technical capacity for doing construction planning	Confirmation of the present technical capacity for doing construction planning															
1-5-1-A. Schedule planning	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-1-B. Temporary works planning	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-1-C. Materials and laborer carrying planning	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-1-D. Safety control planning	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-1-E. Quality control planning	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-1-F. Control of finished work quality planning	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-2. Assess present technical capacity for preparing design documents	Confirmation of the present technical capacity for preparing design documents															
1-5-2-A. Cost estimates	(Contents of assessment)													Kotaro, Plakoun, Ihara		
1-5-2-B. Design drawing	(Contents of assessment)													Kotaro, Plakoun, Ihara		

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2.1.1. A training system is developed to transfer skills in on fields to other engineers and technicians of PMO in FY01 and FY02 and FY03)

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)												Responsible persons in the project	Inputs	Remarks	
		4	5	6	7	8	9	10	11	12	1	2	3				
1-5-3. Assess present technical capacity for taking construction control	Confirmation of the present technical capacity for taking construction control														Kotaro, Plakoun, Ihara		
1-5-3-A. Schedule control	(Contents of assessment)																
1-5-3-B. Quality control	(Contents of assessment)																
1-5-3-C. Control of finished work quality	(Contents of assessment)																
1-6. Assess present technical capacity in the field of water management	Confirmation of the present technical capacity in the field of design														Kan Theal, Chandararith, Ebiara		
1-6-1. Grasp the existing methods of water management technique through a case study	Case study reports																
1-6-1-A. Irrigation and drainage system on farm level	(Case study reports)																
1-6-1-B. Existing related structures	(Case study reports)																
1-6-1-C. Participation of farmers	(Case study reports)														Kan Theal, Chandararith, Ebiara		
1-6-2. Examine the existing methods of water management technique through a case study	(Case study reports)														Kan Theal, Chandararith, Ebiara		
1-7. Set the level of skills to be transferred in each field	(contents of setting level in each field)														Yasuda, Ebiara, Ihara, Yamazaki		
1-7-1. Set the level of skill in the Survey/Planning	(contents of setting level)																
1-7-2. Set the level of skill in the design/Water Management	(contents of setting level)																
1-7-3. Set the level of skill in the Construction Management	(contents of setting level)																

Annual Plan of Operations

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)												Responsible persons in the project	Inputs	Remarks
		4	5	6	7	8	9	10	11	12	1	2	3			
2. Transfer of technology through OJT																
2-1. Transfer survey technique through OJT	Transferring the survey technique															
2-1-1. Conduct general survey of existing conditions (social, farmsystem, water use, etc.)	Confirmation of all existing structures and conditions concerning the project (situation of society, water use, kind of crop, cropping pattern)															
2-1-1-A. Farm and Social management survey	(investigation results of social, economical, farming situations)													Yamazaki, Yasuda, Ebihara, Ihara, all counterparts	Interpreter, Office Facilities, Vehicle, Questionnaire form	
a. social, economical, farming, situation	(investigation results of existing irrigation and drainage net work)													Yamazaki, Yasuda, Ebihara, Ihara, all counterparts		
b. existing irrigation and drainage net work	(investigation results of custom of irrigation and drainage practice)													Yamazaki, Yasuda, Ebihara, Ihara, all counterparts		
c. custom of irrigation and drainage practice	(existing design of structures in the model site)														Surveying apparatus, Vehicle	
2-1-1-B. Confirmation of existing structures survey	(results of leveling)													Rath, Hing, Yasuda		
a. leveling (tuk thla regulator kompong tuol regulator, spillway, intake, setting the BM)	(results of leveling and cross leveling)													Rath, Hing, Yasuda		
b. center line survey (leveling and cross leveling)	(results of plane-table survey)													Rath, Hing, Yasuda		
c. checking the structures along the main canal	(design of topographic survey around the model site)														Surveying apparatus, Vehicle, Short term expert	
2-1-1-C. Topographic survey	(results of topographic survey)													Rath, Hing, Yasuda	Short term expert	
a. topographic survey around the model site	(results of land survey)													Rath, Hing, Yasuda		
b. land survey in the model site	(inventory of land ownership, area, kind of crop)													Yamazaki, Yasuda, Ebihara, Ihara, all counterparts	Computer data base, Interpreter	
2-1-1-D. Making the Land inventory	(basical data accumulation concerning temperature, rainfall, wind, evapotranspiration)													Rath, Hing, Yasuda	Hydrology, meteorology measurement apparatus	
2-1-1-E. Hydrology and Meteorology survey																

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)												Responsible persons in the project	Inputs	Remarks
		4	5	6	7	8	9	10	11	12	1	2	3			
2-1-2. Conduct of discharge survey	Confirmation of the existing discharge															
2-1-2-A. Water level measurement	(the results of water level measurement at the intake, main canal, main drainage)													Rath, Hing, Yasuda	Staff gauge, Vehicle	
2-1-2-B. Discharge measurement	(the results of water velocity measurement, H-Q curve)													Rath, Hing, Yasuda	Staff gauge, Current Meter, Level Machine	
2-2. Transfer planning techniques through OJT	Making the Effective Plan for the rehabilitation projects															
2-2-1. Produce an irrigation and drainage plan for model site	Making the water use plan in the kandal stung area													All C/P	Short term expert	
2-3. Transfer design techniques through OJT																
2-3-1. Transfer survey techniques of design through OJT	Improve survey techniques															
2-3-1-A. Transfer basic survey techniques for a model site	(Drawings)													Sam Nang, Marylux, Ebiara	Level, Transit, Drawing table	
2-3-1-B. Transfer practical survey techniques for a model site	(Drawings)													Sam Nang, Marylux, Ebiara	Level, Transit, Drawing table	
2-3-2. Transfer design techniques of irrigation & drainage canals and related structures through OJT	Improve design techniques on irrigation facilities															
2-3-2-A. Transfer basic design techniques for a model site	(Drawings)													Sam Nang, Marylux, Ebiara	Direct shearing testing apparatus, Concrete compression testing apparatus	
2-4. Transfer construction management techniques through OJT	Transferring the construction management techniques															
2-4-1. Prepare to construct (road repair, etc.)	Preparation for the main construction													Kotaro, Plakoun, Ihara	Construction cost, Machinery, Operators, Short term expert	

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)												Responsible persons in the project	Inputs	Remarks
		4	5	6	7	8	9	10	11	12	1	2	3			
2-4-2. Train operators of construction machinery	Preparation for the main construction															
2-4-2-A. Operation	(Result of training)													Kotaro, Plakoun, Ihara	Machinery, Operators, Short term expert	
2-4-2-B. Maintenance	(Result of training)													Kotaro, Plakoun, Ihara	Machinery, Operators, Short term expert	
2-5. Transfer water management techniques thorough OJT with participation of farmers	Improve water management technique															
2-5-1. Promote participation of farmers at the model site																
2-5-1-A. Farmers' meeting	(Number of farmers' meeting)													Kan Theal, Chandaranith, Ebiyara		
2-5-1-C. Preparatory works for water users' group	(Feasibility of farmers' association)													Kan Theal, Chandaranith, Ebiyara		

Annual Plan of Operations

ANNEX 9

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year 2001)												Responsible persons in the project	Inputs	Remarks
		4	5	6	7	8	9	10	11	12	1	2	3			
3. Production of manuals																
3-1. Produce a manual on survey technique	Manual on survey technique															
3-1-1. Produce a manual on farm and social management survey	(contents of manual)													Rath, Hing, Kan Theal, Chandararith, Yasuda, Ebiyara, Yamazaki		
3-1-2. Produce a manual on surveying	(contents of manual)													Rath, Hing, Yasuda		
3-1-3. Produce a manual on hydrology and meteorology survey	(contents of manual)													Rath, Hing, Yasuda		
3-1-4. Produce a manual on discharge measurement	(contents of manual)													Rath, Hing, Yasuda		
3-4. Produce manuals on construction management techniques	Manuals on construction management techniques															
3-4-1. Produce manuals for construction machinery	Manuals for construction machinery															
3-4-1-A. Operation	(Contents of manual)													Kotaro, Plakoun, Ihara	Short term expert	
3-4-1-B. Maintenance	(Contents of manual)													Kotaro, Plakoun, Ihara	Short term expert	
4. Training	(The textbook and curricula for training course) (10C/P become trainer)															
4-4. Conduct training on construction management techniques	A training system is developed in the field of construction management															
4-4-1. Training on O&M of construction machinery	A training system is developed for O&M of construction machinery															
4-4-1-A. Operation	(Number of participants of training)													Kotaro, Plakoun, Ihara	OHP, Projector, Short term expert	
4-4-1-B. Maintenance	(Number of participants of training)													Kotaro, Plakoun, Ihara	OHP, Projector, Short term expert	

Monitoring and Evaluation Plan
of Technical Service Center for Irrigation Project in Cambodia(draft)
(Jan.2001to Jan.2006)

I. Project structure and activities

1. Project Design Matrix (PDM:ANNEX8)

The PDM was prepared by Japanese Experts and Cambodian counterparts belong to Technical Service Center for Irrigation System Project(TSC project) in consultation with Japanese Project Consultation Team. And that was endorsed by Leader, Project Consultation Team, Japan International Corporation Agency, Japan and Under Secretary of State, Ministry of Water Resources and Meteorology, Kingdom of Cambodia.

2. Plan of operation (PO:ANNEX9)

The PO was prepared by Japanese experts and Cambodian counterparts belong to TSC project in consultation with Japanese Project Consultation Team. And that was endorsed by Leader, Project Consultation Team, Japan International Corporation Agency, Japan and Under Secretary of State, Ministry of Water Resources and Meteorology, Kingdom of Cambodia.

II. Monitoring and Evaluation activities

1. Monitoring System

In accordance with the Schedule of Monitoring and Evaluation, the Project holds regular meeting chaired by the Project Director to monitor the progress of activities.

Sufficient data for monitoring should be prepared by the Japanese Expert and Cambodian Counterparts belong to the each field of the Project. Monitoring Report should be prepared under the form of "Project achievement chart" (ANNEX11)

2. Evaluation System

In accordance with the Schedule of Monitoring and Evaluation(III), an evaluation mission will be dispatched by JICA authorities at the time of Intermediate and Final evaluation. The mission and The Cambodia authorities concerned will formulate a Joint evaluation team. The team will evaluate the Project based on Item of evaluation. An evaluation report should be prepared and signed by Japanese and Cambodian Sides.

III. Schedule of Monitoring and Evaluation(provisional)

Time	Type of monitoring and evaluation	Conducted by	Reported by
September,2000	Agreement on cooperation		R/D Minutes
January,2001	Commencement of cooperation		
October,2001	Joint Coordinating Committee	Members of JC	
December,2001	Monitoring and evaluation plan Joint Coordinating Committee	Project Consultation Team, Members of JC	Minutes
June,2002	1 st monitoring	Counterparts, JICA experts, MOWRAM	Monitoring Report
December,2002	2 nd monitoring Joint Coordinating Committee	Counterparts, JICA experts, MOWRAM, Members of JC	Monitoring Report
June,2003	3 rd monitoring	Counterparts, JICA experts, MOWRAM	Monitoring Report
December,2003	Intermediate Evaluation Joint Coordinating Committee	Joint evaluation team Members of JC	Minutes
June,2004	4 th monitoring	Counterparts, JICA experts, MOWRAM	Monitoring Report
December,2004	5 th monitoring Joint Coordinating Committee	Counterparts, JICA experts, MOWRAM, Members of JC	Monitoring Report
June,2005	6 th monitoring Final Evaluation Joint Coordinating Committee	Joint evaluation team Members of JC	Monitoring Report, Evaluation Report
January,2006	Completion of the Cooperation		

IV. Criteria and Items for Monitoring and Evaluation

1.Criteria and Items for Monitoring (Project achievement chart :ANNEX11)

Targets/Indicator listed in "Plan of Operations"(PO:ANNEX9) should be utilized for Monitoring

2.Criteira of Evaluation

Indicators for each items will be decided by the time of the intermediate evaluation.

Contents

Project achievement chart

1. Assessment of technical capacity and setting of technical level
2. Transfer of technology through OJT
3. Production of manuals
4. Training

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Project achievement chart

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MIUWKAM and PBSWKAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)				Distinguished Achievement	Problems and Countermeasures		
		2000	2001				2002				2003				2004				2005						
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	25	50	75			100	
1. Assessment of technical capacity and setting of technical level																									
1-1. Collect data	Confirmation of the present situation of irrigation system in Cambodia																								
1-1-1. Conduct general survey of existing conditions (construction work ,operation and maintenance of facilities by the Cambodian side)	Grasp the present Organization, Number of Members, Contents of Construction works, Budget																								
1-1-2. Conduct general survey of existing conditions (construction work ,operation and maintenance of facilities by the international cooperation organizations)	Grasp the present Organization, Number of Members, Contents of Construction works, Budget																								
1-2. Assess present technical capacity in the field of Survey	Confirmation of the present standard or Guideline in the field of Survey																								
1-2-1. Assess present technical capacity of Survey	(contents of assessment)																								
1-2-2. Assess present technical capacity of Hydrology and Meteorology	(contents of assessment)																								
1-3. Assess present technical capacity in the field of planning	Confirmation of the present standard or Guideline in the field of Planning																								
1-3-1. Assess present technical capacity of irrigation system	(contents of assessment)																								
1-3-2. Assess present technical capacity of design water requirement and drainage discharge	(contents of assessment)																								

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Project achievement chart

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(21): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)	Distinguished Achievement	Problems and Countermeasures																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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1-4 Assess present technical capacity in the field of design	Confirmation of the present technical capacity in the field of design																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

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Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(27) A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Progress (%)	Distinguished Achievement	Problems and Countermeasures								
		2000	2001				2002				2003						2004				2005			
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			I	II	III	IV	I	II	III	IV
1-5-2. Assess present technical capacity for preparing design documents	Confirmation of the present technical capacity for preparing design documents																							
1-5-2-A. Cost estimates	(Contents of assessment)																							
1-5-2-B. Design drawing	(Contents of assessment)																							
1-5-3. Assess present technical capacity for taking construction control	Confirmation of the present technical capacity for taking construction control																							
1-5-3-A. Schedule control	(Contents of assessment)																							
1-5-3-B. Quality control	(Contents of assessment)																							
1-5-3-C. Control of finished work quality	(Contents of assessment)																							
1-6. Assess present technical capacity in the field of water management	Confirmation of the present technical capacity in the field of design																							
1-6-1. Grasp the existing methods of water management technique through a case study	Case study reports																							
1-6-1-A. Irrigation and drainage system on farm level	(Case study reports)																							
1-6-1-B. Existing related structures	(Case study reports)																							
1-6-1-C. Participation of farmers	(Case study reports)																							
1-6-2. Examine the existing methods of water management technique through a case study	(Case study reports)																							

Project achievement chart

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MUWKAM and PBSWKAM.																						
Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)		Distinguished Achievement	Problems and Countermeasures	
		2000	2001				2002				2003				2004				2005			
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	25			50
1-7.Set the level of skills to be transferred in each field	(contents of setting level in each field)																					
1-7-1.Set the level of skill in the Survey/Planning	(contents of setting level)																					
1-7-2.Set the level of skill in the design/Water Management	(contents of setting level)																					
1-7-3.Set the level of skill in the Construction Management	(contents of setting level)																					

Project achievement chart

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MUWRAIM and PBSWRAIM.																									
Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Progress (%)	Distinguished Achievement	Problems and Countermeasures									
		2000	2001				2002				2003						2004				2005				
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			I	II	III	IV	25	50	75	100	
2. Transfer of technology through OJT																									
2-1. Transfer survey technique thorough OJT	Transferring the survey technique																								
2-1-1. Conduct general survey of existing conditions (social, farmsystem, water use, etc.)	Confirmation of all existing structures and conditions concerning the project (situation of society, water use, kind of crop, cropping pattern)																								
2-1-1-A. Farm and Social management survey	(existing design of structures in the model site)																								
2-1-1-B. Confirmation of existing structures survey	(design of topographic survey around the model site)																								
2-1-1-C. Topographic survey	(inventory of land ownership ,area, kind of crop)																								
2-1-1-D. Making the Land inventory	(basical data accumulation concerning temperature ,rainfall, wind, evapotranspiration)																								
2-1-1-E. Hydrology and Meteorology survey																									
2-1-2. Conduct of discharge survey	Confirmation of the existing discharge																								
2-1-2-A. Water level measurement	(the results of water level measurement at the intake, main canal, main drainage)																								
2-1-2-B. Discharge measurement	(the results of water velocity measurement , H-Qcurve)																								
2-2. Transfer planning techniques thorough OJT	Making the Effective Plan for the rehabilitation projects																								
2-2-1. Produce an irrigation and drainage plan for model site	Making the water use plan in the kandal stung area																								

Project achievement chart

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)				Distinguished Achievement	Problems and Countermeasures			
		2000	2001				2002				2003				2004				2005							
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	25	50	75			100		
2-2-2. Produce design water requirement and drainage discharge	adapting the concept of water requirement																									
2-2-2-A. water requirement rate at the initial irrigation period	(results of investigation)																									
2-2-2-B. water requirement rate at the ordinary irrigation period	(results of investigation)																									
2-2-3. Produce economic evaluation	Adopting the cost benefit concept																									
2-3. Transfer design techniques through OJT																										
2-3-1. Transfer survey techniques of design through OJT	Improve survey techniques																									
2-3-1-A. Transfer basic survey techniques for a model site	(Drawings)																									
2-3-1-B. Transfer practical survey techniques for a model site	(Drawings)																									
2-3-1-C. Apply both survey techniques to a model site	(Drawings)																									
2-3-2. Transfer design techniques of irrigation & drainage canals and related structures through OJT	Improve design techniques on irrigation facilities																									
2-3-2-A. Transfer basic design techniques for a model site	(Drawings)																									
2-3-2-B. Transfer practical design techniques for irrigation & drainage canals in a model site	(Drawings)																									
2-3-2-C. Transfer practical design techniques for related structure in a model site	(Drawings)																									

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MDWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Progress (%)				Distinguished Achievement	Problems and Countermeasures																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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2-4. Transfer construction management techniques through OJT	Transferring the construction management techniques																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

Project achievement chart

ANNEX 11

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

(21) A training system is developed to transfer skills in all fields to other engineers and technicians of MUWRAM and PBSWRAM.																												
Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																				Progress (%)				Distinguished Achievement	Problems and Countermeasures	
		2000	2001				2002				2003				2004				2005									
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	25	50	75	100						
2-4-4. Construct facilities	Transferring appropriate techniques as supervision for the construction at the model site																											
2-4-4-A. Irrigation canal	(Contents of construction)																											
2-4-4-B. Drainage canal	(Contents of construction)																											
2-4-4-C. Other facilities	(Contents of construction)																											
2-4-5. Take construction control	Transferring appropriate techniques as construction control																											
2-4-5-A. Schedule control	(Contents of control)																											
2-4-5-B. Quality control (soil test, concrete test)	(Contents of control)																											
2-4-5-C. Control of finished work quality	(Contents of control)																											
2-5. Transfer water management techniques thorough OJT with participation of farmers	Improve water management technique																											
2-5-1. Promote participation of farmers at the model site																												
2-5-1-A. Farmers' meeting	(Number of farmers' meeting)																											
2-5-1-B. Irrigation block	(Irrigation block to be planned)																											
2-5-1-C. Preparatory works for water users' group	(Feasibility of farmers' association)																											

Project achievement chart

ANNEX II

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM																							
Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Progress (%)	Distinguished Achievement	Problems and Countermeasures							
		2001				2002				2003							2004				2005		
		2000	I	II	III	IV	I	II	III	IV	I	II	III	IV			I	II	III	IV	25	50	75
2-5-2. Produce a water management plan with participation of farmers for the model site	Improve water management method																						
2-5-2-A. Cropping pattern																							
2-5-2-B. Water distribution plan																							
2-5-2-C. Operation rule of related structures on farm level																							

3/1

Project achievement chart

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)				Distinguished Achievement	Problems and Countermeasures				
		2000				2001				2002				2003				2004						2005			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			25	50	75	100
3. Production of manuals																											
3-1. Produce a manual on survey technique	Manual on survey technique																										
3-1-1. Produce a manual on farm and social management survey	(contents of manual)																										
3-1-2. Produce a manual on surveying	(contents of manual)																										
3-1-3. Produce a manual on hydrology and meteorology survey	(contents of manual)																										
3-1-4. Produce a manual on discharge measurement	(contents of manual)																										
3-2. Produce a manual on planning technique	Manual on planning technique																										
3-2-1. Produce a manual on irrigation system	(contents of manual)																										
3-2-2. Produce a manual on design water requirement and drainage discharge	(contents of manual)																										
3-2-3. Produce a manual on economic evaluation	Manual for economic evaluation (contents of manual)																										
3-3. Produce design standard and a manual on design techniques and project evaluation	manuals and standards on design techniques																										
3-3-1. Design manuals	manual on design techniques																										
3-3-1-A. Open canals	(manual on design techniques)																										
3-3-1-B. Related structures	(manual on design techniques)																										
3-3-1-C. Project evaluation																											

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

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Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)	Distinguished Achievement	Problems and Countermeasures				
		2001				2002				2003				2004							2005			
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III							
3-3-2.Design standard	Technical standards																	25	50	75	100			
3-3-2-A.Open canals	(Technical standards)																							
3-3-2-B.Related structures	(Technical standards)																							
3-3-2-C.Project evaluation	(Technical standards)																							
3-4.Produce manuals on construction management techniques	Manuals on construction management techniques																							
3-4-1. Produce manuals for construction machinery	Manuals for construction machinery																							
3-4-1-A. Operation	(Contents of manual)																							
3-4-1-B.Maintenance	(Contents of manual)																							
3-4-2.Produce specifications for construction	Specifications for construction																							
3-4-2-A.General specification	(Contents of specification)																							
3-4-2-B.Special specification	(Contents of specification)																							

Project achievement chart

Output (1): The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2): A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

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3-4-3. Produce manuals for cost estimate	Manuals for cost estimate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

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Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Progress (%)				Distinguished Achievement	Problems and Countermeasures																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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4.Training	(The textbook and curricula for training course) (IOC/P become trainer) A training system is developed in the field of survey techniques																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

Project achievement chart

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Activities	Targets / (Indicators)	Schedule (Japanese Fiscal Year)												Progress (%)	Distinguished Achievement	Problems and Countermeasures									
		2000	2001				2002				2003						2004				2005				
		IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			I	II	III	IV	25	50	75	100	
4-4. Conduct training on construction management techniques	A training system is developed in the field of construction management																								
4-4-1. Training on O&M of construction machinery	A training system is developed for O&M of construction machinery																								
4-4-1-A. Operation	(Number of participants of training)																								
4-4-1-B. Maintenance	(Number of participants of training)																								
4-4-2. Training for doing construction planning and preparing design documents	A training system is developed for doing construction planning and preparing design documents																								
4-4-2-A. Schedule planning	(Number of participants of training)																								
4-4-2-B. Temporary works planning	(Number of participants of training)																								
4-4-2-C. Materials and laborer carrying planning	(Number of participants of training)																								
4-4-2-D. Safety control planning	(Number of participants of training)																								
4-4-2-E. Quality control planning	(Number of participants of training)																								
4-4-2-F. Control of finished work quality planning	(Number of participants of training)																								
4-4-2-G. Cost estimates	(Number of participants of training)																								
4-4-2-H. Design drawing	(Number of participants of training)																								

3/4

Project achievement chart

ANNEX 11

Output (1) : The technical capacity of the counterparts in all fields is improved through the On-the-Job training (OJT).

(2) : A training system is developed to transfer skills in all fields to other engineers and technicians of MOWRAM and PBSWRAM.

Activities		Targets / (Indicators)	Schedule (Japanese Fiscal Year)																Progress (%)				Distinguished Achievement	Problems and Countermeasures				
			2000				2001				2002				2003				2004						2005			
			IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III			IV	25	50	75
4-4-3.Training for taking construction management		A training system is developed for taking construction management																										
4-4-3-A.Schedule control		(Number of participants of training)																										
4-4-3-B.Quality control (soil test, concrete test)		(Number of participants of training)																										
4-4-3-C.Control of finished work quality		(Number of participants of training)																										
4-5.Conduct training on water management techniques with participation of farmers		A training system is developed in the field of water management techniques																										
4-5-1.Operation and maintenance techniques of irrigation structures on farm level		(Number of participants of training)																										
4-5-2.Water management techniques on farm level		(Number of participants of training)																										

Note : 1st quarter is April to June, 2nd quarter is July to September, 3rd quarter is October to December and 4th quarter is January to March.

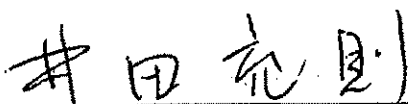
MINUTES OF MEETING
BETWEEN THE JAPANESE MID-TERM EVALUATION TEAM
AND THE AUTHORITIES CONCERNED OF THE ROYAL GOVERNMENT
OF CAMBODIA
ON JAPANESE TECHNICAL COOPERATION
FOR THE TECHNICAL SERVICE CENTER
FOR IRRIGATION SYSTEM PROJECT IN CAMBODIA

The Government of Japan dispatched the Japanese Mid-term Evaluation Team (hereinafter referred to as "the Japanese Team"), headed by Mr. Mitsunori IDA, to the Kingdom of Cambodia. The Japanese Team was dispatched through the Japan International Cooperation Agency (hereinafter referred to as "JICA") from October 19 to October 31, 2003, for the purpose of conducting mid-term evaluation of the Project Type Technical Cooperation for the Technical Service Center For Irrigation System Project as well as discussing the major issues related to the implementation of the Project.

During the Japanese Team's stay in the Kingdom of Cambodia, the Japanese Team and the authorities concerned of the Government of the Kingdom of Cambodia formulated the Joint Evaluation Team (hereinafter referred to as "the Evaluation Team") to conduct mid-term evaluation of the Project by carrying out a field visit, exchanging views and holding a series of discussions in respect of desirable measures to be taken by both Governments for the successful implementation of the Project.

As the result of the evaluation, the Japanese Team and the authorities concerned of the Government of the Kingdom of Cambodia shared the view that they would recommend to their respective Governments the matters referred to in the Joint Evaluation Report attached hereto.

Phnom Penh, October 28, 2003



Mr. Mitsunori IDA

Leader

Japanese Mid-term Evaluation Team

Japan International Cooperation Agency

Japan



Secretary of State

Ministry of Water

Resources and Meteorology

Kingdom of Cambodia

Attached Document

The Joint Evaluation Team has presented the Evaluation Report to the Joint Coordinating Committee.

The Joint Coordinating Committee has accepted the Report and taken notes of the recommendations aimed for smooth implementation of the Project.

The Cambodian side has requested prompt and appropriate implementation of the Japan's grant aid project for Kandal Stung irrigation system rehabilitation which will give a great impact on effectiveness of the TSC project.

The Japanese Team will report the results of the joint evaluation and request from the Cambodian side to the Japanese government.

④

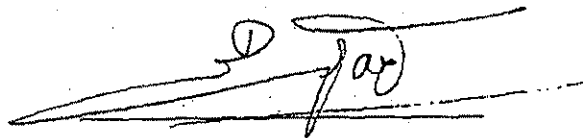
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THE MID-TERM EVALUATION REPORT FOR
THE TECHNICAL SERVICE CENTER
FOR IRRIGATION SYSTEM PROJECT
IN THE KINGDOM OF CAMBODIA

Phnom Penh, October 28, 2003



Mr. Mitsunori IDA
Team Leader,
Japanese Evaluation Team



Mr. Prum Saroeun
Team Leader,
Cambodian Evaluation Team

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 - 2-2 Objective of the Project
3. Revision of PDM
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 - 4-1 Relevance
 - 4-2 Effectiveness
 - 4-3 Efficiency
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 - 4-5 Sustainability
5. Conclusion
6. Recommendation

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5. Acceptance of Cambodian Counterparts for Training in Japan
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8. Assignment of Cambodian Counterparts
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10. Allocated Budget by the Government of Cambodia

1. Objective and Method of the Evaluation

1-1 Objective of Evaluation

The evaluation activities were performed with the objects:

- (1) Evaluation degree of achievement based on the Record of Discussions, Project Design Matrix (hereinafter referred to as "PDM") and the Plan of Operations (hereinafter referred to as "PO") during the first half of the Project,
- (2) Reviewing and revising PDM and PO for the remaining cooperation term, if necessary, and
- (3) Identifying problems on any aspects of the Project implementation and proposing necessary solutions.

1-2 Method of Evaluation

To carry out Mid-term Evaluation, the Joint Evaluation Team (hereinafter referred to as "the Team") consisting of both the Cambodian side and the Japanese side has conducted the hearing of the presentation made by the counterpart personnel of the Project, field visit and a series of discussions within the Team and other partners. The evaluation was made based on the findings from the above activities, and the following 5 evaluation criteria.

- a) Relevance: Relevance is referred to the validity of the Project Purpose and the Overall Goal in compliance with the development policy of the Government of Cambodia (hereinafter referred to as "Cambodia") as well as the needs of beneficiaries.
- b) Effectiveness: Effectiveness is referred if the expected benefits of the Project have been achieved as planned and if the benefit was brought about as a result of the Project (not of the external factors)
- c) Efficiency: Efficiency is referred to the productivity of the implementation process and examined if the input of the Project was efficiently converted into the output.
- d) Impact: Impact is referred to direct and indirect, positive and negative impacts caused by implementing the Project including the extent of the prospect of the achievement of the Overall Goal.
- e) Sustainability: Sustainability is referred to the extent that the Project can be further developed by the recipient country and the benefits generated by the Project can be sustained under the recipient country's policies, technology, systems, and financial state.

1-3 Members of the Evaluation Team

1) The Japanese Team

Name	Job title	Occupation
Mitsunori IDA	Team Leader	Deputy Director, Planning Division, Agricultural Development Cooperation Department, Japan International Cooperation Agency (JICA)
Yoichi KAKITA	Irrigation Technology	Senior Research Engineer for Overseas Agricultural and Rural Development Center (ARDEC), The Japanese Institute of Irrigation & Drainage (JIID)
Tsuneo KUWAHARA	Evaluation Analysis	Design Engineer, Overseas Project Department, Nippon Giken Inc.
Mamoru Watanabe	Cooperation Planning	Staff, Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department, Japan International Cooperation Agency (JICA)

2) The Cambodian Team

Name	Job title	Occupation
Mr. Prum Saroeun	Team Leader	Deputy General Inspector, the Ministry of Water Resources and Meteorology (MOWRAM)
Mr. Em Bunthoeun	Member	Director of Engineering Department, the Ministry of Water Resources and Meteorology (MOWRAM)
Mr. Pich Veasna	Member	Director of Planning and International Cooperation Department, the Ministry of Water Resources and Meteorology (MOWRAM)
Dr. Theng Tara	Member	Director of Water Resources Management and Conservation Department, the Ministry of Water Resources and Meteorology (MOWRAM)

2. Outline of the Project

2-1 Background of the Project

Agriculture is the prime industry of the Kingdom of Cambodia. Agricultural production contributes to approximately 37.6% of the country's GDP, and about 85% of the national population relies on agriculture for their living in 2000.

Despite abundant farmland and water resources, agricultural productivity of the country has rather been low mainly due to deficient irrigation systems is one of the essential development issues of the country.

The Royal Government of Cambodia made a request to the Japanese Government for a technical cooperation that aims at technical transfer on rehabilitation of existing irrigation systems such as survey, planning, design, construction, operation and maintenance.

In response to the request, JICA dispatched the Preliminary Study Team and the

Supplementary Study Team to confirm the need for assistance and to discuss the details of the Project with the Cambodian side. The Implementation Study Team signed the Record of Discussions on the Project on September 21, 2000. The Project started in January 2001 will continue for five-year period until January 2006.

2-2 Objective of the Project

Objective of The Project is "The technical capacity of the engineers and technicians of the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Provincial Department of Water Resources and Meteorology (hereinafter referred to as "PDWRAM") is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems".

The outputs of the Project are confirmed as follows.

- 1) The technical capacity of the full-time counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT).
- 2) Series of training courses are organized to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PDWRAM.

3. Revision of PDM

A PDM for the mid-term evaluation (hereinafter referred to as "PDM3", attached herewith as "Annex 1") was formed by the joint evaluation team based on the former PDM (hereinafter referred to as "PDM2", attached herewith as "Annex 2" attached to the Minutes of Meeting dated December 18, 2001) in order to make indicators more specific. Changes and reasons of change are listed in the table below.

Changes from PDM2 to PDM3

Position	Change	Reason
In general	1. The term PBSWRAM was changed into PDWRAM. 2. Counterparts working full-time for the project at TSC were clearly defined as "full-time" counterparts.	1. These days, provincial offices of MOWRAM were called not PBSWRAM (Provincial Bureau Services of Water Resources and Meteorology), but PDWRAM (Provincial Department of Water Resources and Meteorology). 2. In order to distinguish the counterparts at management level and the "full-time" counterparts.

Out of the matrix	Basic factors of the project were listed.	Although those factors were necessary information as a part of framework, they were not clearly noted on PDM2.
Overall Goal's indicator	1. The second indicator, "Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project." was deleted. 2. The phrase of the other, "Number of rehabilitation projects undertaken by engineers and technicians of MOWRAM and PBSWRAM" was changed into a sentence defining number and timing as "More than 10 projects will be implemented with techniques that were transferred at the TSC project by 2011."	1. Firstly, it is difficult to forecast the area of each future project. Secondly, as the targets of this project are medium and small-scale, impact in the area will not be so big. Therefore the area is not appropriate as an indicator. 2. The former expression of the indicator did not specify the number and timing, so those were defined. And the phrase of "with techniques that were transferred at the TSC project" was added to clearly indicate the relationship with the project.
Project Purpose's indicator	1. "The 10 full-time C/Ps obtain the technical capacity to conduct training on irrigation systems by the end of the project." was added as the first indicator. 2. The phrase of the other, "Number of engineers and technicians who acquired sufficient knowledge and skill through training" was changed into a sentence defining number and timing as "More than 100 engineers and technicians of MOWRAM & PDWRAM improve their technical capacity through trainings by the end of the project."	1. Since fostering the "full-time" C/Ps is a very important pillar for the project, the indicator was added to evaluate that. 2. The former expression of the indicator did not specify the number and timing, so those are defined.
Output 2	The expression, "A training system is developed ..." was changed into "Series of training courses are organized ...".	The project should concentrate more on fostering 10 C/Ps than creation of a training system at this stage of support.
Outputs' indicators	Three (3) of them were numbered.	In order to specify the relationship between each output and indicator.
Indicator 1.1	"Technology in the fields of Survey, Planning, Design, Construction management and Water management is transferred to 10 C/Ps (engineers and technicians), and 10 C/Ps become trainers and hold training courses." was changed to "1.1 Small scale irrigation facilities are appropriately built by C/Ps with the use of techniques learned through OJT by the end of the project."	Capacity improvement of C/Ps is measured at the level of the project purpose as explained above. Therefore, the content of the indicator was changed to the facility that will be actually produced.
Indicator 1.2	The expression "are produced by the end of the project" is added at last.	The former phrase did not have verb and did not specify timing, so those are defined.
Indicator 2.	"... are prepared." was changed to "... are produced by the end of the project."	More appropriate verb was selected and the timing was specified.
Means of Verification	Means of verification for each indicator was changed.	They were changed according to the changes of indicators.
Outputs' important assumption	"Sufficient number of engineers and technicians of MOWRAM and PBSWRAM take the training courses." was deleted.	As the number of trainees should be controlled within the project framework, so it should not be noted as an important assumption.

4. Result of the evaluation

4-1 Relevance

Up to the present, the project is highly relevant.

4-1-1 Cambodian Policy

The second Social and Economic Development Plan (SEDP II) emphasizes the importance of rural and agricultural development as strategies for poverty reduction and food security, and specifies development of irrigation systems, spreading proper use of those systems, and improvement of existing irrigation systems as short-term measures. Sharing the same policy direction, MOWRAM defines rehabilitation of existing irrigation facilities as the most realistic development strategy as stated in "Water Resources and irrigation Development in Cambodia (MOWRAM)". The project has high relevance to these policies.

4-1-2 Japanese Policy

The importance of efficient development of irrigation and water management system is emphasized in the agriculture and rural development sector of the country development assistance plan. Besides, it is useful to utilize Japanese technique of irrigation systems for paddy fields, which has been gained through long experience, to develop suitable irrigation systems in Cambodia. These factors make the project highly relevant from the Japanese standpoint.

4-1-3 Social Condition

Basically, the area covered with the irrigation system is low (23%). And even in case there are existing irrigation systems, they can not satisfy farmers' convenience in farm-level irrigation due to many facilities left damaged, low canal density, low canal elevation hampering the gravity irrigation, and so on. Under such circumstances, farmers' need is high for irrigation system improvement. That is also confirmed by the result of the farmers' survey, conducted by the project.

MOWRAM's engineers and technicians require more technical knowledge and skills in construction of functional irrigation facilities and in instructing farmers about maintenance of these facilities in order to solve the problems mentioned above.

4-2 Effectiveness

Overall effectiveness at the time of mid-term evaluation is satisfactory.

As for achievement of outputs, "Output 1: technology transfer to C/Ps through OJT" has attained steady progress with continuous activities. C/Ps, who had insufficient practical experience before, are making steady improvement through OJT by direct instruction of

Japanese experts. At present, C/Ps' diligence for work is good in general. And C/Ps' understanding is also improved, as the works are progressing. Some C/Ps implement their tasks systematically and take appropriate actions without specific instructions of J/Es. As for specific techniques' improvement, an assessment of C/Ps' capacity, conducted by J/Es on September 2003, shows C/Ps' technical improvement for topographic survey, discharge measurement, water requirement measurement, understanding of drawings, fixed ruler, and consideration of construction method.

As it is explained above, OJT has made satisfactory progress.

Manual making has already started, mostly for the subjects transferred by OJT, and some were completed including translation to Khmer.

As for the output 2, training courses will be organized, based on PO with the use of produced manuals before March 2004.

As for achievement of the project purpose, C/Ps' technical capacity has been steadily improved and they have almost obtained capacity to conduct basic trainings. But in order to achieve the indicator of the project purpose, "to obtain the technical capacity to conduct training on irrigation systems", technical capacity of each C/P needs to be improved continuously mainly through OJT.

On the other hand, basic technical capacity of engineers and technicians of MOWRAM is expected to be improved by scheduled trainings.

4-3 Efficiency

Efficiency of the whole project is satisfactory.

4-3-1 Japanese side

On the whole, the project has been implementing its activities well according to PDM. As for Japanese equipment procurement, a well-planned procurement matching the OJT schedule contributed to the smooth implementation of OJT. However, some equipments, whose necessity was confirmed after commencement of the project, were delayed due to the procurement system, and affected the project activities.

Most C/P trainings in Japan were implemented smoothly and contribute to raise motivation of C/Ps for the project activities.

4-3-2 Cambodian side

It was found that C/Ps did their activities according to PDM and practiced activities planned at the time of the mid-term evaluation actively.

At the initial stage of the project, C/Ps' attendance for work was not at the satisfactory level due to their economical problems and some were replaced with new C/Ps. But at present,

the situation is improved well and C/Ps' morale is heightened.

MOWRAM provided a new building for the project, material and equipment, and then good working conditions are secured.

As for the budget, the expenses for fuel and electricity are shouldered and C/Ps' salary is also secured, though it is not enough. Considering the severe financial situation in Cambodia, the efforts are appreciated.

And as one of future tasks, it is anticipated that completion of all the planned canal is difficult within the project period. A countermeasure for such situation is should be considered.

4-4 Impacts

As one of expected positive impacts, it is appreciated that farmers who live in the surrounding area get interested in irrigation facility improvement, judging from the fact that farmers and commune chiefs visited to observe the model site from the outside area.

As one of unexpected positive impacts, the farm road, rehabilitated by OJT, is used by children to go to school and it functions as a major road for daily life.

4-5 Sustainability

At the time of the mid-term evaluation, it is evaluated that possibility to achieve the sustainability of the project is quite high.

At present, MOWRAM gives weight to irrigation facility improvement, especially on rehabilitation of existing facilities as its policy, so MOWRAM is much interested in necessary technical improvement to achieve that. A strong will is observed for development of TSC to achieve the target on fostering engineers & technicians, and extension of techniques.

But from MOWRAM's financial aspect at present, there are matters to be solved such as to secure budget necessary for the technical extension activities like training execution and manual making, and to secure the stable living of staff.

5. Conclusion

Summary of comprehensive evaluation on the project at the time of the mid-term evaluation are as follows.

Capacity improvement of MOWRAM engineers and technicians accords with

Cambodian policy and Japanese assistance policy for Cambodia, and corresponds to farmers' need.

Achievement of outputs is in steady progress for OJT and manual making. Trainings are planned to be conducted before March 2004 according to the schedule.

Achievement of the project purpose is expected by active implementation of continuous activities with emphasis on OJT.

Input is provided almost appropriately from both Japan and Cambodia sides according to the plan.

MOWRAM has a strong will to foster engineers and technicians, and technical extension for improvement of irrigation systems.

Judging from those matters, a comprehensive evaluation of the project is that the project is implemented steadily for achievement of the project purpose.

But more activities should be implemented in order to achieve a task of real extension of techniques after the project period.

6. Recommendations

1) Organization

TSC will be providing full-scale technical services in the future, and organizational approach will be required. Therefore, necessary arrangements should be discussed from now.

2) Coordination with other organizations

Farm-level delivery canals in the model site constructed by JIID as demonstration study appear very effective in improving productivity. In theory, farmers should construct those canals, but they need adequate technical assistance from MOWRAM. Therefore, it is proposed to include this technical assistance as part of activities within TSC.

3) Extension techniques

In order to secure sustainability of the project, training with the use of produced manuals and other activities should be continued after the project period.

Project Design Matrix for Mid-term Evaluation (PDM e-mid)

Project Title: The Technical Service Center (TSC) for Irrigation System Project
Target Group: Full-time Counterparts (C/Ps) of TSC, and engineers & technicians of the Ministry of Water Resources and Meteorology (MOWRAM) & the Provincial Department of Water Resources and Meteorology (PDWRAM)
Target Area: All over Cambodia
Project Site: Tuk Thla, Phnom Penh (Project office), Kandal Stung, Kandal Province (model farm)
Implementers: MOWRAM including PDWRAM and Japan International Cooperation Agency (JICA)
Duration: 5 years (2001 Jan. 10 – 2006 Jan. 9)

Version: 3
 Revised on: 2003 Oct. 28

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Irrigation projects are properly implemented by MOWRAM and PDWRAM.	More than 10 projects will be implemented with techniques that were transferred at the TSC project by 2011.	MOWRAM document	
Project Purpose The technical capacity of the engineers and technicians of MOWRAM and PDWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems.	1. The 10 full-time C/Ps obtain the technical capacity to conduct training on irrigation systems by the end of the project. 2. More than 100 engineers and technicians of MOWRAM & PDWRAM improve their technical capacity through trainings at TSC by the end of the project.	1. Project documents 2. Training report	1. Engineers and technicians who received training remain at MOWRAM and PDWRAM. 2. The financial resources for MOWRAM are secured.
Outputs 1. The technical capacity of the full-time counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT). 2. Series of training courses are organized to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PDWRAM.	1.1 Irrigation and drainage facilities are appropriately built by C/Ps with the use of techniques learned through OJT by the end of the project. 1.2 Manuals related to survey, planning, design, construction management and water management with participation of farmers are produced by the end of the project. 2. Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are produced by the end of the project.	1.1 Project documents, accomplishment of the model site 1.2 Manuals 2. Texts and curricula	
Activities 1. Assessment of technical capacity and setting of technical level 1.1. Collect data 1.2. Assess present technical capacity in the field of survey 1.3. Assess present technical capacity in the field of planning 1.4. Assess present technical capacity of in the field of design 1.5. Assess present technical capacity in the field of construction management 1.6. Assess present technical capacity in the field of water management 1.7. Set the level of skills to be transferred in each field 2. Transfer of technology through OJT 2.1. Transfer survey technique thorough OJT 2.2. Transfer planning techniques thorough OJT 2.3. Transfer design techniques through OJT 2.4. Transfer construction management techniques through OJT 2.5. Transfer water management techniques with participation of farmers thorough OJT 3. Production of manuals 3.1. Produce manuals on survey technique 3.2. Produce manuals on planning technique 3.3. Produce design standards and manuals on design techniques and project evaluation 3.4. Produce manuals on construction management techniques 3.5. Produce manuals on water management techniques with participation of farmers 4. Training 4.1. Conduct training on survey techniques 4.2. Conduct training on planning techniques 4.3. Conduct training on design techniques 4.4. Conduct training on construction management techniques 4.5. Conduct training on water management techniques with participation of farmers	Inputs (Japanese Side) 1. Dispatch of experts: (1) Long-term experts: several persons / year such as: - Chief Advisor; - Project Coordinator / Farmers Survey; and - Experts in the fields of 1) Survey / Planning 2) Design / Water Management 3) Construction Management (2) Short-term experts will be sent according to necessity. 2. Provision of equipment 3. Training of Cambodian counterpart personnel in Japan (Cambodian Side) 1. Assignment of counterpart personnel and other supporting staff members. (1) Project Director (2) Project Manager (3) Project Sub-Managers (4) Full-time counterpart personnel in the fields of: 1) Survey / Planning 2) Design / Water Management 3) Construction Management 4) Short-term experts (5) Administrative Staff (6) Technical Staff 2. Provision of land, buildings and facilities related to the Project 3. Provision of machinery necessary for the Project. 4. Allocation of budget for: (1) operation and maintenance of irrigation systems (2) personnel expenses of counterparts and other supporting staff (3) operating expenses necessary for the implementation of the Project		The full-time counterparts continuously work with the Project. Preconditions 1. Adequate number of qualified counterparts are assigned. 2. Farmers are not against the Project.

Present Project Design Matrix (PDM)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Irrigation projects are properly implemented by the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Provincial Bureau Services of Water Resources and Meteorology (hereinafter referred to as "PBSWRAM").	Number of rehabilitation projects undertaken by engineers and technicians of MOWRAM and PBSWRAM Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project.	Project records	
Project Purpose The technical capacity of the engineers and technicians of MOWRAM and PBSWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems.	Number of engineers and technicians who acquired sufficient knowledge and skill through training	1. Certificates issued for completion of training courses. 2. Self-evaluation of the trainees 3. Examination	1. Engineers and technicians who received training remain at MOWRAM and PBSWRAM. 2. The financial resources for MOWRAM are secured.
Outputs 1. The technical capacity of the counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT). 2. A training system is developed to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PBSWRAM.	Technology in the fields of Survey, Planning, Design, Construction management and Water management is transferred to 10 C/Ps (engineers and technicians), and 10 C/Ps become trainers and hold training courses. Manuals related to survey, planning, design, construction management and water management with participation of farmers. Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are prepared.	Mutual evaluation between Japanese experts and C/P Report of Transferring technology through OJT Manuals Text and curricula Record of instruction by C/P	Sufficient number of engineers and technicians of MOWRAM and PBSWRAM take the training courses.
Activities 1. Assessment of technical capacity and setting of technical level 1.1. Collect data 1.2. Assess present technical capacity in the field of Survey 1.3. Assess present technical capacity in the field of planning 1.4. Assess present technical capacity in the field of design 1.5. Assess present technical capacity in the field of construction management 1.6. Assess present technical capacity in the field of water management 1.7. Set the level of skills to be transferred in each field 2. Transfer of technology through OJT 2.1. Transfer survey technique through OJT 2.2. Transfer planning techniques through OJT 2.3. Transfer design techniques through OJT 2.4. Transfer construction management techniques through OJT 2.5. Transfer water management techniques with participation of farmers through OJT 3. Production of manuals 3.1. Produce a manual on survey technique 3.2. Produce a manual on planning technique 3.3. Produce design standard and a manual on design techniques and project evaluation 3.4. Produce manuals on construction management techniques 3.5. Produce manuals on water management techniques with participation of farmers 4. Training 4.1. Conduct training on survey techniques 4.2. Conduct training on planning techniques 4.3. Conduct training on design techniques 4.4. Conduct training on construction management techniques 4.5. Conduct training on water management techniques with participation of farmers			
		Inputs (Japanese Side) 1. Dispatch of experts: (1) Long-term experts: several persons / year such as: Chief Advisor; Project Coordinator / Farmers Survey; and Experts in the fields of 1) Survey / Planning 2) Design / Water Management 3) Construction Management (2) Short-term experts will be sent according to necessity. 2. Provision of equipment 3. Training of Cambodian counterpart personnel in Japan (Cambodian Side) 1. Assignment of counterpart personnel and other supporting staff members. (1) Project Director (2) Project Manager (3) Project Sub-Manager (4) Counterpart personnel in the fields of: 1) Survey / Planning 2) Design / Water Management 3) Construction Management 4) Short-term experts (5) Administrative Staff (6) Technical Staff 2. Provision of land, buildings and facilities related to the Project 3. Provision of machinery necessary for the Project. 4. Allocation of budget for: (1) operation and maintenance of irrigation systems (2) personnel expenses of counterparts and other supporting staff (3) operating expenses necessary for the implementation of the Project	The counterparts continuously work with the Project. Preconditions 1. Adequate number of qualified counterparts are assigned. 2. Farmers are not against the Project.

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Plan and Opelation & Project Achievement Chart										ANNEX 3				
Activities in Plan of Operation										Implementation		Achievement and evaluation	Achievemen t rate (%)	Final target
Items				2001	2002	2003	2004	05	Present status of implementation	Issued to be addressed				
1. Assessment of technical capacity and setting of technical level	1-1. Collect data	Conduct general survey of existing conditions (construction work, operation and maintenance of facilities by the Cambodian side and international cooperation organizations)							collected data (PRASAC, KOMPING PUOY, etc.) Visited irrigation projects and interviewed personnel concerned		Systematic collection of documents has not been done Maintenance system has not been established	100%		
		1-1-2 Conduct general survey of existing conditions (construction work, operation and maintenance of facilities by international cooperation organizations)									merge with the above row			
	1-2. Assess present technical capacity in the field of survey	Assess present technical capacity of survey							Conducted interviews with staff of MOWRAM, ITC, and other institutes about staff training and contents of education		Recruitment test and certifying examination for survey and other fields do not exist Education focuses on basic fields and lack theoretical understanding	100%		
		1-2-2 Assess present technical capacity of hydrology and meteogrology									merge with the above row			
	1-3 Assess present technical capacity in the field of planning	Assess present technical capacity of irrigation planning							Conducted interviews with staff of MOWRAM, PBSWRAM, and others		No irrigation planning based on water requirement Projects are implemented without planning	100%		
		1-3-2 Assess present technical capacity of design water requirement and drainage discharge									merge with the above row			
	1-4 Assess present technical capacity in the field of design	1-4-1 Collect design documents							Collected documents from related departments of MOWRAM			100%		
		1-4-2 Study cases of existing structures							Conducted studies of related project areas			100%		

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Activities in Plan of Operation						Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items						Present status of implementation	Issued to be addressed			
	1-5 Assess present technical capacity in the field of construction management	1-5-1 Assess present technical capacity of construction planning and preparation of design documents				Collected documents of construction management Conducted interviews with C/Ps and others Conducted site surveys of construction site		No clear standard for construction management Operators have basic skills but difference in ability among operators is significant	100%	
		1-5-2 Assess present knowledge of construction control				Conducted evaluation of operators of construction machinery by a short-term expert			100%	
	1-6 Assess present technical capacity in the field of water management	1-6-1 Collect manuals of water management as case studies				Studied water users associations in Kompong Speu, Battambang, Kompong Cham and other		No manual except MOWRAM's policy on water users association Canal density is low, and plot-to-plot irrigation is common	100%	
		1-6-2 Evaluate present water management techniques through case studies				Same as the above			100%	
	1-7 Set the level of skills to be transferred in each field	1-7-1 Set the level of skill in survey/planning				Set the target to improve overall technical skills with the focus on basic fields		Has not reached the level of technical expert except some parts of surveying Technology transfer will focus on irrigation planning	100%	Level of agricultural high school, assistant surveyor
		1-7-2 Set the level of skill in design/water management				Set the target to transfer basic skills necessary for irrigation engineers and technicians		Design: textbooks of agricultural high school are appropriate Water management: plot-to-plot irrigation, earth canal	100%	
		1-7-3 Set the level of skill in construction management				Set the target based on evaluation of present techniques and experience of C/Ps		C/Ps have little experience of construction Technology transfer will focus on basic fields, and aim at implementation of construction works	100%	
2. Transfer of technology through OJT	2-1 Transfer survey technique through OJT	2-1-1 Conduct general survey of existing conditions (social, farm system, water use, etc.)	2-1-1-A Farmers survey			Conducted base-line survey		Completed survey necessary for planning	100%	Understand items and methods necessary for planning Become capable of planning on their own
			2-1-1-B Confirmation of existing structures			Conducted study around the model site		No structure to evaluate	100%	
			2-1-1-C Topographic survey			Collected topographic maps		merge with topographic mapping		

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Activities in Plan of Operation						Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items						Present status of implementation	Issued to be addressed			
			2-1-1-C Topographic map			Produced topographic maps (1/1,000, 1/2,500) and land inventory		Useful for project planning	100%	own own
			2-1-1-D Hydrology and meteorology survey			Set up meteorological station and collected meteorological data Conducted study with Meteorology Department, MOWRAM	Data arrangement Set up of additional stations	Low awareness of importance of basic survey	60%	
			2-1-2 Conduct discharge survey			Arranged measurement methods Set up observation sites Produced a H-Q curve	Continuous observation and data collection Practical skills	Low understanding about necessity of basic survey	70%	
			2-1-2-B Discharge measurement							
		2-1-3 Transfer survey techniques	2-1-3-A Basic survey skill			Conducted training of leveling, distance and plane-table survey in office compound and model site	Traversing survey Use of total station Understanding of survey theory	Reached to the level of basic survey	80%	Transfer technology at the level of assistant surveyor
			2-1-3-B Practical survey techniques for the model site			Conducted route survey along the main canal and tertiary canals in the model site	Construction survey Improved accuracy	Low accuracy Lack in understanding about coordination with design and construction	70%	
			2-1-3-C Application of the above techniques to the model site			Conducted detailed survey and drawings necessary for design	Accuracy Efficiency	Low accuracy	60%	
	2-2 Transfer planning techniques through OJT	2-2-1 Transfer techniques of unit water requirement survey	Water requirement rate			Arranged survey apparatus set up in model farms conducted observation of water level, water requirement, rainfall, evapo-transpiration, and others Conducted survey with Meteorology Department	Continued survey Application to other areas	Understand process of survey Lack applicability	70%	

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Activities in Plan of Operation							Implementation		Achievement and evaluation	Achievement rate (%)	Final target		
Items				2001	2002	2003	2004	05				Present status of implementation	Issued to be addressed
			2-2-2-B Water requirement rate at the ordinary irrigation period								merge with the above row		
		2-2-2 Produce an irrigation plan for the model site							Confirm irrigation planning at model site with assistance of short-term expert	Examination of present plan based on water requirement survey	Lack in understanding about necessity and importance of irrigation planning	50%	
		2-2-3 Produce economic evaluation									Omit from activities due to lower priority than other activities		
2-3 Transfer design techniques through OJT	Transfer design techniques of irrigation and drainage canals and related structures through OJT	basis design techniques for model site							Transferred basics of hydraulic, hydrology, soil mechanic, structural engineering	Continued technology transfer	Improved understanding about process of design work and design standard	30%	Design tertiary canals and related structures in the model site on their own
		Practical design techniques for irrigation and drainage canals in the model site						Transferred technology on design of tertiary canals in the model site	Hydraulic calculation with consideration of head loss				
		Practical design techniques for related structures in the model site						Transferred technology on design of related structures in the model site	Hydraulic, soil pressure, structural calculation through actual design work				
2-4 Transfer construction management techniques through OJT	2-4-1 Prepare for construction (road repair, etc.)								Repair road as training of machinery operation and construction		Repair completed Level of operators and supervisors understood	100%	Plan and implement construction of tertiary canals and

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Activities in Plan of Operation						Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items						Present status of implementation	Issued to be addressed			
	2-4-2 Train operators of construction machinery	2-4-2-A Operation				Conducted training of operation and maintenance of construction machinery		Low operation skills Experience of construction work	100%	related structures based on design documents
		2-4-2-B Maintenance				Conducted training of operation and maintenance of construction machinery C/P does regular maintenance of machinery with MOWRAM staff		Good regular maintenance of provided equipment Complicated repair cannot be done in MOWRAM		
	2-4-3 Produce construction planning and design documents	2-4-3-A Construction procedure				Conducted OJT on construction procedure of earthworks and concrete structures during construction work in 2002	Continued OJT on procedure in construction works	Understand the flow of works in canal construction Unable to take appropriate measures in actual site due to lack of experience	30%	
		2-4-3-B Design documents				Conducted OJT on preparation of design documents including construction plan for the construction work in 2002	Continued OJT to understand intentional construction, and to produce construction plan	C/Ps cannot produce construction plan		
	2-4-4 Construct facilities	2-4-4-A Irrigation canals				Constructed a canal of 850m	Construct a canal (7.1km) and related structures	Low annual construction capacity due to low technical capacity of supervisors and machinery operators Drainage has no experience/plan of construction, and will be excluded from activities	20%	
		2-4-4-B Drainage canals								
		2-4-4-C Other facilities				Constructed an intake, an offtake, a distribution box and other structures belonging to the 850m canal				

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Activities in Plan of Operation										Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items				2001	2002	2003	2004	05	Present status of implementation	Issued to be addressed				
	2-4-5 Take construction control	2-4-5-A Schedule control							Conducted OJT on schedule management, but schedule chart was unused due to delay in construction work caused by unexploded shells and lack of construction management capacity	Continued OJT on schedule management through construction works	Construction and arrangement of machinery/labor are ill planned and inefficient due to lack of awareness about cost and construction period. Need for improved capacity of supervisors and machine operators, and construction based on construction schedule	30%		
			2-4-5-B Quality control (soil test, concrete test)						Quality control including concrete tests have not been implemented due to delay in construction schedule and lack of technical capacity	Need for conducting tests at appropriate timing	Understand necessity of quality control and control of finished work quality for better construction work			
				2-4-5-C Control of finished work quality					Control of finished work quality has not been conducted due to delay in construction schedule. Conducted survey of finished work quality upon completion of construction work	Need for conducting survey of finished work quality at appropriate timing				
	2-5 Transfer water management techniques through OJT with participation of farmers	2-5-1 Promote participation of farmers at the model site	2-5-1-A Participatory activities						Conducted survey with 39 farmers using the tertiary canal on the present water use. Constructed small-scale crossings as part of participatory activities	Need for continued survey and other participatory activities	Need for similar activities with cost sharing by beneficiaries	60%		
				2-5-1-B Farmers meetings					Conducted 3 interviews about impact of construction work and change in water supply	Identification of problems and strategies for group formation	Need for small-scale (about 20 people) farmers meetings	30%		

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Activities in Plan of Operation							Implementation		Achievement and evaluation	Achievement rate (%)	Final target			
Items				2001	2002	2003	2004	05				Present status of implementation	Issued to be addressed	
		2-5-2 Produce a water management plan with participation of farmers for the model site	2-5-2-A Study visit to existing water users associations						Has not been conducted	Identification of appropriate water users associations	Need for exchange of opinions among farmers	0%		
		2-5-2-B Collection of documents on water management planning							Prepared a plan for collection of manuals and documents used in Cambodia and other countries	Continued collection		20%		
3. Production of manuals	3-1 Produce manuals on survey technique	3-1-1 Produce a manual on farmers survey							Produced a manual		Some manuals produced	100%	Production of manuals suitable for the condition of Cambodia	
		3-1-2 Produce a manual on survey	Level, distance, plane-table, traversing						Produced manuals on level, distance, plane-table, and traverse survey	Revision and translation to Khmer language		70%		
		3-1-3 Produce a manual on hydrology and meteorology survey	Hydrology, meteorology						Manuals being prepared	Revision and translation to Khmer language		30%		
		3-1-4 Produce a manual on discharge measurement	Discharge measurement, H-Q curve						Produced manuals on discharge survey and H-Q curve			80%		
	3-2 Produce manuals on planning technique	3-2-1 Produce a manual on design water requirement and drainage discharge	Water requirement rate, irrigation planning method						Produced a manual on water requirement survey			50%		
		3-2-2 Produce a manual on irrigation system									merge with the above row			
		3-2-3 Produce a manual on economic evaluation								Omit due to lower priority than other activities				
	3-3 Produce design standard and manuals on design techniques and project evaluation	3-3-1 Produce design manuals	3-3-1-A Open canals						Preparing draft manuals on: A: basic hydraulic B: basic design of facilities C: design of small-scale canals and related structures D: supplementary manual	High need for manuals listed on the left	Low need for a project evaluation manual. More realistic to produce design manuals instead of design standards	30%		Manuals which can be used as textbook for introductory level engineers and technicians
			3-3-1-B Related structures											

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Activities in Plan of Operation										Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items										Present status of implementation	Issued to be addressed			
3-4 Produce manuals on construction management techniques	3-4-1 Produce specifications for construction	3-4-1-A General Specification						Produced specifications for construction work in 2002	Use of specifications in OJT, and revision as necessary	Lack of understanding about specifications Construction not implemented according to specifications.	30%	Focus on documents on process of construction work as a reference for Cambodian engineers and technicians to implement construction work on their own		
		3-4-1-B Construction process (fixed ruler, banking, concrete structures)						Preparing a manual on fixed ruler	Production of manuals on banking and concrete structures though OJT in construction work	Conducted OJT on process of construction work Manuals have not been produced				
		3-4-1-B Special specification								Special specifications have little importance for direct management of construction works under similar conditions				
	3-4-2 Produce manuals on construction management techniques	3-4-2-A Schedule control						Produced a draft construction management manual	Verification of the manual and revision as necessary	The draft manual produced based on Japanese manual does not meet the technical level of Cambodia	30%			
		3-4-2-B Quality control (soil test, concrete test)												
		3-4-2-C Control of finished work												
	3-4-3 Produce manuals on cost estimates	3-4-3-A Unit price								Difficult to set requirement per unit work due to different technical capacity among operators and farmers hired as workers Not enough time and personnel to conduct unit price survey				
		3-4-3-B Requirement per unit work												
		3-4-3-C Others												
	3-5 Produce manuals on water management techniques	3-5-1 Produce a manual on operation and maintenance of irrigation structures on farm level						Collected documents	Contents suitable for the scale of the model site		20%			

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Activities in Plan of Operation					Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items					Present status of implementation	Issued to be addressed			
		3-5-2 Produce a manual on water management techniques on farm level			Collected documents				
4. Training	4-1 Conduct training on survey	4-1-1 Conduct training on farmers survey					Consider including this item to other training subjects		C/Ps learn technical skills necessary for trainers
		4-1-2 Conduct training on survey			Training has not been conducted Conducted training among C/Ps	Basic survey techniques	No systematic, comprehensive training conducted	0%	
		4-1-3 Conduct training on hydrology and meteorology survey			Training has not been conducted Conducted survey with Meteorology Department	Coordination with Meteorology Department		10%	
		4-1-4 Conduct training on discharge measurement			Training has not been conducted	Training focused on measurement on site		0%	
	4-2 Conduct training on planning	4-2-1 Training on planning of irrigation system				Conduct with water requirement survey			
		Training on design water requirement and drainage discharge	Water requirement rate, irrigation planning method		Training has not been conducted Conducted survey with Meteorology Department Conducted training with Mekong River Commission	Basic training on water requirement survey and irrigation planning	No systematic, comprehensive training conducted	10%	
	4-3 Conduct training on design techniques	4-3-1 Conduct training on design of open canal			Training has not been conducted	Preparation of textbooks and training of C/Ps		30%	
		4-3-2 Conduct training on design of related structures							
	4-4 Conduct training on construction management techniques	4-4-1 Conduct training on construction planning and design documents	4-4-1-A Construction process		Training has not been conducted	Preparation of textbooks and training of C/Ps		0%	C/Ps learn technical skills necessary for trainers
			4-4-1-B Construction planning		Training has not been conducted	Preparation of textbooks and training of C/Ps			

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Activities in Plan of Operation										Implementation		Achievement and evaluation	Achievement rate (%)	Final target
Items				2001	2002	2003	2004	05	Present status of implementation	Issued to be addressed				
		4-4-2 Conduct training on construction management							Training has not been conducted	Preparation of textbooks and training of C/Ps		0%		
	4-5 Conduct training on water management techniques with participation of farmers	4-5-1 Conduct training on water management on farm level							Conducted a small meeting with farmers to transfer equipment of irrigation structures	Selection of core farmers	Problem identification at farmers meetings is important	30%	Capacity building for creation of water users association	
		4-5-2 Conduct training on operation and maintenance of irrigation structure on farm level							Training has not been conducted					
備考:		Items added to Annual Plan of Operation (APO)												
		Items deleted from APO												
		Items revised from APO												
		Change in timing of activities												

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Assignment of Japanese Experts

Name	Expertise	Duration	Organization
Mamoru Ishikawa	Chief Advisor	1 February 2001 ~ 31 March 2002	MAFF
Akira Miyazaki	Chief Advisor	2 June 2002 ~ 1 June 2004	MAFF
Mikayo Yamazaki	Coordinator / Farmers Survey Training	10 January 2001 ~ 9 January 2004	JICA
Kenji Yasuda	Survey / Planning	1 April 2001 ~ 31 March 2004	MAFF
Yoji Ebihara	Design / Water Management	10 January 2001 ~ 9 January 2004	R.D.I
Yoichi Ihara	Construction Management	10 January 2001 ~ 31 May 2003	Hokkaido Prefectural Government
Kenji Sekijima	Construction Management	26 May 2003 ~ 25 May 2005	MAFF
Satoru Nishio	Topographical Survey / Topographical Mapping	15 November 2001 ~ 12 December 2001	Kokusai Kogyo Co.,LTD.
Kazuhiko Kamachi	Operation and Maintenance of Construction Machinery	13 February 2002 ~ 12 April 2002	Construction Project Consultants, INC.
Kiyoji Asai	Planning Theory	30 March 2002 ~ 13 April 2002	Tokyo Agriculture University
Kiyoji Asai	Planning Theory	5 September 2002 ~ 24 September 2002	Tokyo Agriculture University
Yasushi Osato	Design on Small Scale Canals and Related Structures	30 September 2002 ~ 16 November 2002	Taiyo Consultants
Yoichi Hayashida	Construction Material Test	25 November 2002 ~ 21 December 2002	National Institute for Rural Engineering
Norihumi Shinmura	Operation and Maintenance of Construction Machinery	16 March 2003 ~ 13 April 2003	
Yasushi Osato	Design on Small Scale Irrigation Structures	1 July 2003 ~ 31 August 2003	Taiyo Consultants
Yukihiro Yamamoto	Participatory Water Management	1 September 2003 ~ 4 October 2003	Japan Green Resources Corporation



Acceptance of Cambodian Counterparts for Training in Japan

ANNEX 5

Name	Field	Title of Training	Duration	Venue	Remarks
H.E. Veng Sakhon	Project Director	Capacity Building for Irrigation Engineers	10 December 2000 ~ 16 December 2000	JICA TBIC	
Te Ouv Kim	Project Sub-Manager	Capacity Building for Irrigation Engineers	14 May 2001 ~ 25 May 2001	JICA TBIC	
Ngoun Pich	Project Sub-Manager	Capacity Building for Irrigation Engineers	14 May 2001 ~ 25 May 2001	JICA TBIC	
Prum Kanthel	Water Management / Farmers Survey	Irrigation and Drainage	30 July 2001 ~ 17 October 2001	JICA TBIC	
Mao Rath	Survey	Irrigation, Drainage and Rural Development	14 April 2002 ~ 13 July 2002	JICA TBIC	
Ung Kotaro	Construction Management	Irrigation, Drainage and Water Management Irrigation, Drainage and Rural Development	16 May 2002 ~ 17 August 2002	JICA TBIC	
Huot Chandarith	Water Management / Farmers Survey	Operation and Management of Irrigation Canal System	15 July 2002 ~ 24 October 2002	JICA TBIC	
Uch Hing	Survey	Irrigation, Drainage and Rural Development	13 June 2003 ~ 23 September 2003	JICA TBIC	
Theng Tara	JCC Member	Water Resources Management	31 August 2002 ~ 13 September 2002	JICA TBIC	
Em Bunthoeun	JCC Member	Management Methods for Irrigation System Projects	31 August 2002 ~ 13 September 2002	JICA TBIC	



ANNEX 6

List of Equipment Provided by the Government of Japan

B/L (budget line): E (budget for equipment), J (budget for Japanese experts), L (budget for local activities), T (equipment transferred from other projects)

Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2000	E	001	4WD Vehicle	Toyota/Land Cruiser Station Wagon	US\$38,500.00	○		
2000	E	002	Pickup Truck	Toyota/Hi-Lux 4WD	US\$22,500.00	○		
2000	E	003	Pickup Truck	Toyota/Hi-Lux 4WD	US\$22,500.00	○		
2000	E	004	Copy Machine	Canon/Copier NP-7210	US\$5,054.00	○		
2000	E	005	Laser Printer	Canon/LBP-800	US\$360.00	○		
2000	E	006	Laser Printer	Canon/LBP-800	US\$360.00	○		
2000	E	007	Desktop Computer	IBM/300GL	US\$1,519.00	○		
2000	E	008	Desktop Computer	IBM/300GL	US\$1,519.00	○		
2000	E	009	Desktop Computer	IBM/300GL	US\$1,519.00	○		
2000	E	010	Desktop Computer	IBM/300GL	US\$1,519.00	○		
2000	E	011	Desktop Computer	IBM/300GL	US\$1,519.00	○		
2000	E	012	Wireless Telephone	MOTOROLA/GP68 UHF	US\$180.00	○		
2000	E	013	Wireless Telephone	MOTOROLA/GP69 UHF	US\$180.00	○		
2000	E	014	Wireless Telephone	MOTOROLA/GM950i	US\$350.00	○		
2000	E	015	Wireless Telephone	MOTOROLA/GM951i	US\$350.00	○		
2000	E	016	Wireless Telephone	MOTOROLA/GM952i	US\$350.00	○		
2000	E	017	Wireless Telephone	MOTOROLA/GM953i	US\$350.00	○		
2000	E	018	Auto Level	Topukon/AT-M3	US\$1,325.00	○		
2000	E	019	Theodolite	Topukon/TL-20G	US\$4,017.00	○		
2000	E	020	Plate Table Set	Tamaya/TPT-SET Tamura	US\$292.00	○		
2000	E	021	Planimeter	Tamaya/PLANIX7	US\$671.00	○		
2000	E	022	Planimeter	Tamaya/PLANIX7	US\$671.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2000	E	023	Cone Penetrometer	Marui/MIS-243-1-01	US\$3,250.00	○		
2000	E	024	Motorized Direct Shear Test	Marui/MIS-233-1-02	US\$13,458.00	○		
2000	E	025	Compaction Set	Marui/MIS-217-1-01	US\$2,392.00	○		
2000	E	026	Falling-Head Permeameter	Marui/MIS-227-1-03	US\$6,578.00	○		
2000	E	027	Drafting Machine	MAX/MD-3000, PM-912SR	US\$2,407.00	○		
2000	E	028	Drafting Machine	MAX/MD-3000, PM-913SR	US\$2,407.00	○		
2000	J	001	Paddy Field Receded Tester	Daiki/DIK-4300	US\$1,875.00	○		
2000	J	002	Laptop Computer	IBM/ThinkPad I Series 1800	US\$2,408.00	×	since May 2003, broken	
2000	J	003	Laptop Computer	IBM/ThinkPad I Series 1800	US\$2,408.00	○		
2000	J	004	Color Printer	Canon/BJ-F6600	US\$307.00	○		
2000	J	005	Color Scanner	Canon/CanoScan N1220U	US\$140.00	○		
2000	J	006	Wireless Print Server	BUFFALO/AirP's LPV-WL11	US\$192.00	×	since May 2001, broken	
2000	J	007	Wireless Lan Station	BUFFALO/AirStation WLAR-L11-M	US\$275.00	×	since April 2003, wire LAN network installed	
2000	J	008	Digital Camera	Canon/IXY Digital	US\$492.00	○		
2000	J	009	Laptop Computer	Fujitsu/FMV-BIBLO NE5/650R	US\$2,292.00	○		
2000	J	010	Laptop Computer	IBM/ThinkPad I Series 1800	US\$1,917.00	×	since May 2003, broken	
2000	J	011	Glassfibre Tape Measure 50m	KDS/211-1952	US\$48.00	○		
2000	J	012	Measure Rope 100m	Sekisui/210-1603	US\$90.00	○		
2000	J	013	Aluminum Measurement Rod	Harakeikisha/252-2135	US\$79.00	○		
2000	J	015	Current Meter	Harakeikisha/type 10	US\$2,250.00	○		
2000	J	016	Curve Ruler	Harakeikisha/103-2011	US\$150.00	○		
2000	J	017	Drawing Instruments	Harakeikisha/120-3581	US\$111.00	○		
2000	J	018	Barometer	Harakeikisha/271-3581	US\$350.00	○		
2000	J	019	Iron Spirit Level	Harakeikisha/4621	US\$34.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2000	L	001	Water Cooler and Heater	National/Milux	US\$150.00	○		
2000	L	002	Electric Pot	National/3-21	US\$30.00	○		
2000	L	003	Sofa Set	Chea Luck	US\$275.00	○		
2000	L	004	Refrigerator	Hitachi/180J	US\$250.00	○		
2000	L	005	Refrigerator	Hitachi/180J	US\$250.00	○		
2000	L	006	Sofa Set	Chea Luck	US\$275.00	○		
2000	L	007	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	008	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	009	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	010	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	011	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	012	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	013	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	014	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	015	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	016	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	017	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	018	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	019	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	020	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	021	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	022	Desk and Drawers	LEECO/BD147CH+046A+046B	US\$255.00	○		
2000	L	023	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	024	Office Chair	LEECO/LSC421	US\$65.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2000	L	025	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	026	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	027	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	028	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	029	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	030	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	031	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	032	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	033	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	034	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	035	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	036	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	037	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	038	Office Chair	LEECO/LSC421	US\$65.00	○		
2000	L	039	Bookshelf	LEECO/304SGB	US\$135.00	○		
2000	L	040	Bookshelf	LEECO/304SGB	US\$135.00	○		
2000	L	041	Bookshelf	LEECO/304SGB	US\$135.00	○		
2000	L	042	Desk	LEECO/AT1600	US\$170.00	○		
2000	L	043	Leather Chair	LEECO	US\$380.00	○		
2000	L	044	Safety Box	LEECO/ES20	US\$150.00	○		
2000	L	045	Camera	Olympus/200M115	US\$210.00	○		
2000	L	046	Electric Fan	Toshiba/934-2533	US\$37.00	○		
2000	L	047	Electric Fan	Toshiba/934-2533	US\$37.00	○		
2000	L	048	Electric Fan	Toshiba/934-2533	US\$37.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2000	L	049	Electric Fan	Toshiba/934-2533	US\$37.00	○		
2000	L	050	Hall Puncher	KW-triO	US\$4.80	○		
2000	L	051	Hall Puncher	KW-triO	US\$14.90	○		
2000	L	052	Stapler	Kangaro/DS-12S/17	US\$35.00	○		
2000	L	053	Paper Cutter	ALFAX	US\$38.00	○		
2000	L	054	Fax Machine	PanasonicKX-FP105	US\$270.00	○		
2001	E	001	Concrete Test Hammer	PROCEQ/NR	US\$1,450.00	○		
2001	E	013	4WD Vehicle	Toyota/Land Cruiser Station Wagon	US\$38,950.00	○		
2001	E	014	Software Autodeck	Autocad 2002 (E)	US\$4,060.00	○		
2001	E	015	Printer	HP/Deskjet 1125C	US\$324.00	○		
2001	E	016	Compression Apparatus	Marui/MIC-101-0-02	US\$39,610.00	○	under final adjustment	
2001	E	017	Concrete Mixer	Marui/MIC-109-1-61	US\$27,266.00	○		
2001	E	018	Crawler Carrier	Komatsu/CD60R-1A	US\$73,050.00	○		
2001	E	019	Concrete Breaker	Toyo Kuuki Seisakusho/TPB-40	US\$1,528.00	○		
2001	E	020	Concrete Vibrator	Marui/MIC-135-0-01	US\$3,040.00	○		
2001	E	021	Air Compressor	Denyo/DIS-180SS	US\$23,375.00	○		
2001	E	022	Generator	Denyo/DCA-60SPI	US\$28,188.00	○		
2001	E	023	Hydraulic Excavator	Caterpillar/312C	US\$120,560.00	○		
2001	E	024	Bulldozer	Caterpillar/D5MXL	US\$118,800.00	○		
2001	E	025	Vibratory Roller	Hokuetsu Kougyou/BW115AD	US\$25,600.00	○		
2001	E	026	Vibratory Roller	Hokuetsu Kougyou/BW75S	US\$8,800.00	○		
2001	E	027	Dump Truck	Hino/FD3HESD-AAVDUMP	US\$24,576.00	○		
2001	E	028	LCD data projector	Sony/VPL-CS3	US\$2,850.00	○		
2001	E	029	Television	Sharp/20GP3)	US\$320.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2001	E	030	VCR	Sharp/V50S	US\$128.00	○		
2001	E	031	Overhead Projector	Kodak/EKTA Lite H30, 220V	US\$1,250.00	○		
2001	E	032	Slide Projector	Kodak/EKTA Graphic III ATS, 220V	US\$2,250.00	○		
2001	E	033	Projector Screen		US\$170.00	○		
2001	E	034	Level	Topukon/AT-M3	US\$1,155.00	○		
2001	E	035	Level	Topukon/AT-M3	US\$1,155.00	○		
2001	E	036	Theodolite	Topukon/TL-20G	US\$3,448.00	○		
2001	E	037	Prism Aridade Set	Myzox/EX-3	US\$783.00	○		
2001	E	038	Prism Aridade Set	Myzox/EX-3	US\$783.00	○		
2001	E	039	Area-line Meter	Tamaya/Planix 7	US\$601.00	○		
2001	E	040	Area-line Meter	Tamaya/Planix 7	US\$601.00	○		
2001	E	041	Desicator	TokyoShinohara/SS-605	US\$1,600.00	○		
2001	E	042	Desicator	TokyoShinohara/SS-605	US\$1,600.00	○		
2001	E	043	Desicator	TokyoShinohara/SS-605	US\$1,600.00	○		
2001	E	044	Infrared Moisture Meter	KettoKagaku/FD-600	US\$1,080.00	○		
2001	E	045	Field Density Apparatus	Hisanaga/LS-501A	US\$250.00	○		
2001	E	046	Field Density Apparatus	Hisanaga/LS-501A	US\$250.00	○		
2001	E	047	Field Density Apparatus	Hisanaga/LS-501A	US\$250.00	○		
2001	E	048	Electric Balance	ShimazuSeisakusho/AW-220	US\$1,570.00	○		
2001	E	049	Electric Balance	ShimazuSeisakusho/BL-2200H	US\$660.00	○		
2001	E	050	Electric Scale	ShinkoDenshi/CG-60KE	US\$1,540.00	○		
2001	E	051	Oven	TokyoShinohara/SSA-135	US\$3,760.00	○		
2001	E	052	Automatic Water Distiller	Toyo/GS-2000	US\$3,440.00	×	has not been connected to water supply	
2001	E	053	Liquid Limited Test Set	TokyoShinohara/SS-S-243	US\$260.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2001	E	054	Recedes Depth Meter	Daikirikakougyo/DIK-4300	US\$880.00	○		
2001	E	055	Recedes Depth Meter	Daikirikakougyo/DIK-4300	US\$880.00	○		
2001	E	056	Coarse Aggregate Hydrometer	TokyoShinohara/SS-C-468	US\$1,260.00	○		
2001	E	057	Slump Tester	TokyoShinohara/SS-C-508A	US\$180.00	○		
2001	E	058	Rool-in Meter	TokyoShinohara/SS-C-516A	US\$1,950.00	×	never used, laboratory prepared recently	
2001	E	059	Vibrator	TokyoShinohara/SS-C-507	US\$504.00	○		
2001	E	060	Instrument Shelter	Hisanaga/H3-SF	US\$816.00	×	will be set up in November 2003	
2001	E	061	Thermo-Hydrograph	Otakeiki/No.3, I 型	US\$332.00	×	will be set up in November 2003	
2001	E	062	Rain Gauge	Ootakeiki/No.34	US\$910.00	×	will be set up in November 2003	
2001	E	063	Evaporation Pan	Ootakeiki/No.41	US\$311.00	×	will be set up in November 2003	
2001	J	001	Laptop Computer	NEC/LAVIEC LC700J/64DR	US\$2,067.00	○		
2001	J	002	Computer Software	Sokia/12D-Earthworks 50K Base	US\$1,920.00	○		
2001	J	003	Computer Software	Autodesk/Autocad2002	US\$4,144.00	○		
2001	J	004	Color Printer	HP/desk jet 1125C	US\$399.00	○		
2001	J	005	Mechanical Tool Set	KQ6010	US\$2,520.00	○		
2001	L	001	UPS	Power Tree/600VAN	US\$47.00	○		
2001	L	002	UPS	Power Tree/600VAN	US\$47.00	○		
2001	L	003	UPS	Power Tree/600VAN	US\$47.00	○		
2001	L	004	UPS	Power Tree/600VAN	US\$47.00	○		
2001	L	005	UPS	Power Tree/600VAN	US\$47.00	○		
2001	L	006	Transformer	HANSHIN/TR2002	US\$21.00	○		
2001	L	007	Cupboard		US\$28.00	○		
2001	L	008	Electric Drill	Makita/6222DWE	US\$115.00	○		
2001	L	009	Transformer	HANSHIN/TR2002	US\$21.00	○		



Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2001	L	010	Codeless Telephone	Sony/SPP-68	US\$80.00	×	since April 2003, new telephone system installed	
2001	L	011	Computer Table	COM-690	US\$75.00	○		
2001	L	012	Filing Cabinet	Leeco/FC-014	US\$78.00	○		
2001	L	013	Book Shelf	Otani/S-S04	US\$60.00	○		
2001	L	014	Book Shelf	Otani/S-S02	US\$48.00	○		
2001	L	015	Book Shelf	Otani/S-S02	US\$48.00	○		
2001	L	016	Table		US\$85.00	○		
2001	L	017	Table		US\$85.00	○		
2001	L	018	Shelf	S-2136	US\$60.00	○		
2001	L	019	Wireless Lan Station	BUFFALO/AirStation WLAR-L11-M	US\$315.00	×	since April 2003, wire LAN network installed	
2001	L	020	Desktop Computer	MRT Desktop Computer PIII 800	US\$1,580.00	○		
2001	L	021	Desktop Computer	MRT Desktop Computer PIII 801	US\$1,330.00	○		
2001	L	022	Printer	HP 842C	US\$250.00	○		
2001	L	023	Paper Shredder	DOCU-SHRED/RDS-545	US\$135.00	○		
2001	L	024	Desk	Otani	US\$80.00	○		
2001	L	025	Key Box	Lucky	US\$50.00	○		
2001	L	026	CD-Writer	HP/4*4*6 Plus (USB)	US\$240.00	○		
2001	L	027	2 Door Locker	SH-104	US\$240.00	○		
2001	L	028	2 Door Locker	SH-104	US\$240.00	○		
2001	L	029	2 Door Locker	SH-104	US\$240.00	○		
2001	L	030	2 Door Locker	SH-104	US\$240.00	○		
2001	L	031	2 Door Locker	SH-104	US\$240.00	○		
2001	L	032	TV/VCR Table		US\$70.00	○		
2002	E	001	Water Level Logger	RT510-W / Topcon	US\$7,500.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2002	E	002	Water Level Logger	RT510-W / Topcon	US\$7,500.00	○		
2002	E	003	Desktop Computer	Compaq/Desk pro Pentium 4, 1.7Ghz	US\$9,320.00	○		
2002	E	004	Desktop Computer	Compaq/Desk pro Pentium 4, 1.7Ghz	US\$9,320.00	○		
2002	E	005	Desktop Computer	Compaq/Desk pro Pentium 4, 1.7Ghz	US\$9,320.00	○		
2002	E	006	Desktop Computer	Compaq/Desk pro Pentium 4, 1.7Ghz	US\$9,320.00	○		
2002	E	007	Desktop Computer	Compaq/Desk pro Pentium 4, 1.7Ghz	US\$9,320.00	○		
2002	E	008	Laser Jet Printer	HP1200	US\$315.00	○		
2002	E	009	Laser Jet Printer	HP1200	US\$315.00	○		
2002	E	010	Meteorological Station	JS-360, D1-015-8A	US\$28,000.00	×	will be set up in November 2003	
2002	E	011	Hydro Scale	102257	US\$135.00	×	will be set up in November 2003	
2002	E	012	Truck (UNIC)	Hino/FTR33M	US\$75,300.00	○		
2002	E	013	Bulldozer	Komatsu/D20P-7	US\$81,400.00	×	will be used in construction in 2003	
2002	E	014	Truck (machinery transport)	Hino/CXZ81Q	US\$138,400.00	×	will be used in construction in 2003	
2002	E	015	Plotter	C4714A#ABJ DesignJet430	US\$7,850.00	○		
2002	E	016	Map Cabinet	1106BN	US\$2,200.00	○		
2002	L	001	Book Shelf	30366B	US\$115.00	○		
2002	L	002	Book Shelf	30366B	US\$115.00	○		
2002	L	003	Cup Board Partition	LK-402	US\$115.00	○		
2002	L	004	Fax machine	KXF105	US\$215.00	○		
2002	L	005	General Table	UTF-80180	US\$85.00	○		
2002	L	006	General Table	UTF-80180	US\$85.00	○		
2002	L	007	General Table	UTF-80180	US\$85.00	○		
2002	L	008	General Table	UTF-80180	US\$85.00	○		
2002	L	009	Printer	Canon / S4500	US\$515.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2002	L	010	Floppy Disk Drive	Mitsumi	US\$45.00	○		
2002	L	011	Mobile Wireless Phone	Motorola/GP68	US\$180.00	○		
2002	L	012	Mobile Wireless Phone	Motorola/GP68	US\$180.00	○		
2002	L	013	Mobile Wireless Phone	Motorola/GP68	US\$180.00	○		
2002	L	014	Mobile Wireless Phone	Motorola/GP68	US\$180.00	○		
2002	L	015	Desk 1200*700*740	LEECO/BD127	US\$118.00	○		
2002	L	016	Desk 1200*700*740	LEECO/BD127	US\$118.00	○		
2002	L	017	Desk 1600*700*740	LEECO/BD167CH	US\$135.00	○		
2002	L	018	Desk 1200*700*740	LEECO/	US\$90.00	○		
2002	L	019	Printer Table 1000*700*710	LEECO/BD107CE	US\$90.00	○		
2002	L	020	Printer Table 1000*700*710	LEECO/BD108CE	US\$90.00	○		
2002	L	021	Chair	LEECO/LSC-421 LG-F400	US\$65.00	○		
2002	L	022	Chair	LEECO/LSC-421 LG-F400	US\$65.00	○		
2002	L	023	File Shelf	LEECO/FS-410	US\$90.00	○		
2002	L	024	File Shelf	LEECO/FS-410	US\$90.00	○		
2002	L	025	File Shelf	LEECO/FS-410	US\$90.00	○		
2002	L	026	Book Shelf	OTANI/S-502	US\$50.00	○		
2002	L	027	Floppy Disk Drive	Mitsumi	US\$50.00	○		
2002	L	028	Rattan chair		US\$44.00	○		
2002	L	029	Rattan chair		US\$44.00	○		
2002	L	030	Cupboard	LEECO/304SOB	US\$123.00	○		
2002	L	031	Cupboard	LEECO/304SOB	US\$123.00	○		
2002	L	032	Cupboard	LEECO/304SOB	US\$123.00	○		
2002	L	033	Cupboard	LEECO/304SOB	US\$123.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2002	L	034	Cupboard	LEECO/304SOB	US\$123.00	○		
2002	L	035	Locker	LEECO/CB07	US\$78.00	○		
2002	L	036	Table 1.8m		US\$80.00	○		
2002	L	037	Table 1.8m		US\$80.00	○		
2002	L	038	Table 1.8m		US\$80.00	○		
2002	L	039	Table 1.8m		US\$80.00	○		
2002	L	040	Table 1.8m		US\$80.00	○		
2002	L	041	Table 1.8m		US\$80.00	○		
2002	L	042	Table 1.8m		US\$80.00	○		
2002	L	043	Table 1.8m		US\$80.00	○		
2002	L	044	Table 1.8m		US\$80.00	○		
2002	L	045	Table 1.8m		US\$80.00	○		
2002	L	046	Meeting table	AT2010	US\$160.00	○		
2002	L	047	Telephone table	AT420	US\$55.00	○		
2002	L	048	Telephone table	AT420	US\$55.00	○		
2002	L	049	Telephone table	AT420	US\$55.00	○		
2002	L	050	Meeting chair	MSN-S	US\$25.00	○		
2002	L	051	Meeting chair	MSN-S	US\$25.00	○		
2002	L	052	Meeting chair	MSN-S	US\$25.00	○		
2002	L	053	Meeting chair	MSN-S	US\$25.00	○		
2002	L	054	Meeting chair	MSN-S	US\$25.00	○		
2002	L	055	Meeting chair	MSN-S	US\$25.00	○		
2002	L	056	Meeting chair	MSN-S	US\$25.00	○		
2002	L	057	Meeting chair	MSN-S	US\$25.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2002	L	058	Storage shelf	S-2136	US\$60.00	○		
2002	L	059	Storage shelf	S-2136	US\$60.00	○		
2002	L	060	Storage shelf	S-2136	US\$60.00	○		
2002	L	061	White board (1905cm)	BS-90180	US\$130.00	○		
2002	L	062	White board (1905cm)	BS-90180	US\$130.00	○		
2002	L	063	White board (1905cm)	BS-90180	US\$130.00	○		
2002	L	064	White board (1600cm)	BS-90150	US\$120.00	○		
2002	L	065	White board (1600cm)	BS-90150	US\$120.00	○		
2002	L	066	Camera	Olympus/ MU 7000m 140 pano	US\$190.00	○		
2002	L	067	Camera	Olympus/ MU 7000m 140 pano	US\$190.00	○		
2002	L	068	Digital camera	Canon / IXUS V2	US\$380.00	○		
2002	L	069	Digital camera	Canon / IXUS V2	US\$380.00	○		
2002	L	070	Digital camera	Canon / IXUS V2	US\$380.00	○		
2002	L	071	Printer	HP/DeskJet 1200 Color	US\$380.00	○		
2002	L	072	Printer	Canon/ xnu i320	US\$129.00	○		
2002	L	073	Auto Level	TOPCON/AT-G4	US\$1,277.00	○		
2002	L	074	Auto Level	TOPCON/AT-G4	US\$1,277.00	○		
2002	L	075	Auto Level	TOPCON/AT-G4	US\$1,277.00	○		
2002	L	076	Generator	Denyo	US\$21,500.00	○		
2002	L	077	Telephone PBX System	Panasonic/KX-TA3089		○		
2002	L	078	Telephone	Panasonic/KX-T7730		○		
2002	L	079	Telephone	Panasonic/KX-T7730		○		
2002	L	080	Telephone	Panasonic/KX-T7730		○		
2002	L	081	Telephone	Panasonic/KX-T7730		○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2002	L	082	Telephone	Panasonic/KX-T7730		○		
2002	L	083	Telephone	Panasonic/KX-T7730		○		
2002	L	084	Telephone	Panasonic/KX-T7730		○		
2002	L	085	Telephone	Panasonic/KX-T7730		○		
2002	L	086	Telephone	Panasonic/KX-T7730		○		
2002	L	087	Telephone	Panasonic/KX-T7730		○		
2002	J	001	Plate Table Set	Tamaya/TPT-SET Tamura	US\$292.00	○		
2002	J	002	Digital Camera	FUJIFILM/DS-260HD	US\$1,070.00	○		
2002	J	003	Super Plate	TOPCON/SUP-S	US\$270.00	○		
2002	J	004	Current Meter	Cat.No.3-2	US\$3,000.00	○		
2002	J	005	GPS	e-Trex Vista	US\$542.00	○		
2002	J	006	GPS	e-Trex Vista	US\$542.00	○		
2002	J	007	GPS	e-Trex Vista	US\$542.00	○		
2002	J	008	Mirror Stereoscope	Type III	US\$1,186.00	○		
2003	L	001	Locker	CB-1	US\$87.00	○		
2003	L	002	Locker	CB-1	US\$87.00	○		
2003	L	003	Locker	CB-1	US\$87.00	○		
2003	L	004	Locker	CB-1	US\$87.00	○		
2003	L	005	Locker	CB-1	US\$87.00	○		
2003	L	006	Water pump		US\$100.00	○		
2003	L	007	Storage shelf	S2136	US\$60.00	○		
2003	L	008	Storage shelf	S2136	US\$60.00	○		
2003	L	009	Storage shelf	S2136	US\$60.00	○		
2003	L	010	Bookshelf	304SGB	US\$130.00	○		
2003	L	011	Bookshelf	304SGB	US\$130.00	○		

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Serial Number			Name of Equipment		Price	Used / Not Used	Reason for Not being Used	Remarks
FY	B/L	No.	English	Maker / Model				
2003	L	012	File cabinet	FC013	US\$68.00	○		
2003	L	013	Closet	304S	US\$70.00	○		
2003	J	001	Laptop Computer	Toshiba/DynaBook V7/513LMDW	US\$3,000.00	○		
2003	J	002	Total Station	Topcon/GTS-229	US\$8,600.00	○		
2003	J	003	Prisms Target for Total Station		US\$1,300.00	○		
2003	J	004	Prisms Target for Total Station		US\$1,300.00	○		

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Equipment not being Used

Name of Equipment	Price	Date of Receipt			Durability	Present Condition	Reason / Period of
		D	M	Y			
Laptop Computer	US\$2,408.00	14	3	2001		Broken, cannot repair in Cambodia	Not been used since May 2003, Broken
Wireless Print Server	US\$192.00	14	3	2001		Usable, presently unnecessary due to system change	Not been used since Apr. 2003, new system installed
Wireless Lan Station	US\$275.00	14	3	2001		Broken, presently unnecessary due to system change	Not been used since May 2001, Broken
Laptop Computer	US\$1,917.00	14	3	2001		Broken, cannot repair in Cambodia	Not been used since May 2003, Broken
Automatic Water Distiller	US\$3,440.00	23	7	2002		Plan to be operational by Sep. 2003	has not bee connected to water supply
Roof-in Meter	US\$1,950.00	23	7	2002		Plan to be operational by Sep. 2003	Has not been used, Laboratory prepared recently
Instrument Shelter	US\$816.00	23	7	2002		Plan to be installed at the Model Site soon	Will be set up in November 2003
Thermo-Hydrograph	US\$332.00	23	7	2002		Plan to be installed at the Model Site soon	Will be set up in November 2003
Rain Gauge	US\$910.00	23	7	2002		Plan to be installed at the Model Site soon	Will be set up in November 2003
Evaporation Pan	US\$311.00	23	7	2002		Plan to be installed at the Model Site soon	Will be set up in November 2003
Codeless Telephone	US\$80.00	12	7	2001		Usable	Not being used since Apr. 2003, new system installed
Wireless Lan Station	US\$315.00	6	11	2001		Usable, presently unnecessary due to system change	Not been used since Apr. 2003, new system installed
Meteorological Station	US\$28,000.00	14	7	2003		Plan to be installed at the Model Site soon	Will be set up in November 2003
Hydro Scale	US\$135.00	14	7	2003		Plan to be installed at the Model Site soon	Will be set up in November 2003
Bulldozer	US\$81,400.00	14	7	2003		Plan to be used for construction at the Model Site	Will be used in construction in 2003
Truck (machinery transport)	US\$138,400.00	14	7	2003		Plan to be used for construction at the Model Site	Will be used in construction in 2003

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Budget Allocation by the Japanese Government for Local Cost Expenditure

ANNEX 7

(Unit : US\$)

Items	FY2000	FY2001	FY2002	FY2003	Total	Remarks
General Budget (Running Expenses)	19,089.99	48,208.50	61,536.68	32,150.00	160,985.17	
General Budget (Facilities, Activities)	9,848.70	14,805.40			24,654.10	
Project Budget (Facilities)			38,836.00	16,240.40	55,076.40	
Project Budget (Activities)		10,994.25			10,994.25	

*as of 30 September 2003

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Assignment of Cambodian Counterparts

Name and Position	Field	Training	Expert in Charge	Period Assigned to TSC	Remarks
H.E. Veng Sakhon Under Secretary of State	Management and Administration	10 December 2000 ~ 16 December 2000		January 2001 ~ present	
H.E. Bun Hean Director General of Technical Affairs	Management and Administration			January 2001 ~ present	
Te Ouv Kim Director, Department of Irrigation and Drainage	Management and Administration	14 May 2001 ~ 25 May 2001		January 2001 ~ present	
Ngoun Pich Deputy Director, Department of Engineering	Management and Administration	14 May 2001 ~ 25 May 2001		January 2001 ~ present	
Klok Sam Ang Chief, International Cooperation Office, Department of Planning and International Cooperation	Management and Administration			January 2001 ~ present	
Mao Rath Official, Department of Engineering	Survey	14 April 2002 ~ 13 July 2002	Kenji Yasuda	January 2001 ~ present	
Uch Hing Official, Department of Engineering	Survey	13 June 2003 ~ 23 September 2003	Kenji Yasuda	January 2001 ~ present	
Im Veasna Official, Department of Engineering	Planning		Kenji Yasuda	January 2001 ~ September 2002	
Sam Chhom Sangha Official, Department of Engineering	Planning		Kenji Yasuda	January 2001 ~ present	
Meas Savoeun Official, Department of Engineering	Planning		Kenji Yasuda	May 2002 ~ present	
You Sotha Official, Department of Engineering	Planning		Kenji Yasuda	November 2002 ~ present	

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Name and Position	Field	Training	Expert in Charge	Period Assigned to TSC	Remarks
Sem Samnang Official, Department of Engineering	Design		Yoji Ebihara	January 2001 ~ May 2002	
Bunpa Marylux Official, Department of Engineering	Design		Yoji Ebihara	January 2001 ~ May 2003	
Hay Bunthoeun Official, Department of Engineering	Design		Yoji Ebihara	May 2002 ~ present	
Teav Vutha Official, Department of Engineering	Design		Yoji Ebihara	May 2002 ~ present	
Phiv Phalkun Chief, Construction Office, Department of Engineering	Construction Management		Yoichi Ihara	January 2001 ~ May 2002	
Ung Kotaro Official, Department of Engineering	Construction Management	16 May 2002 ~ 17 August 2002	Yoichi Ihara Kenji Sekijima	January 2001 ~ present	
Touch Bun Leng Official, Department of Engineering	Construction Management		Yoichi Ihara	May 2002 ~ July 2002	
Noun Vannarith Official, Department of Engineering	Construction Management		Yoichi Ihara Kenji Sekijima	August 2002 ~ present	
Huot Chandarith Official, Department of Irrigation and Drainage	Water Management/Farmers Survey	15 July 2002 ~ 24 October 2002	Yoji Ebihara	January 2001 ~ present	
Prum Kanthel Official, Department of Irrigation and Drainage	Water Management/Farmers Survey	30 July 2001 ~ 17 October 2001	Yoji Ebihara	January 2001 ~ present	

List of Facility and Equipment Prepared by the Royal Government of Cambodia

ANNEX 9

Institution	Facility	Equipment	Running Expenses
Ministry of Water Resources and Meteorology	- Project Office - Parking Space for Project Vehicles - Meeting Room	- Telephone (1 line)	- Electricity charges
Ministry of Water Resources and Meteorology Tuk Thla Office	- Project Office - Chief Advisor's Office - Kitchen - Warehouse for Equipment - Parking Space for Project Vehicles - Meeting Room	- Telephone (1 line) - Network for Wireless Radio - Level (1 set) - Transit (1 set) - Staff Gauge (2 sets) - Measure Tape (1 unit) - Total Station (1 set)	- Electricity charges - Telephone charges for 1 line - fuel for 4 project vehicles
Technical Service Center	- Technical Service Center (under construction) - Offices, Training Room, Meeting Room - Laboratory		



Allocation of Budget by the Royal Government of Cambodia

ANNEX 10

(Unit:US\$)

Items	FY2000	FY2001	FY2002	FY2003	Total	Remarks
Basic Salary of All Counterparts	750.00	3,000.00	3,000.00	1,000.00	7,750.00	
Basic Salary of 2 Secretaries / 4 Drivers	450.00	1,800.00	1,800.00	600.00	4,650.00	
Office Construction / Improvements	rehabilitation of project office		construction of project office			
Electricity / Water Charges	electricity/water for project office	electricity/water for project office	electricity/water for project office	electricity/water for project office		
Local Telephone Charges (2 lines)	120.00	480.00	480.00	0.00	1,080.00	
Fuel for Project Vehicles	1,200.00	4,800.00	4,800.00	960.00	11,760.00	

5 *as of July 2003

*FY : from April 2001 to march 2003

*FY2000 : from January 2001 to march 2001

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MINUTES OF MEETING

BETWEEN

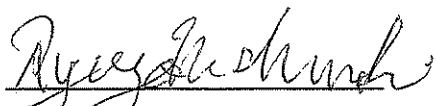
THE JAPANESE EVALUATION TEAM AND THE MINISTRY OF WATER RESOURCES
AND METEOROLOGY OF THE ROYAL GOVERNMENT OF CAMBODIA
ON THE JAPANESE TECHNICAL COOPERATION FOR
THE TECHNICAL SERVICE CENTER FOR IRRIGATION SYSTEM PROJECT
IN THE KINGDOM OF CAMBODIA

The Japanese Evaluation Team (hereinafter referred to as "the Japanese Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Ryuzo NISHIMAKI, Senior Researcher of JICA, visited the Kingdom of Cambodia from July 10, 2005 to July 27, 2005 in order to conduct the final evaluation on the Technical Service Center for Irrigation System Project in Cambodia (hereinafter referred to as "the Project").

The Cambodian Evaluation Team (hereinafter referred to as "the Cambodian Team") was organized by the Ministry of Water Resources and Meteorology (MOWRAM) of the Royal Government of Cambodia and headed by Mr. PRUM Saroeun, Deputy General Inspector of MOWRAM.

For the final evaluation of the Project, the Japanese Team and the Cambodian Team formed the Joint Evaluation Team (hereinafter referred to as "the Team"). After conducting study and analysis of the activities and achievements of the Project, the Team prepared the Joint Evaluation Report (hereinafter referred to as "the Report") and presented the evaluation results to the Joint Coordinating Committee of the Project.

The Joint Coordinating Committee accepted the Report and agreed to recommend to the respective governments the matters referred to the Report attached hereto.



Mr. Ryuzo NISHIMAKI

Leader

Japanese Final Evaluation Team

Japan International Cooperation Agency

Japan



Phnom Penh, July 26, 2005

H.E. Mr. VENG Sakon

Secretary of State

Ministry of Water Resources and

Meteorology

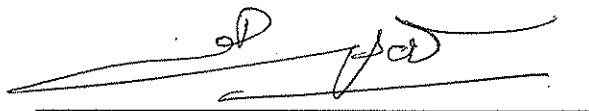
The Kingdom of Cambodia

JOINT EVALUATION REPORT
ON
THE TECHNICAL SERVICE CENTER
FOR IRRIGATION SYSTEM PROJECT IN CAMBODIA

Phnom Penh, July 26, 2005



Mr. Ryuzo NISHIMAKI
Leader
Japanese Evaluation Team
Japan International Cooperation Agency
Japan



Mr. PRUM Saroeun
Leader
Cambodian Evaluation Team
Deputy General Inspector, Ministry of Water
Resources and Meteorology
The Kingdom of Cambodia

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1. Evaluation of the Project

1.1 Objectives of Evaluation

- (1) To evaluate the overall achievement of "The Technical Service Center (TSC) for Irrigation System Project (hereafter referred to as "the Project") based on the Record of Discussions (R/D), Project Design Matrix (PDM) and Plan of Operations (PO).
- (2) To identify remaining problems and recommend appropriate measures that need to be undertaken by the relevant government agencies after the completion of the Project, and
- (3) To consider the lessons obtained from the project activities in order to reflect them on future projects in the interest of making them more effective and efficient.

1.2 Methodology

(1) Joint Evaluation

The Project was evaluated by the Cambodian and Japanese evaluation teams (hereinafter referred to as "the Joint Evaluation Team") in accordance with the R/D, the PDM and the PO. The evaluation activities included report analysis, field survey, and interview with staff of the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM"), Japanese experts and other concerned personnel in the Project were conducted based on the five Evaluation Criteria. The Joint Evaluation Team was composed of five members from the Cambodian side and four members from the Japanese side who were not involved in the project activities.

(2) Five Evaluation Criteria

1) Relevance

Relevance refers to the validity of the Project Purpose and the Overall Goal in connection with the development policy of the Royal Government of Cambodia (hereinafter referred to as "RGC") as well as the needs of beneficiaries.

2) Effectiveness

Effectiveness refers to the extent to which the expected benefits of the Project have been achieved as planned. It also examines whether these benefits have been brought about as a result of the Project.

3) Efficiency

Efficiency refers to the productivity of the implementation process. It examines whether the inputs of the Project have been efficiently converted into outputs.

4) Impact

Impact refers to direct and indirect, positive and negative impacts caused by the implementation of the Project, including the extent to which the overall goal has been attained.

5) Sustainability

Sustainability refers to the extent to which the Project can be further developed by RGC, and the extent to which the benefits generated by the Project can be sustained under national policies, technology, systems and financial state.

1.3 Members of the Joint Evaluation Team

(1) Japanese Evaluation Team

1) Mr. Ryuzo NISHIMAKI (Team Leader)

Senior Researcher (Rural Development), Rural Development Department, JICA

2) Mr. Yoshihiro DOI (Irrigation Technology)

Deputy Director, Overseas Land Development Cooperation Office, Rural Development Bureau, Ministry of Agriculture, Forestry and Fisheries

3) Mr. Kenji SAKURAI (Cooperation Management)

Paddy Based Farming Area Team III, Group I, Rural Development Department, JICA

4) Mr. Isao DOJUN (Evaluation and Analysis)

Sub-Section Chief, Rural Development, International Project Department
Chuo Kaihatsu Corporation

(2) Cambodian Evaluation Team

1) Mr. PRUM Saroeun (Team Leader)

Deputy General Inspector, MOWRAM

2) Mr. CHEA Chhunkeat

Director of Administration and Human Resources Department, MOWRAM

3) Mr. PICH Veasna

Director of Planning and International Cooperation Department, MOWRAM

4) Dr. THENG Tara

Director of Water Resources Management and Conservation Department,
MOWRAM

5) Mr. EM Bunthoeun

Director of Engineering Department, MOWRAM

1.4 Schedule of the Evaluation

The schedule is attached as ANNEX I.

2. Outline of the Project

2.1 Background of the Project

Agriculture is the prime industry of the Kingdom of Cambodia. Agricultural production contributes to approximately 37% of the country's GDP, and more than 80% of the national population relies on agriculture for their living in 2000.

Despite abundant farmland and water resources, agricultural productivity of the country has rather been low mainly due to deficient irrigation systems, which is one of the essential development issues of the country.

RGC made a request to the Government of Japan (GOJ) for a technical cooperation that aims at technical transfer on rehabilitation of existing irrigation systems such as survey, planning, design, construction, operation and maintenance.

In response to the request, JICA dispatched the Preliminary Study Team and the Supplementary Study Team to confirm the need for assistance and to discuss the details of the Project with Cambodian side. The Implementation Study Team signed the Record of Discussions on the Project on September 21, 2000. This 5-year project started from January 10, 2001 and will be completed in January 9, 2006.

2.2 Objective of the Project

The Project Purpose is "The technical capacity of the engineers and technicians of MOWRAM and PDWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems". The framework of the Project is shown in the PDM modified in October 2003 (See ANNEX II). The organizational structure for the Project is shown in ANNEX III.

2.3 Inputs

(1) Japanese side

1) Expert assignment

A total of ten (10) long-term experts have been dispatched. Fields of specialty are Chief Advisor, Coordinator/ Farmers Survey and Training, Survey/ Planning, Design/ Water Management, and Construction Management, as shown in the ANNEX IV.

Sixteen (16) short-term experts completed their assignment in the above fields. Three (3) more short-term experts will be dispatched by the end of the Project.

2) Training in Japan

Fifteen (15) counterparts of MOWRAM have participated in the training in Japan as shown in ANNEX V.

3) Provision of equipment

JICA procured equipment locally and from Japan for the implementation of the Project as shown in ANNEX VI.

4) Local cost

Local costs such as running expenses and expenses for facilities and activities have been provided by JICA. The total amount of expenditure is expected to the amount to 575,317 US dollars as shown in ANNEX VII.

(2) Cambodian side

1) Assignment of personnel

Cambodian counterpart personnel assigned to the Project is shown in ANNEX V. At present, eleven (11) full-time counterparts are assigned in the field of Survey, Planning, Design, Construction Management, and Water Management. Five (5) counterparts are assigned in the field of Management and Administration.

2) Local Cost

The budget allocated by MOWRAM for the Project is shown in ANNEX VIII. The total amount of expenditure is expected to the amount to 217,994 US dollars including salary of counterparts.

3) Provision of the office and training rooms

Cambodian side constructed a building of the Technical Service Center in 2002 for the use by the Project. The building has appropriate space as office, training room and laboratory for the project activities.

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3. Achievement of the Project

3.1 Activities

See Annex IX for the achievement of activities of the Project.

3.2 Outputs

The achievement of each output is described below:

- (1) Output 1: The technical capacity of the full-time counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT).

Targeted technical capacity by the Project means knowledge and skills on tertiary irrigation canals and related structures in the fields mentioned above.

Verifiable indicators of the Output 1 and achievements are as follows.

Verifiable Indicators	Achievements (as of July 2005)					
1.1 Irrigation and drainage facilities are appropriately built by C/Ps with the use of techniques learned through OJT by the end of the project.	Tertiary canals and related facilities in the model site (beneficiary area: 260ha) of the Project in the Kandal Stung Irrigation System have been built by C/Ps with the use of techniques learned, which are techniques on survey, planning, design, construction management, and water management with participation of farmers, through OJT.					
	Data of tertiary canals constructed is as follows.					
		No. of tertiary canal	Benefited area (ha)	New construction or rehabilitation	Length (meter)	Year constructed
	1	T3.2.0 (partially)	167	Rehabilitation	857m + 487m	2003/2004
	2	T3.4.0	24	New	656m	2005
	3	T3.5.0	23	Rehabilitation	760m	2004
	4	T3.6.0	20	New	860m	2005
			234ha			
	5	Polpot No. 62		Rehabilitation	293m	
Related structures such as intake, off-take, distribution box, check structure, crossing and outlet also have been constructed in the model site.						
Survey result products, drawings, bill of quantity, construction planning reports, construction reports etc. have been produced by C/Ps. As for water management field, activities on workshops among farmers and group work have been promoted. Reports on those activities have been prepared.						

1.2 Manuals related to survey, planning, design, construction management and water management with participation of farmers are produced by the end of the project.

Manuals related to survey, planning, design, construction management and water management have been prepared and some of the manuals were utilized as texts for the training courses. There are also manuals under preparation.

As for water management field, documents on activities above mentioned such as workshops among farmers and group work, and also rules made by farmers are under preparation as case study report.

Number of manuals for each field and progress of manuals are as follows.

Field	Number of Manuals	Progress		
		Completed	Under preparation	Target Deadline
Survey	8	2	6	Dec. 2005
Planning	2		2	Dec. 2005
Design	7	5	2	Sep. 2005
Construction Management	7	2	5	Dec. 2005
Water management	3	1	2	Sep. 2005

Details see the list of manuals.

Table: List of Manuals

Field	No	Title	M/T	Progress					Target Deadline
				Plan	Ongoing	Completed in English	Translating into Khmer	Completed in Khmer	
S	1	The text of basic survey course	T					○	Finished
	2	Manual on Survey (Basic Topographic Survey, Survey study)	M/T					○	Finished
	3	Manual on Survey (Route survey)	M		△				Dec. 2005
	4	Manual on Survey (Traverse survey)	M/T			△			Sep. 2005
	5	Manual of Theodolites Survey	M/T			△			Dec. 2005
	6	Observation Manual of Meteorology (Draft)	M/T	□					Sep. 2005
	7	Manual on Discharge Measurement	M/T			△			Dec. 2005
	8	Manual of Topographic Survey	M			△			Sep. 2005
P	9	Manual on Water Requirement	M/T			△			Sep. 2005
	10	Manual of Calculation for Water Balance (Draft)	M/T	□					Dec. 2005
D	11	Basic Hydraulic	M/T					○	Finished
	12	Basic Design	M/T		△				Sep. 2005
	13	Survey Practice for New C/P	M/T					○	Finished
	14	Manual on Design of Small Irrigation Canals and Related Structure, 2002	M/T			○	No need Translating		Finished
	15	Manual on Design of Small Irrigation Canals and Related Structure, 2003	T			○	No need Translating		Finished
	16	Supplementary Side Reading for Manual on Design for Small Scale Irrigation Canals	T			○		○	Finished
	17	Practical Design Manual on Small Scale Irrigation Canals and Related Structures	T			Draft Complete	No need Translating		Aug. 2005

CM	18	General Specifications on construction of tertiary canal	M			△	No need Translating		Aug. 2005
	19	Criteria of construction control for tertiary canal	M					○	Finished
	20	Manual for Construction Work Process	M/T		△				Sep. 2005
	21	Manual for Marking Fixed Ruler	M/T					○	Finished
	22	Manual on Earth Work Process	M/T		△				Sep. 2005
	23	Manual for Concrete Work Process	M/T		△				Dec. 2005
	24	Outline of Construction Management	M/T			△			Dec. 2005
WM	25	General Guideline of Farmers Survey	M			○		○	Finished
	26	Manual on operation and maintenance of irrigation structures on-farm level	M		△				Aug. 2005
	27	Water management techniques on-farm level	M		△				Sep. 2005

Remarks: "S" is Survey Section, "P" is Planning Section, "D" is Design Section, "CM" is Construction Management Section, "WM" is Water Management Section, "M" is Manual, and "T" is Text Book, "○" is completed, "△" is ongoing, "□" is plan.

- (2) Output 2: Series of training courses are organized to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PDWRAM. (PDWRAM: Provincial Department of Water Resources and Meteorology)

Verifiable indicators of the Output 2 and achievements are as follows.

Verifiable Indicators	Achievements (as of July 2005)																																	
Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are produced by the end of the project.	Most of manuals produced or to be produced are utilized as text for the training courses of the Project. In total 19 texts will be produced by the end of the Project. (7 out of 19 texts are already produced.)																																	
	Number of texts by field is as follows.																																	
	<table><tr><th rowspan="2">Field</th><th rowspan="2">Number of text</th><th colspan="3">Progress</th></tr><tr><th>Completed</th><th>Under preparation</th><th>(Target for completion)</th></tr><tr><td>Survey</td><td>5</td><td>1</td><td>4</td><td>Dec. 2005</td></tr><tr><td>Planning</td><td>2</td><td>0</td><td>2</td><td>Dec. 2005</td></tr><tr><td>Design</td><td>7</td><td>5</td><td>2</td><td>Sep. 2005</td></tr><tr><td>Construction Management</td><td>5</td><td>1</td><td>4</td><td>Dec 2005</td></tr><tr><td>Water Management</td><td>0</td><td>0</td><td>0</td><td>-</td></tr></table>	Field	Number of text	Progress			Completed	Under preparation	(Target for completion)	Survey	5	1	4	Dec. 2005	Planning	2	0	2	Dec. 2005	Design	7	5	2	Sep. 2005	Construction Management	5	1	4	Dec 2005	Water Management	0	0	0	-
	Field			Number of text	Progress																													
		Completed	Under preparation		(Target for completion)																													
Survey	5	1	4	Dec. 2005																														
Planning	2	0	2	Dec. 2005																														
Design	7	5	2	Sep. 2005																														
Construction Management	5	1	4	Dec 2005																														
Water Management	0	0	0	-																														
	By the Project, curricula for 6 kinds of training courses are produced and training courses had been conducted once per training course. Three (3) more kinds of training course will be conducted.																																	
	Titles of training courses conducted already are as follows.																																	

	1) Basic Survey 2) Basic Hydraulic for Design of Irrigation Canals 3) Basic Construction Control 4) Construction Control 5) Basic Survey II 6) Practical Design for Small Scale Irrigation Canals and Related Structures Titles of training courses to be conducted are as follows. 7) Discharge Measurement and Water Requirement 8) Design of Related Structures 9) Construction Planning and Management
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3.3 Project Purpose

"The technical capacity of the engineers and technicians of MOWRAM and PDWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems."

Verifiable indicators of the Project Purpose and achievements are as follows.

Verifiable Indicators	Achievements (as of July 2005)
1. The 10 full-time C/Ps obtain the technical capacity to conduct training on irrigation systems by the end of the project. 2. More than 100 engineers and technicians of MOWRAM & PDWRAM improve their technical capacity through trainings at TSC by the end of the project.	1. Main focus of the capacity development by the Project had been given to strengthening technical capacity of full-time counterparts. (This is based on the results of modification PDM at the mid-term evaluation of the Project in 2003.) Technical capacity of full-time counterparts in the field of survey, planning, design, construction management, and water management with participation of farmers will be improved to a quite satisfactory level in respective fields in regard to tertiary canal level irrigation system. Conduction of various kinds of training courses is one of the means to strengthen technical capacity of full-time counterparts. And training courses had been conducted something like trial. Therefore, full-time counterparts have acquired knowledge and skills to conduct training course to some extent, but it is necessary to grade up their capacity through conducting and experiencing more training courses and improving textbooks. 2. Up to now, 92 engineers and technicians of MOWRAM and PDWRAM improved their technical capacity through participation to the training courses of the Project. 51 more engineers and technicians will improve their technical capacity through training courses, which will be conducted by the end of the Project. So, in total 143 engineers and technicians will improve their technical capacity.

3.4 Prospect to achieve the Overall Goal

"Irrigation projects are properly implemented by MOWRAM and PDWRAM."

Verifiable Indicators	Prospect on achievement (by 2011)
More than 10 projects will be implemented with techniques that were transferred at the TSC project by 2011.	Secondary and tertiary canals in Kandal Stung irrigation area, excluding tertiary canals in the model site of the Project, will be developed utilizing techniques that were transferred by the Project (survey and design of canals are ongoing by the MOWRAM). (Main irrigation facilities of Kandal Stung Irrigation area are going to be constructed by the Japanese grant aid project.) There are 27 irrigation projects implemented by the government using own budget this year in 2005. There are also expected more than 8 planned irrigation projects by the government. In regard to irrigation projects under Japanese Grant Aid of Grass Roots Scheme, 10 irrigation projects have been implemented in past 5 years since 2000, there are 2 committed and 5 proposed irrigation projects. Considering the number of projects under implementation using own budget of the government and past tendency of implementation of irrigation project using fund of Japanese Grant Aid for grass roots projects, there are many irrigation projects in which techniques that were transferred by the Project can be utilized. Therefore, there is possibility to achieve the Overall Goal by 2011.

4. Result of the Evaluation

4.1 Relevance

(1) National development policy of RGC

There are 3 main policies and strategies of RGC, i.e. 1) the Second Five Year Socioeconomic Development Plan (2001-2005), 2) the National Poverty Reduction Strategy (2003-2005) and 3) the Rectangular Strategy that was presented by RGC in 2004. These policy and strategies emphasize poverty reduction, enhancement of agricultural sector, improvement of rural livelihoods, and capacity building and human resource development, etc.

In Cambodia most of the people live in rural area. Therefore, to reduce poverty and improve rural livelihoods through irrigation/agricultural development is necessary. Improvement of irrigation systems and proper management of irrigation water offer good contribution on improvement of agricultural productivity.

The Project has aim to make contribution to improving proper irrigation facilities and managing them appropriately through enhancement of technical capacity of engineers and technicians of MOWRAM who are working in irrigation sector. And this aim is consistent with above mentioned plan and strategies of RGC. Therefore, the Project is relevant with policies and strategies of RGC.

(2) Japan's Official Development Assistance (ODA) Policy to Cambodia

One of the priority areas of the Japanese government is "Agriculture and Rural Development and the Improvement of Agricultural Productivity". One of the priority subjects in this priority area is provision of irrigation facilities, improvement of water management, and development of water users associations for irrigation. JICA also gives priority on improvement of irrigation facilities and organizing farmers for operation and maintenance of irrigation facilities and irrigation water management.

The overall goal of the Project is "Irrigation projects are properly implemented by MOWRAM and PDWRAM". Therefore, the Project is relevant with policy of Japan

(3) Needs of capacity building of engineers and technicians of MOWRAM

Many irrigation engineers and technicians in Cambodia were lost during Khmer-rouge regime (1975-1979). MOWRAM was established in 1999, and has to strengthen and build up capacity of engineers and technicians on developing irrigation systems and supporting farmers in regard to operation and maintenance.

Because of frequent flood and drought occurred in recent years, needs of

improvement of irrigation facilities and human resources development in irrigation sector are increasing. Also, engineers and technicians of PDWRAMs should support farmers in water management after improvement of irrigation facilities.

Therefore the Project is consistent with needs of irrigation engineers and technicians of MOWRAM.

(4) Needs of farmers

In Cambodia, more than 80% of population is engaged in agriculture. Rice is staple food in Cambodia. Due to insufficiency of irrigation facilities, rice production in most of the area depends on unstable rainfall. Cultivated area per household is small and less than 1 ha.

Therefore, supplementary irrigation in rainy and dry season is necessary. Stabilizing rice production through stable supply of irrigation water is very important and necessity of farmers. In this sense, need of improvement of capacity of staff working in irrigation sector is high and consistent with needs of farmers.

4.2 Effectiveness

As described in chapter 3, most of the Outputs of the Project will be achieved by the end of the Project.

The Project Purpose, which is "The technical capacity of the engineers and technicians of MOWRAM and PDWRAM is improved in the fields of survey, planning, design, construction management, and water management with participation of farmers for irrigation systems", will be mostly achieved by the end of the Project. Technical capacity of the 11 full-time counterparts has been improved satisfactorily. And technical capacity of engineers and technicians of MOWRAM and PDWRAM have been improved through the training courses of the Project. Total number of participants to the training courses is 92 up to now. Technical capacity of 51 engineers and technicians of MOWRAM and PDWRAM will be improved through the training courses by the end of the Project.

Full-time counterparts have improved their technique on how to communicate, facilitate and support farmers for organizing water users' group and operation and maintenance of irrigation facilities.

The Project provided technical support on survey techniques of TSC to staff of the MOWRAM team, who are engaged in survey works for construction of tertiary canals in Kandal Stung irrigation area. This is also one of the results of capacity development of the

Project.

Moreover, around 10 operators and mechanics have improved their capacity on operation and maintenance of construction machinery through participation in the project activities.

The achievement of the Outputs has contributed to the achievement of the Project Purpose. Therefore, it is considered that effectiveness of the Project is satisfactorily high.

4.3 Efficiency

(1) Appropriateness of the Inputs by both Japanese side and Cambodian side

Most of the inputs have been provided appropriately in terms of quantity, quality and timing. The followings are several attributes that facilitated the smooth implementation of the project:

- Cambodian side made an effort to provide good working facilities for the Project using budget of the government. A new building for TSC was constructed in 2002 with suitable space for the office, a training room and a laboratory for the Project.
- Cambodian side took necessary actions and measures in the UXOs search and clearing in the model site. So, the Project can safely implement its activities on schedule in the model site.

There were some inputs that have not been provided appropriately as shown below. These had affected certain degree on efficiency of the Project negatively, but both sides had provided effort to reduce negative effect on efficiency of the Project.

- Due to the low salary of officials of government, many of full-time counterparts did not work in the office at full-time basis in the beginning of the Project. And there were cases that some full-time counterparts were replaced. In such case, it was needed to start technical transfer to new full-time counterparts from the beginning. To solve this problem, the Project has provided additional allowances for their work.
- Because some of full-time counterparts did not have sufficient capacity in English language, there was difficulty in conducting technical transfer from Japanese experts to them smoothly. At present, their English capacity was improved with their own learning effort and training provided by the Project.
- There were cases that it took long period of time for procuring equipment. Such delay of

procurement affected the project activities and the Project had to reschedule them.

- There were some cases that timing of dispatch of short-term experts delayed. These had affected implementation of project activities.

(2) Project management and consensus building

Monthly meetings have been held and chaired by the Sub-Manager of the Project. The monthly meetings facilitate the sharing of information regarding the progress and plans of the activities.

Good communication and relationship between full-time counterparts and Japanese experts has contributed to smooth technical transfer and implementation of the project activities.

The Project held some seminars and distributed monthly reports to concerned persons. Through such activities, higher officials understood the progress and situation of the project activities.

The Project has activities cooperated with other donor agencies such as Aus-Aid (concerning training to farmers on improvement of rice cultivation by AQIP scheme) and Japanese Institute of Irrigation and Drainage (concerning investigation of effect of field canal in paddy field). This kind of cooperation has made good effect on efficiency of the Project.

4.4 Impacts

(1) Prospect of achieving the Overall Goal

The Overall Goal of the Project is "Irrigation projects are properly implemented by MOWRAM and PDWRAM".

As mentioned in 3.4, tertiary canals and related structures in Kandal Stung irrigation area will be developed utilizing techniques that were transferred by the Project. MOWRAM team conducting survey work in the area is applying technique that was introduced by the Project, such as specifications and procedures of survey. Construction work of tertiary canals and related structures will be done directly by Engineering Department applying technique of the Project.

RGC is increasing budget for irrigation projects this year. Some irrigation projects have implemented and other projects are being proposed by MOWRAM to RGC. MOWRAM is also proposing some irrigation projects using fund of Japanese Grant Aid for Grass Roots Scheme.

Therefore, there is possibility to achieve the Overall Goal by 2011, in case engineers and technicians of MOWRAM and PDWRAM obtain knowledge and skills properly and

implement irrigation projects applying those knowledge and skills, which have been learned at TSC.

(2) Other Impacts

1) Road construction on bank of tertiary canals in the model site of the Project.

Banks of some tertiary canals, which were constructed in the model site of the Project through OJT, were constructed as farm road. These farm roads are used by farmers for carrying out harvested rice from paddy field and carrying in agricultural input like chemical fertilizer. Workload on transportation is reduced and farmers recognized well about usefulness of farm road. Also the farm road provides good access for children to go to school.

2) Preparation of rules of water users' groups by farmers themselves

The Project promoted and supported to organize water users' group in the model site. 2 water users' groups, which members are using same tertiary canal for irrigation. Total number of farmers is 68. As a result of activities with farmers, these farmers' groups have made rules and regulations of their groups by themselves. The Project is providing support on farmers meetings and the full-time counterparts in the field of water management are acting as facilitators. Important point is that the rules of water users' groups were prepared with farmers initiatives. This experience will provide good influence on policy of MOWRAM for promotion of water users' group.

3) Promotion for organizing water users' group in the model site.

Irrigated Agriculture Department of MOWRAM has started to organize water users' group by utilizing techniques of TSC on water management with participation of farmers.

4) Field canals connected with tertiary canal, which convey irrigation water to each plot of paddy field, constructed by farmers themselves

Japanese Institute of Irrigation and Drainage (JIID) had constructed a field canal in the model site for investigating effectiveness of it in cooperation with the Project. After knowing usefulness of the field canal, other farmers had constructed field canals by themselves. The Project provided technical assistance to them. Traditional way of water delivery at field level is plot-to-plot irrigation. Irrigation by this method may take long time depending on water condition of paddy field of upper part. Understanding of usefulness of field canal by farmers will make more impact on extending construction of

field canals.

5) Increase of rice production in the model site

Some farmers, who are beneficiaries of a tertiary canal constructed by the Project, said that rice production was increased and they could get surplus of rice for sale. Before the construction of the canal, rice production was not enough for self-sufficiency.

6) Knowledge sharing with other staff of PDWRAM

Participants of the training courses have shared knowledge and skills learned with several staff who are working in same office of PDWRAM by explaining or doing their jobs. This is a good impact of training courses on extending knowledge and skills transferred at TSC to other staff of PDWRAM.

7) Recognition of importance of basic knowledge and skills, and effectiveness of capacity development through practice-oriented technical transfer (OJT)

Not only the full-time counterparts but also higher officials of MOWRAM have recognized importance of basic knowledge and skills, and effectiveness of capacity development through practice-oriented technical transfer.

4.5 Sustainability

(1) Organizational sustainability

Although the name of the Project is "the Technical Service Center (TSC) for Irrigation System", TSC is not an official organization authorized by governmental law. The full-time counterparts belong to Engineering Department and Irrigated Agriculture Department of MOWRAM.

In order to continue the activities of TSC, which is the capacity development of technical staff of MOWRAM and PDWRAM, and to strengthen its roles and functions, TSC should be established as an official organization in MOWRAM by law or ordinance of RGC. Organizational sustainability of TSC will be ensured when TSC is established officially with clear roles, functions and structure.

(2) Financial sustainability

RGC is facing financial difficulty in general. Annual budget of MOWRAM is indicated in the following table.

Table: Annual budget of MOWRAM from 2001 to 2004

Annual Budget	2001	2002	2003	2004
(Unit: Riel)	7,740,000,000	7,500,000,000	11,345,000,000	13,000,000,000
(US dollar)	2,015,626	1,953,125	2,954,427	3,385,417

Remark: Exchange rate of US dollar= 3,840 Riel

MOWRAM has disbursed budget for the Project, such as expenses for construction of the TSC building (about 155 thousand US dollars), expenses for operation and maintenance of facilities, expenses for utilities like electricity, water supply and fuel for vehicles, etc. MOWRAM has made effort to provide budget for the Project, especially for construction of TSC building. However, if excluding amount of construction cost of TSC building and salary of staff, annual expenditures for the Project are between 4,000 and 5,000 US dollars.

Expenses for the training courses of the Project are around 3,000 to 4,000 US dollars per training course. Therefore, it is necessary for MOWRAM to get certain amount of budget for activities of TSC like training courses in order to assure financial sustainability of TSC.

(3) Technical sustainability

Main objectives of capacity development of the full-time counterparts are to strengthen technical knowledge and skills in the fields of survey, planning, design, construction management, and water management with participation of farmers for irrigation systems, and to get capacity to conduct the training courses of the Project as instructor. It is judged that 11 full-time counterparts have acquired those capacity mentioned above in quite satisfactory level. If those counterparts continue to work at TSC as instructor for the training courses of the Project, technical sustainability will be ensured. To ensure this technical sustainability, organizational establishment of TSC, regular implementation of the training courses of the Project and provision of incentive, which enables full-time counterparts to continue working at TSC, are necessary.

(4) Important aspect for sustainability in a short period

RGC and JICA agreed to implement the phase II project of TSC. To ensure sustainability of the Project and also for the phase II project, necessary measures have to be taken in remaining period of the Project.

5. Conclusion

The Project is in conformity with the development policy of RGC and needs of engineers and technicians of MOWRAM and PDWRAM and also with the cooperation policy of Japan. It is judged that the Project Purpose and the Outputs of the Project will be achieved satisfactorily by the end of the Project. Various kinds of positive impacts have been produced as results of the project activities, while sustainability of the Project is a subject to be considered organizationally, financially and technically.

Taking all the evaluation results into consideration, it can be judged that the Project has been successfully implemented and achieved the Project Purpose with good effectiveness and positive impacts. In regard to sustainability of the Project, appropriate measures should be taken for sustaining outcomes of the Project.

Based on the abovementioned achievement, it is concluded that the Project will be completed on January 9, 2006 as planned.

6. Recommendations

(1) Items to be implemented during the remaining period of the Project (until January 2006)

- 1) To accomplish scheduled activities in the remaining period of the Project.
- 2) To conduct 3 kinds of the scheduled training courses
- 3) To accomplish preparation of manuals and texts
- 4) To conduct a seminar for presenting outcomes and good examples of the Project to higher officials of MOWRAM and PDWRAM.

(2) Items to be implemented after the period of the Project (after January 2006)

- 1) Follow up study on the training courses

Follow up study to the ex-participants of the training courses of the Project should be conducted to know whether ex-participants utilized knowledge and skills learned at the training course for their jobs and also to know what kinds of knowledge and skills are necessary for them. Results of the follow up study should be utilized for improving the training courses.

- 2) Duration of the training courses.

There are opinions that the durations of training courses are too short for

understanding well about contents of the training course. Durations of the training courses should be examined.

3) Further improvement of manuals and texts

It is necessary to continue improving contents of manuals and texts. And also some manuals and texts are necessary to translate in Khmer language.

4) Provision of tools and instruments to PDWRAM

It is recommended to provide PDWRAM with tools and instruments that are necessary to maximize training results and to share knowledge and skills with staff of PDWRAM such as theodolite and leveling instrument.

5) Accomplishment of construction work of irrigation system in the model site

Irrigation facilities have been constructed in the model site, but it is not possible to accomplish within the project period. Therefore it is necessary to accomplish construction work of tertiary canals and related structures.

6) Extension and scale up of activities of TSC

TSC has to extend the outcomes of the Project and also scale up activities of TSC.

7. Lessons Learned

One of good points of the way of technical transfer by Japan is capacity development with steady progress by experiencing practices through having direct instructions by Japanese experts at field. The purpose of technical transfer at field is to obtain good experiences for engineers and technicians. It is very important for this good point to be recognized not only by counterparts but also by persons concerned of the implementing agency, donor agencies and other stakeholders.

ANNEX I Schedule of the Japanese Evaluation Team

The Technical Service Center (TSC) for Irrigation System Project

	Date		Activities	
			Team Leader, Irrigation Technology, Planning Management	Evaluation Analysis
1	July 10	Sun		Narita→Bangkok→Phnom Penh
2	July 11	Mon		•8:00am Courtesy call to H.E. Mr. VENG Sakhon, Secretary of State, MOWRAM •8:30am-10:00 Expalanation of evaluation method to members of the Cambodia Evaluation Team, •11:00-12:00 Meeting with Japanese Experts •13:00-15:00 Visit to mdl site •15:00-17:00 Intrview with Japanese experts •17:30 Meeting with JICA staff at JICA Cambodia Office
3	July 12	Tue		8:30-17:00 Interview with full-time counterparts and counterpart in the filed of management
4	July 13	Wed		8:30-17:00 Interview with counterparts in the filed of management, and Japanese experts
5	July 14	Thu		Data collection and analysis
6	July 15	Fri		8:30-17:00 Site visit (interview with farmers of model site and staff of the district office of MOWRAM) and data nalysis
7	July 16	Sat		data analysis
8	July 17	Sun		data analysis
9	July 18	Mon	Narita→Bangkok→Phnom Penh	•8:00-12:00 Interview with participants to the training courses of the Project •15:00-16:30 Interview with directors of Provincial of MOWRAM
10	July 19	Tue	AM	•8:30 Meeting at JICA Office •11:15 Courtesy call to the Embassy of Japan •15:00 Courtesy call to MOWRAM (H.E. Mr, Veng Sakhon) •16:00 Visit to TSC
11	July 20	Wed	AM	•8:30-12:00 Visit to TSC and interview with Japanese experts •14:00 Joint Evaluation Team Meeting at meeting room of MOWRAM headquarters (First meeting with Cambodia evaluation team member and Japanese evaluation team member)
12	July 21	Thu	PM	•8:30-12:00 Study on progress of the project activities and outcomes, presentation by Cambodian counterparts and Questionan & Answer (at training room of TSC)
13	July 22	Fri		•8:30-12:00 Site survey (model site of the Project and interview with farmers) •15:00 Second Joint Evaluation Meeting (discussion on draft evaluation report)
14	July 23	Sat		Data analysis and preparation of evaluation report
15	July 24	Sun		Data analysis and preparation of evaluation report
16	July 25	Mon		•9:00 Third Joint Evaluation Meeting (finalize evaluation report) at meeting room of MOWRAM headquarters
17	July 26	Tue	AM	•9:00 Fourth Joint Evaluation Meeting, Sign the Joint Evaluation Report (at meeting room of MOWRAM headquarters)
		PM		•15:00 Joint Coordination Committee (sign the M/M) (at meeting room of MOWRAM headquarters)
18	July 27	Wed	AM	Report to JICA Office, report to the Embassy of Japan
		PM		(Team Leader & Planning Management) Join to the other evaluation work (Irrigation Technology & Evaluation Analysis) Phnom Penh→Bangkok→(Japan)

ANNEX II Project Design Matrix
(PDM3: revised on October 28, 2003)

Project Title: The Technical Service Center (TSC) for Irrigation System Project

Target Group: Full-time Counterparts (C/Ps) of TSC, and engineers & technicians of the Ministry of Water Resources and Meteorology (MOWRAM) & the Provincial Department of Water Resources and Meteorology (PDWRAM)

Target Area: All over Cambodia

Project Site: Tuk Thla, Phnom Penh (Project office), Kandal Stung, Kandal Province (model farm)

Implementor: MOWRAM including PDWRAM and Japan International Cooperation Agency (JICA)

Duration: 5 years (2001 Jan. 10 – 2006 Jan. 9)

Version 3, Revised on 2003 Oct. 28

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
OVERALL GOAL Irrigation projects are properly implemented by MOWRAM and PDWRAM	More than 10 projects will be implemented with techniques that were transferred at the TSC project by 2011	MOWRAM document	
PROJECT PURPOSE The technical capacity of the engineers and technicians of MOWRAM and PDWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems.	1. The 10 full-time C/Ps obtain the technical capacity to conduct training on irrigation systems by the end of the project. 2. More than 100 engineers and technicians of MOWRAM & PDWRAM improve their technical capacity through trainings at TSC by the end of the project.	1. Project documents 2. Training report	1. Engineers and technicians who received training remain at MOWRAM and PDWRAM. 2. The financial resources for MOWRAM are secured.
OUTPUTS 1. The technical capacity of the full-time counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT). 2. Series of training courses are organized to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PDWRAM.	1.1 Irrigation and drainage facilities are appropriately built by C/Ps with the use of techniques learned through OJT by the end of the project. 1.2 Manuals related to survey, planning, design, construction management and water management with participation of farmers are produced by the end of the project. 2. Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are produced by the end of the project.	1.1 Project documents, accomplishment of the model site 1.2 Manuals 2. Texts and curricula	

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ACTIVITIES	INPUTS		The full-time counterparts continuously work with the Project. PRECONDITIONS 1. Adequate number of qualified counterparts are assigned. 2. Farmers are not against the Project.
	(Japanese Side)	(Cambodian Side)	
1. Assessment of technical capacity and setting of technical level 1.1 Collect data 1.2 Assess present technical capacity in the field of survey 1.3 Assess present technical capacity in the field of planning 1.4 Assess present technical capacity in the field of design 1.5 Assess present technical capacity in the field of construction management 1.6 Assess present technical capacity in the field of water management 1.7 Set the level of skills to be transferred in each field 2. Transfer of technology through OJT 2.1 Transfer survey techniques through OJT 2.2 Transfer planning techniques through OJT 2.3 Transfer design techniques through OJT 2.4 Transfer construction management techniques through OJT 2.5 Transfer water management techniques with participation of farmers through OJT 3. Production of manuals 3.1 Produce manuals on survey technique 3.2 Produce manuals on planning technique 3.3 Produce design standards and manuals on design techniques and project evaluation 3.4 Produce manuals on construction management techniques 3.5 Produce manuals on water management techniques with participation of farmers 4. Training 4.1 Conduct training on survey techniques 4.2 Conduct training on planning techniques 4.3 Conduct training on design techniques 4.4 Conduct training on construction management techniques 4.5 Conduct training on water management techniques with participation of farmers	1. Dispatch of experts: (1) Long-term experts: several persons/year such as: - Chief advisor; - Project coordinator/ Farmers Survey; and - Experts in the fields of 1) Survey / Planning 2) Design/ Water Management 3) Construction Management (2) Short-term experts will be sent according to necessity. 2. Provision of equipment 3. Training of Cambodian counterpart personnel in Japan	1. Assignment of counterpart personnel and other supporting staff members. (1) Project Director (2) Project Manager (3) Project Sub-Managers (4) Full-time counterpart personnel in the fields of: 1) Survey/ Planning 2) Design/ Water Management 3) Construction Management 4) Short-term experts (5) Administrative Staff (6) Technical Staff 2. Provision of land, buildings and facilities related to the project. 3. Provision of machinery necessary for the Project. 4. Allocation of budget for: (1) operation and maintenance of irrigation systems (2) personnel expenses of counterparts and other supporting staff (3) operating expenses necessary for the implementation of the Project.	

PM

ANNEX III Organizational Structure for the Project

Joint-Coordinating Committee

Secretary of State (Project Director, Chair Person)
 General Director of Technical Affairs (Project Manager)
 Director of Planning and International Cooperation Department
 Director of Engineering Department, Deputy Director (Project Sub-Manager)
 Director of Irrigation and Drainage Department (Project Sub-Manager), Deputy Director
 Representative of Kandal Provincial Department of Water Resources and Meteorology
 Representative of Ministry of Agriculture, Forestry and Fisheries
 Representative of JICA Cambodia Office
 Japanese Long Term Experts
 Personnel from JICA (as necessary)
 Staff of Embassy of Japan (observers)

Minister

TSC Project

Japanese Experts

Chief Advisor
 Coordinator
 Survey/Planning
 Design/
 Water Management
 Construction
 Management
 Short-term
 Experts

Ministry of Water Resources and Meteorology

Secretary of State
(Project Director)

General Director of Technical Affairs
(Project Manager)

Director of Irrigation and Drainage Dpt.
(Project Sub-Manager)

Director of Engineering Dpt.

Deputy Director

Deputy Director
(Project Sub-Manager)

Counterparts

Counterparts

Provincial Department of
Water Resources
and Meteorology

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ANNEX IV Dispatch of Japanese Experts

1) Long-term Japanese Experts

No.	Name of Expert	Field	Period of Assignment							
			From	To	2001	2002	2003	2004	2005	2006
1	Mr Mamoru Ishikawa	Chief Advisor	01 February 2001	31 March 2002						
2	Mr Akira Miyazaki	Chief Advisor	02 June 2002	09 January 2006						
3	Ms Mikayo Yamazaki	Coordinator / Farmers Survey and Training	10 January 2001	09 January 2004						
4	Mr Kenji Yasuda	Survey / Planning	01 April 2001	31 March 2004						
5	Mr Yoji Ebihara	Design / Water Management	10 January 2001	30 April 2004						
6	Mr Yoichi Ihara	Construction Management	10 January 2001	31 May 2003						
7	Mr Kenji Sekijima	Construction Management	26 May 2003	09 January 2006						
8	Mr Koji Kanemaru	Coordinator / Farmers Survey and Training	20 December 2003	09 January 2006						
9	Mr Masayuki Horiuchi	Survey / Planning	10 April 2004	09 January 2006						
10	Mr Kenji Tsujishita	Design / Water Management	04 May 2004	09 January 2006						

2) Short-term Japanese Experts

No.	Name of Expert	Field	Period of Assignment							
			From	To	2001	2002	2003	2004	2005	2006
1	Mr. Satoru Nishio	Topographical Survey / Topographical Mapping	15 November 2001	12 December 2001						
2	Mr. Kazuhiko Kamachi	Operation and Maintenance of Construction Machinery	13 February 2002	12 April 2002						
3	Mr. Kiyoji Asai	Planning Theory	30 March 2002	13 April 2002						
4	Mr. Kiyoji Asai	Planning Theory	05 September 2002	24 September 2002						
5	Mr. Yasushi Osato	Design on Small Scale Canals and Related Structures	30 September 2002	16 November 2002						
6	Mr. Yoichi Hayashida	Construction Material Test	25 November 2002	21 December 2002						
7	Mr. Norihumi Shinmura	Operation and Maintenance of Construction Machinery	16 March 2003	13 April 2003						
8	Mr. Yasushi Osato	Design on Small Scale Irrigation Structures	01 July 2003	31 August 2003						
9	Mr. Yukihiro Yamamoto	Participatory Water Management	01 September 2003	04 October 2003						
10	Mr. Yoichi Hayashida	Construction Material Test	18 November 2003	14 December 2003						
11	Mr. Norifumi Shimmura	On-Sight Construction Management	11 January 2004	24 April 2004						
12	Mr. Naoki Horikawa	Monitoring Planning	22 January 2004	19 February 2004						
13	Mr. Takashi Kurauchi	Check and maintenance for gate structures	07 March 2004	30 April 2004						
14	Mr. Yasushi Osato	Practical Design on Small -scale Canals and Related Structure	01 July 2004	31 August 2004						
15	Mr. Manabu Kawaguchi	Topographical Mapping	21 October 2004	14 December 2004						
16	Mr. Itsuo Kihara	On-Sight Construction Management	19 February 2005	30 March 2005						

ANNEX V Assignment of Counterpart and Training in Japan

No.	Name of Counterpart	Field	Present Post	Remarks	Period of Assignment								Training in Japan		
			Post at assignment time		From	To	2000	2001	2002	2003	2004	2005	Year	Name of Training Course	Duration
1	H.E. Veng Sakhon	Project Director	Secretary of State Under Secretary of State		January	2001	January	2006					2000	Capacity Building for Irrigation Engineers	10 Dec 2000 ~ 16 Dec 2000
2	H.E. Bun Hean	Project Manager	Director General of Technical Affairs		January	2001	January	2006							
3	Mr. Te Ouv Kim	Project Sub-Manager	Director ,Dep. of Irrigated Agriculture		January	2001	January	2006					2001	Capacity Building for Irrigation Engineers	14 May 2001 ~ 25 May 2001
4	Mr. Ngoun Pich	Project Sub-Manager	Deputy Director, Dep. Engineering		January	2001	January	2006					2001	Capacity Building for Irrigation Engineers	14 May 2001 ~ 25 May 2001
5	Mr. Klok Sam Ang	Management and Administration	Chief, International Cooperation Dep. Of Planning		January	2001	January	2006							
6	Mr. Mao Rath	Survey	Official, Engineering Dep..	Personnel changes	January	2001	August	2004					2002	Irrigation, Drainage and Rural Development	14 April 2002 ~ 13 July 2002
7	Mr. Uch Hing	Survey	Official, Engineering Dep..		January	2001	January	2006					2002	Irrigation, Drainage and Rural Development	13 June 2003 ~ 23 Sept 2003
8	Mr. Im Veasna	Planning	Official, Engineering Dep..	Personnel changes	January	2001	September	2002							
9	Mr. Sam Chhom Sangha	Planning	Official, Engineering Dep..	Studying abroad	January	2001									
10	Mr. Meas Savoeun	Planning	Official ,Irrigated Agriculture Dep.		May	2002	January	2006					2004	Irrigation, Drainage and Rural Development	27 June 2004 ~ 25 Sept 2004
11	Mr. You Sotha	Planning	Official ,Irrigated Agriculture Dep.		November	2002	January	2006					2005	Irrigation, Drainage and Rural Development	9 May 2005 ~ 19 July 2005
12	Mr. Teav Vutha	Design	Official ,Irrigated Agriculture Dep.		May	2002	January	2006					2005	Irrigation, Drainage and Rural Development	9 May 2005 ~ 19 July 2005
13	Mr. Hay Bunthoeun	Design	Official, Engineering Dep..		May	2002	January	2006					2005	Irrigation, Drainage and Rural Development	9 May 2005 ~ 19 July 2005
14	Mr. Sem Samnag	Design	Official, Engineering Dep..	Personnel changes	January	2001	May	2002							
15	Mr. Bunpa Marylux	Design	Official, Engineering Dep..	Personnel changes	January	2001	May	2002							
16	Mr. Phiv Phalkun	Construction Management	Official, Engineering Dep..	Personnel changes	January	2001	May	2002							
17	Mr. Ung Kotaro	Construction Management	Official, Engineering Dep..		January	2001	January	2006					2005	Irrigation, Drainage and Rural Development	14 April 2002 ~ 13 July 2002

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No.	Name of Counterpart	Field	Present Post	Remarks	Period of Assignment										Training in Japan		
			Post at assignment time		From		To		2000	2001	2002	2003	2004	2005	Year	Name of Training Course	Duration
18	Mr. Touch Bun Leng	Construction Management	Official, Engineering Dep..	Personnel changes	May	2002	July	2002			■						
19	Mr. Noun Vannarith	Construction Management	Official, Engineering Dep..		August	2002	January	2006			■				2004	Irrigation, Drainage and Rural Development	27 June 2004 ~ 25 Sept 2004
20	Mr. Huot Chandarith	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.	Personnel changes	January	2001	August	2004			■				2002	Operation and Management of Irrigation Canal System	15 July 2002 ~ 24 October 2002
21	Mr. Prum Kanthel	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.		January	2001	August	2004			■				2001	Irrigation and Drainage	30 July 2001 ~ 17 October 2001
22	Mr. Teng Tong Heng	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.		September	2004	January	2006					■				
23	Mr. Sok Korn	Water Management Farmer Survey	Official, Irrigated Agriculture Dep.		September	2004	January	2006					■				
24	Mr. Maen Seng	Survey	Official, Engineering Dep..		September	2004	January	2006					■				

List of JCC members trained in Japan

25	Mr. Em Bunthoeun	JCC Member	Director, Engineering Dep.		August	2002	September	2002			■				2002	Management Methods for Irrigation System Projects	31 Aug 2002 ~ 13 Sep. 2002
26	Dr. Theng Tara	JCC Member	Director, Director of Water Resources Management and Conservation Dep.		August	2002	September	2002			■				2002	Water Resources Management	31 Aug 2002 ~ 13 Sep 2002

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ANNEX VI Provision of Equipment by Japanese side

Note: R/P: Route of Procurement (E: Technical Equipment from Japan, J: Equipment for Experts, L: Equipment of Local Activities, T: Equipment transferred from other JICA Projects)
Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, *: refer to list of equipment)
Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY.	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2000	E 001	30 3 2001	4WD Vehicle (Land Cruiser Station Wagon), Chassi No. JTCB-09J71-5000085, Engine No. 0351081	Toyota	HZJ-105LGMNSV	E 1			US D 38,500.00	US D 38,500.00	HIMAWAR Parking lot	Mr. Te Av KM	A	A	One project car is parked at apartment hotel (Mr. Miyazaki's residence) for emergency.
2000	E 002	30 3 2001	Pickup Truck (Hi-Lux 4WD), Chassis No. JTFDE62640-0053380, Engine No. 3L-5031776	Toyota	LN166L-PRMDS	E 1			US D 22,500.00	US D 22,500.00	MOWRAM Parking lot	Mr. Te Av KM	A	A	
2000	E 003	30 3 2001	Pickup Truck (Hi-Lux 4WD), Chassis No. JTFDE 626800053415, Engine No. 3L-5032005	Toyota	LN166L-PRMDS	E 1			US D 22,500.00	US D 22,500.00	MOWRAM Parking lot	Mr. Te Av KM	A	A	
2000	E 004	30 3 2001	Copy Machine	Canon/Copier	NP-7210	E 1			USD 5,054.00	USD 5,054.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 005	30 3 2001	Laser Printer	Canon	LBP-800	E 1			USD 360.00	USD 360.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 006	30 3 2001	Laser Printer	Canon	LBP-800	E 1			USD 360.00	USD 360.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 007	30 3 2001	Desktop Computer	IBM	300GL	E 1			USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 008	30 3 2001	Desktop Computer	IBM	300GL	E 1			USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 009	30 3 2001	Desktop Computer	IBM	300GL	E 1			USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 010	30 3 2001	Desktop Computer	IBM	300GL	E 1			USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 011	30 3 2001	Desktop Computer	IBM	300GL	E 1			USD 1,519.00	USD 1,519.00	Tuk Thla TSC	Mr. Te Av KM	A	A	
2000	E 012	30 3 2001	Wireless Telephone	MOTOROLA	GP68 UHF	E 1			USD 180.00	USD 180.00	Tuk Thla TSC	Mr. Te Av KM	A	B	
2000	E 013	30 3 2001	Wireless Telephone	MOTOROLA	GP68 UHF	E 1			USD 180.00	USD 180.00	MOWRAM Project	Mr. Te Av KM	A	B	
2000	E 014	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1			USD 350.00	USD 350.00	Tuk Thla TSC	Mr. Te Av KM	A	B	
2000	E 015	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1			USD 350.00	USD 350.00	Tuk Thla TSC	Mr. Te Av KM	A	B	
2000	E 016	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1			USD 350.00	USD 350.00	Tuk Thla TSC	Mr. Te Av KM	A	B	
2000	E 017	30 3 2001	Wireless Telephone	MOTOROLA	GM950i	E 1			USD 350.00	USD 350.00	Tuk Thla TSC	Mr. Te Av KM	A	B	
2000	E 018	30 3 2001	Motorola Mobile Antenna		UHF	E 3			USD 75.00	USD 225.00	Tuk Thla TSC	Mr. Te Av KM	A	B	
2000	E 019	12 10 2001	Auto Level	Topcon	AT-M3	E 1	JPY 159,000	JPY 159,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 020	12 10 2001	Theodolite	Topcon	TL-20G	E 1	JPY 482,000	JPY 482,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 021	12 10 2001	Plate Table Set	Tamaya	TPT-SET Tamura	E 1	JPY 35,000	JPY 35,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 022	12 10 2001	Planimeter	Tamaya	PLANIX7	E 1	JPY 80,500	JPY 80,500			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 023	12 10 2001	Planimeter	Tamaya	PLANIX7	E 1	JPY 80,500	JPY 80,500			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 024	12 10 2001	Cone Penetrometer	Marui	MIS-243-1-01	E 1	JPY 390,000	JPY 390,000			Tuk Thla TSC	Mr. Te Av KM	*	A	activities completed
2000	E 025	12 10 2001	Motorized Direct Shear Test	Marui	MIS-233-1-02	E 1	JPY 1,615,000	JPY 1,615,000			Tuk Thla TSC	Mr. Te Av KM	D	A	
2000	E 026	12 10 2001	Compaction Set Apparatus	Marui	MIS-217-1-01	E 1	JPY 287,000	JPY 287,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 027	12 10 2001	Falling-Head Permeameter	Marui	MIS-227-1-03	E 1	JPY 789,400	JPY 789,400			Tuk Thla TSC	Mr. Te Av KM	*	B	for short-term expert in Sep 2005
2000	E 028	12 10 2001	Drafting Machine	MAX	MD-3000, PM-912SR	E 1	JPY 290,800	JPY 290,800			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	E 029	12 10 2001	Drafting Machine	MAX	MD-3000, PM-913SR	E 1	JPY 290,800	JPY 290,800			Tuk Thla TSC	Mr. Te Av KM	C	A	
2000	J 001	14 3 2001	Paddy Field Recoded Tester	Daiki	DIK-4300	J 1			USD 1,875.00	USD 1,875.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 002	14 3 2001	Laptop Computer	IBM	ThinkPad 1 Series 1800	J 1			USD 2,408.00	USD 2,408.00	Tuk Thla TSC	Mr. Miyazaki	*	C	since May 2003, broken
2000	J 003	14 3 2001	Laptop Computer	IBM	ThinkPad 1 Series 1800	J 1			USD 2,408.00	USD 2,408.00	Tuk Thla TSC	Mr. Miyazaki	A	B	
2000	J 004	14 3 2001	Color Printer	Canon	BJ-F6600	J 1			USD 307.00	USD 307.00	Tuk Thla TSC	Mr. Miyazaki	B	B	
2000	J 005	14 3 2001	Color Scanner	Canon	CanoScan N1220U	J 1			USD 140.00	USD 140.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 006	14 3 2001	Wireless Print Server	BUFFALO	AirP's LPV-WL11	J 1			USD 192.00	USD 192.00	Tuk Thla TSC	Mr. Miyazaki	*	C	since May 2001, broken
2000	J 007	14 3 2001	Wireless Lan Station	BUFFALO	AirStation WLAR-L11-M	J 1			USD 275.00	USD 275.00	Tuk Thla TSC	Mr. Miyazaki	*	C	since April 2003, wire LAN network installed, broken
2000	J 008	14 3 2001	Digital Camera	Canon	IXY Digital	J 1			USD 492.00	USD 492.00	Tuk Thla TSC	Mr. Miyazaki	*	C	since Jan 2005, broken
2000	J 009	14 3 2001	Laptop Computer	Fujitsu	FMV-BIBLO NE5/650R	J 1			USD 2,292.00	USD 2,292.00	Tuk Thla TSC	Mr. Miyazaki	C	C	
2000	J 010	14 3 2001	Laptop Computer	IBM	ThinkPad 1 Series 1800	J 1			USD 1,917.00	USD 1,917.00	Tuk Thla TSC	Mr. Miyazaki	*	C	since May 2003, broken
2000	J 011	14 3 2001	Glassfibre Tape Measure 50m	KDS	211-1952	J 1			USD 48.00	USD 48.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 012	14 3 2001	Measure Rope 100m	Sekisui	210-1603	J 1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 013	14 3 2001	Aluminum Measurement Rod	Harakeikisha	252-2135	J 1			USD 79.00	USD 79.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 015	14 3 2001	Current Meter	Harakeikisha	type 10	J 1			USD 2,250.00	USD 2,250.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 016	14 3 2001	Curve Ruler	Harakeikisha	103-2011	J 1			USD 150.00	USD 150.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 017	14 3 2001	Drawing Instruments	Harakeikisha	120-3581	J 1			USD 111.00	USD 111.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 018	14 3 2001	Barometer	Harakeikisha	271-3581	J 1			USD 350.00	USD 350.00	Tuk Thla TSC	Mr. Miyazaki	C	A	
2000	J 019	14 3 2001	Iron Spirit Level	Harakeikisha	4621	J 1			USD 34.00	USD 34.00	Tuk Thla TSC	Mr. Miyazaki	C	B	
2000	L 001	7 3 2001	Water Cooler and Heater	National	Milux	L 1			USD 150.00	USD 150.00	Tuk Thla TSC	Mr. Miyazaki	A	A	
2000	L 002	7 3 2001	Electric Pot	National	3-21	L 1			USD 30.00	USD 30.00	MOWRAM Project	Mr. Miyazaki	A	A	
2000	L 003	9 3 2001	Sofa Set	Cheer Luck		L 1			USD 275.00	USD 275.00	MOWRAM Project	Mr. Miyazaki	A	A	
2000	L 004	9 3 2001	Refrigerator	Hitachi	180J	L 1			USD 250.00	USD 250.00	MOWRAM Project	Mr. Miyazaki	A	A	
2000	L 005	20 3 2001	Refrigerator	Hitachi	180J	L 1			USD 250.00	USD 250.00	Tuk Thla TSC	Mr. Miyazaki	A	A	

DM

Note: R/P:Route of Procurement (E: Technical Equipment from Japan, J: Equipment for Experts, L: Equipment of Local Activities, T: Equipment transferred from other JICA Projects)
Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, *: refer to list of equipment)
Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2000	L 006	20 3 2001	Sofa Set	Cheer Luck	L 1				USD 275.00	USD 275.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 007	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 008	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 009	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 010	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 011	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 012	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 013	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 014	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 015	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 016	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 017	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 018	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 019	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 020	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 021	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 022	26 3 2001	Desk and Drawers	LEECO	BD147CH+046A+046B	L 1			USD 255.00	USD 255.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 023	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 024	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 025	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 026	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 027	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 028	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 029	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 030	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 031	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 032	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 033	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 034	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 035	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 036	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 037	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 038	26 3 2001	Office Chair	LEECO	LSC421	L 1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 039	26 3 2001	Bookshelf	LEECO	304SG8	L 1			USD 135.00	USD 135.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 040	26 3 2001	Bookshelf	LEECO	304SG8	L 1			USD 135.00	USD 135.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 041	26 3 2001	Bookshelf	LEECO	304SG8	L 1			USD 135.00	USD 135.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 042	26 3 2001	Desk	LEECO	AT1600	L 1			USD 170.00	USD 170.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 043	26 3 2001	Leather Chair	LEECO		L 1			USD 380.00	USD 380.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 044	26 3 2001	Safety Box	LEECO	ES20	L 1			USD 150.00	USD 150.00	Tuk Thla TSC	Mr.Amyazaki	A	A	
2000	L 045	29 3 2001	Camera	Olympus	200M115	L 1			USD 210.00	USD 210.00	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 046	29 3 2001	Electric Fan	Toshiba	934-2533	L 1			USD 37.00	USD 37.00	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 047	29 3 2001	Electric Fan	Toshiba	934-2533	L 1			USD 37.00	USD 37.00	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 048	29 3 2001	Electric Fan	Toshiba	934-2533	L 1			USD 37.00	USD 37.00	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 049	29 3 2001	Electric Fan	Toshiba	934-2533	L 1			USD 37.00	USD 37.00	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 050	29 3 2001	Hall Puncher	KW-trio		L 1			USD 4.80	USD 4.80	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 051	29 3 2001	Hall Puncher	KW-trio		L 1			USD 14.90	USD 14.90	Tuk Thla TSC	Mr.Amyazaki	C	A	
2000	L 052	29 3 2001	Stapler	Kangaro	DS-12S/17	L 1			USD 35.00	USD 35.00	Tuk Thla TSC	Mr.Amyazaki	G	A	
2000	L 053	29 3 2001	Paper Cutter	ALFAX		L 1			USD 38.00	USD 38.00	Tuk Thla TSC	Mr.Amyazaki	B	A	
2000	L 054	29 3 2001	Fax Machine	Panasonic	KX-FP105	L 1			USD 270.00	USD 270.00	Tuk Thla TSC	Mr.Amyazaki	A	B	
2001	E 030	11 9 2001	Concrete Test Hammer	PROCEQ	NR	E 1	JPY 174,000	JPY 174,000			Tuk Thla TSC	Mr.To Av KIM	D	A	
2001	E 031	11 9 2001	Record Paper (5-Rolls)		E 1	JPY 6,100	JPY 6,100				Tuk Thla TSC	Mr.To Av KIM	D	A	
2001	E 032	11 9 2001	30cm Triangular Scale		E 9	JPY 1,700	JPY 15,300				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 033	11 9 2001	Straight Ruler with Sectional Scale&Cutter		E 4	JPY 1,950	JPY 7,800				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 034	11 9 2001	30Cm Triangles Set		E 4	JPY 900	JPY 3,600				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 035	11 9 2001	Flexible Curve Ruler		E 4	JPY 950	JPY 3,800				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 036	11 9 2001	Protractor		E 4	JPY 2,550	JPY 10,200				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 037	11 9 2001	50m Measuring Tape		E 4	JPY 3,550	JPY 14,200				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 038	11 9 2001	100m Measuring Rope		E 1	JPY 3,000	JPY 3,000				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 039	11 9 2001	Roller with Case for Measuring Rope		E 1	JPY 3,000	JPY 3,000				Tuk Thla TSC	Mr.To Av KIM	B	A	
2001	E 040	11 9 2001	Aluminum Staff with Circular 5-Section		E 2	JPY 9,200	JPY 18,400				Tuk Thla TSC	Mr.To Av KIM	B	A	

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Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, * : refer to list of equipment)
Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				R/P	QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number								Location	Person in charge			
2001	E 041	11 9 2001	2m Pole, 2-Sections, Graduation 20cm			E	4	JPY 950	JPY 3,800			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 042	11 9 2001	3m Pole, 3-Sections, Graduation 20cm			E	4	JPY 2,000	JPY 8,000			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 043	11 9 2001	Compass(Damping Fluid)			E	2	JPY 1,000	JPY 2,000			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 044	11 9 2001	50m Tape Rod, Graduation 20cm			E	4	JPY 3,700	JPY 14,800			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 045	4 12 2001	4WD Vehicle (Land Cruiser Station Wagon), Chassi No. JTECB-09203004306, Engine No. 1HZ0373416	Toyota	GX HZJ105L-GCMNS	E	1			US D 38,950.00	US D 38,950.00	MOWRAM Parking lot	Mr. Te Av KM	A	A	
2001	E 046	21 12 2001	Software Autodesk	Autocad 2002 (E)	Autocad 2002 (E)	E	1	JPY 515,500	JPY 515,500			Tuk Thla TSC	Mr. Te Av KM	C	B	
2001	E 047	21 12 2001	Printer	HP	Deskjet 1125C	E	1	JPY 41,100	JPY 41,100			Tuk Thla TSC	Mr. Te Av KM	A	B	
2001	E 048	21 12 2001	Compression Apparatus	Marui	MIC-101-0-02	E	1	JPY 5,030,000	JPY 5,030,000			Tuk Thla TSC	Mr. Te Av KM	D	C	need to repair
2001	E 049	21 12 2001	Concrete Mixer	Marui	MIC-109-1-61	E	1	JPY 3,490,000	JPY 3,490,000			Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 050	21 12 2001	Crawler Carrier	Komatsu	CD60R-1A	E	1	JPY 8,500,000	JPY 8,500,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 051	21 12 2001	Spare Parts for Crawler Carrier			E		JPY 850,035	JPY 850,035			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 052	21 12 2001	Concrete Breaker	Toyo Kuiki Seisakush	TPB-40	E	1	JPY 110,000	JPY 110,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 053	21 12 2001	Spare Parts for Concrete Breaker			E	30	JPY 2,800	JPY 84,000			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 054	21 12 2001	Concrete Vibrator	Marui	MIC-135-0-01	E	1	JPY 386,000	JPY 386,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 055	21 12 2001	Air Compressor	Denyo	DIS-180SS	E	1	JPY 2,720,000	JPY 2,720,000			Tuk Thla TSC	Mr. Te Av KM	C	B	
2001	E 056	21 12 2001	Spare Parts for Air Compressor			E	1	JPY 272,000	JPY 272,000			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 057	21 12 2001	Generator	Denyo	DCA-60SPI	E	1	JPY 3,280,000	JPY 3,280,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 058	21 12 2001	Spare Parts for Generator			E	1	JPY 328,000	JPY 328,000			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 059	28 12 2001	Hydraulic Excavator, Chassis No. CAT0312CT, Engine No. 2150	Caterpillar	312C	E	1	JPY 13,700,000	JPY 13,700,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 060	28 12 2001	Bulldozer, Chassis No. 4JS00602, Engine No. 2DY01958	Caterpillar	D5MXL	E	1	JPY 13,500,000	JPY 13,500,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 061	28 12 2001	Spare Part for 312C & Bulldozer D5M XL			E		JPY 2,700,000	JPY 2,700,000			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 062	28 12 2001	Vibratory Roller	Hokuetsu Kougyou	BW115AD	E	1	JPY 2,900,000	JPY 2,900,000			Tuk Thla TSC	Mr. Te Av KM	C	B	
2001	E 063	28 12 2001	Vibratory Roller	Hokuetsu Kougyou	BW75S	E	1	JPY 1,000,000	JPY 1,000,000			Tuk Thla TSC	Mr. Te Av KM	C	B	
2001	E 064	28 12 2001	Spare Parts for 115AD & 75S			E		JPY 400,000	JPY 400,000			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 065	25 2 2002	Dump Truck, Chassis No. 10094	Hino	FD3HESD-AAVDUMP	E	1	JPY 2,800,000	JPY 2,800,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 066	25 2 2002	Spare Parts for Dump Truck			E		JPY 272,000	JPY 272,000			Tuk Thla Storehouse	Mr. Te Av KM	*	A	spare parts
2001	E 067	26 3 2002	LCD data projector	Sony	VPL-CS3	E	1			USD 2,850.00	USD 2,850.00	Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 068	26 3 2002	Television	Sharp	20GP3	E	1			USD 320.00	USD 320.00	Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 069	26 3 2002	VCR	Sharp	V50S	E	1			USD 128.00	USD 128.00	Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 070	26 3 2002	Overhead Projector	Kodak	EKTA Lite H30, 220V	E	1			USD 1,250.00	USD 1,250.00	Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 071	26 3 2002	Slide Projector	Kodak	EKTA Graphic III ATS, 220V	E	1			USD 2,250.00	USD 2,250.00	Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 072	26 3 2002	Projector Screen			E	1			USD 170.00	USD 170.00	Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 073	23 7 2002	Triangle Scale		210015	E	10	JPY 1,620	JPY 16,200			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 074	23 7 2002	Triangle Scale		TRM-152	E	10	JPY 300	JPY 3,000			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 075	23 7 2002	Measuring Rope		100-LN	E	1	JPY 3,600	JPY 3,600			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 076	23 7 2002	Staff Table		ALG-55Y	E	4	JPY 5,100	JPY 20,400			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 077	23 7 2002	Level	Topukon	AT-M3	E	1	JPY 134,000	JPY 134,000			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 078	23 7 2002	Level	Topukon	AT-M3	E	1	JPY 134,000	JPY 134,000			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 079	23 7 2002	Theodolite	Topukon	TL-20G	E	1	JPY 400,000	JPY 400,000			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 080	23 7 2002	Drawing Board		EX-3	E	2	JPY 20,300	JPY 40,600			Tuk Thla TSC	Mr. Te Av KM	B	A	
2001	E 081	23 7 2002	Prism Aridade Set	Myzox	EX-3	E	1	JPY 90,800	JPY 90,800			Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 082	23 7 2002	Prism Aridade Set	Myzox	EX-3	E	1	JPY 90,800	JPY 90,800			Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 083	23 7 2002	Area-line Meter	Tamaya	Planix 7	E	1	JPY 69,700	JPY 69,700			Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 084	23 7 2002	Area-line Meter	Tamaya	Planix 7	E	1	JPY 69,700	JPY 69,700			Tuk Thla TSC	Mr. Te Av KM	D	A	
2001	E 085	23 7 2002	Tracing Board with spars fluorescent		HDV-A3F	E	1	JPY 22,800	JPY 22,800			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 086	23 7 2002	Drawing Film		Z200S	E	10	JPY 27,000	JPY 270,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 087	23 7 2002	Roll Film		Z200S	E	1	JPY 9,750	JPY 9,750			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 088	23 7 2002	Hand Level		BK3	E	3	JPY 17,000	JPY 51,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 089	23 7 2002	Field Note		RL-2	E	60	JPY 600	JPY 36,000			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 090	23 7 2002	Field Note		T-2	E	60	JPY 570	JPY 34,200			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 091	23 7 2002	Erasing Shield		380	E	10	JPY 90	JPY 900			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 092	23 7 2002	Black Board		T-5	E	2	JPY 2,270	JPY 4,540			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 093	23 7 2002	Pin Pole		PP-30	E	5	JPY 440	JPY 2,200			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 094	23 7 2002	Pin Pole		PP-60	E	5	JPY 540	JPY 2,700			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 095	23 7 2002	Helmet		110	E	20	JPY 1,840	JPY 36,800			Tuk Thla TSC	Mr. Te Av KM	C	A	
2001	E 096	23 7 2002	Field Density Apparatus		LS-501A	E	3	JPY 30,900	JPY 92,700			Tuk Thla TSC	Mr. Te Av KM	C	A	

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 Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2001 E 097	23 7 2002	Solid Mold		SS-S-266	E	5	JPY 38,600	JPY 193,000			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 098	23 7 2002	Electronic Balance		AW-220	E	1	JPY 195,800	JPY 195,800			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 099	23 7 2002	Electronic Balance		BL-2200H	E	1	JPY 81,700	JPY 81,700			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 100	23 7 2002	Electronic Scale		CG-60KE	E	1	JPY 220,200	JPY 220,200			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 101	23 7 2002	Oven		SSA-135	E	1	JPY 469,000	JPY 469,000			Tuk Thla TSC	Mr.Te Av KKM	*	A	never used, plan to install in 2nd Quarter in 2005
2001 E 102	23 7 2002	Desiccator	TokyoShinohara	SS-605	E	1	JPY 207,400	JPY 207,400			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 103	23 7 2002	Desiccator	TokyoShinohara	SS-605	E	1	JPY 207,400	JPY 207,400			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 104	23 7 2002	Desiccator	TokyoShinohara	SS-605	E	1	JPY 207,400	JPY 207,400			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 105	23 7 2002	Test Sieves			E	1	JPY 85,500	JPY 85,500			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 106	23 7 2002	Spatula		SS-S-251	E	10	JPY 220	JPY 2,200			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 107	23 7 2002	Infrared Moisture Meter	KettoKagaku	FD-600	E	1	JPY 143,700	JPY 143,700			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 108	23 7 2002	Beaker		82-0045-1	E	30	JPY 210	JPY 6,300			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 109	23 7 2002	Beaker		82-0046-1	E	30	JPY 220	JPY 6,600			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 110	23 7 2002	Beaker		82-0047-1	E	30	JPY 280	JPY 8,400			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 111	23 7 2002	Beaker		82-0048-1	E	30	JPY 420	JPY 12,600			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 112	23 7 2002	Pycnometer		SS-604	E	10	JPY 1,500	JPY 15,000			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 113	23 7 2002	Digital Thermometer		SK-1250MCII	E	1	JPY 24,350	JPY 24,350			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 114	23 7 2002	Porcelain Mortar with Pestle		95-3707-4	E	5	JPY 4,460	JPY 22,300			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 115	23 7 2002	Wash Bottle		927-22-16-31	E	5	JPY 130	JPY 650			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 116	23 7 2002	Wash Bottle		927-22-16-33	E	5	JPY 160	JPY 800			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 117	23 7 2002	Filters for Automatic Water Distiller		01301055	E	5	JPY 420	JPY 2,100			Tuk Thla TSC	Mr.Te Av KKM	*	A	plan to be used
2001 E 118	23 7 2002	Filters for Automatic Water Distiller		01301090	E	5	JPY 420	JPY 2,100			Tuk Thla TSC	Mr.Te Av KKM	*	B	plan to be used
2001 E 119	23 7 2002	Automatic Water Distiller	Toyo	GS-2000	E	1	JPY 512,800	JPY 512,800			Tuk Thla TSC	Mr.Te Av KKM	*	B	plan to be used
2001 E 120	23 7 2002	Mechanical Analysis Stirrer		LS-334	E	1	JPY 94,500	JPY 94,500			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 121	23 7 2002	Hydrometer		JC-9288	E	3	JPY 5,400	JPY 16,200			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 122	23 7 2002	Measuring Cylinder		74-0578-S	E	2	JPY 1,400	JPY 2,800			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 123	23 7 2002	Measuring Cylinder		74-0581-S	E	5	JPY 5,100	JPY 25,500			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 124	23 7 2002	Caliper		19913	E	3	JPY 9,900	JPY 29,700			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 125	23 7 2002	Dispersion Powder			E	5	JPY 10,200	JPY 51,000			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 126	23 7 2002	Stop Watch		SVAS001	E	1	JPY 13,600	JPY 13,600			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 127	23 7 2002	Liquid Limited Test Set	Tokyo Shinohara	SS-S-243	E	1	JPY 32,200	JPY 32,200			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 128	23 7 2002	Gapping Glass		SS-S-243	E	3	JPY 750	JPY 2,250			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 129	23 7 2002	Sample Extractor		SS-S-222	E	1	JPY 4,600	JPY 4,600			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 130	23 7 2002	Staigh Edge		SS-S-252	E	5	JPY 1,680	JPY 8,400			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 131	23 7 2002	Scoop		SS-S-253A	E	5	JPY 980	JPY 4,900			Tuk Thla TSC	Mr.Te Av KKM	D	A	
2001 E 132	23 7 2002	Recedes Depth Meter	Daikirkakougyo	DIK-4300	E	1	JPY 140,000	JPY 140,000			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 133	23 7 2002	Recedes Depth Meter	Daikirkakougyo	DIK-4300	E	1	JPY 140,000	JPY 140,000			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 134	23 7 2002	Chapman Flask		74-0484-0	E	20	JPY 8,600	JPY 172,000			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 135	23 7 2002	Sand Absorption Cone		SS-S-464	E	1	JPY 5,800	JPY 5,800			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 136	23 7 2002	Coarse Aggregate Hydrometer	TokyoShinohara	SS-C-468	E	1	JPY 157,000	JPY 157,000			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 137	23 7 2002	Volumetric Flask		74-0169-0	E	20	JPY 1,800	JPY 36,000			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 138	23 7 2002	Slump Tester	TokyoShinohara	SS-C-508A	E	2	JPY 22,400	JPY 44,800			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 139	23 7 2002	Rool-in Meter	TokyoShinohara	SS-C-516A	E	1	JPY 243,760	JPY 243,760			Tuk Thla TSC	Mr.Te Av KKM	*	B	for short-term expert in Sep. 2005
2001 E 140	23 7 2002	Vibrator	TokyoShinohara	SS-C-507	E	1	JPY 63,000	JPY 63,000			Tuk Thla TSC	Mr.Te Av KKM	C	B	
2001 E 141	23 7 2002	Stregh Test Mould		SS-C-529B	E	3	JPY 5,200	JPY 15,600			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 142	23 7 2002	Stregh Test Mould		SS-C-529C	E	3	JPY 11,500	JPY 34,500			Tuk Thla TSC	Mr.Te Av KKM	D	B	
2001 E 143	23 7 2002	Instrument Shelter	Hisanaga	H3-SF	E	1	JPY 102,000	JPY 102,000			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 144	23 7 2002	Thermo-Hydrograph, Chart Paper&Cartrig	Otakeiki	No.3, I 型	E	1	JPY 72,900	JPY 72,900			Tuk Thla TSC	Mr.Te Av KKM	C	A	
2001 E 145	23 7 2002	Rain Gauge, Chart Paper& Cartridge 73-A	Otakeiki	No.34	E	1	JPY 132,500	JPY 132,500			Tuk Thla TSC	Mr.Te Av KKM	A	A	
2001 E 146	23 7 2002	Evaporation Pan	Otakeiki	No.41	E	1	JPY 38,800	JPY 38,800			Tuk Thla TSC	Mr.Te Av KKM	*	A	plan to use for training course in Sep 2005
2001 J 001	27 4 2001	Laptop Computer	NEC	LAVIEC LC700J/64DR	J	1			USD 2,067.00	USD 2,067.00	Tuk Thla TSC	Mr.A Miyazaki	D	B	
2001 J 002	21 12 2001	Computer Software	Sokia	12D-Earthworks 50K Base	J	1			USD 1,920.00	USD 1,920.00	Tuk Thla TSC	Mr.A Miyazaki	D	B	
2001 J 003	21 12 2001	Computer Software	Autodesk	Autocad2002	J	1			USD 4,144.00	USD 4,144.00	Tuk Thla TSC	Mr.A Miyazaki	D	B	
2001 J 004	21 12 2001	Color Printer	HP	desk jet 1125C	J	1			USD 399.00	USD 399.00	Tuk Thla TSC	Mr.A Miyazaki	C	B	
2001 J 005	19 3 2002	Mechanical Tool Set	KQ6010	KQ6010	J	1			USD 2,520.00	USD 2,520.00	Tuk Thla TSC	Mr.A Miyazaki	C	A	
2001 L 001	12 4 2001	UPS	Power Tree	600VAN	L	1			USD 47.00	USD 47.00	Tuk Thla TSC	Mr.A Miyazaki	A	A	
2001 L 002	12 4 2001	UPS	Power Tree	600VAN	L	1			USD 47.00	USD 47.00	Tuk Thla TSC	Mr.A Miyazaki	A	A	
2001 L 003	12 4 2001	UPS	Power Tree	600VAN	L	1			USD 47.00	USD 47.00	Tuk Thla TSC	Mr.A Miyazaki	A	A	
2001 L 004	12 4 2001	UPS	Power Tree	600VAN	L	1			USD 47.00	USD 47.00	Tuk Thla TSC	Mr.A Miyazaki	A	A	

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Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, *: refer to list of equipment)
Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description			R/P	QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number							Location	Person in charge			
2001	L 005	12 4 2001	UPS	Power Tree	600VAN	L 1			USD 47.00	USD 47.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 006	4 5 2001	Transformer	HANSHIN	TR2002	L 1			USD 21.00	USD 21.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 007	4 5 2001	Cupboard			L 1			USD 28.00	USD 28.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 008	22 5 2001	Electric Drill	Makita	6222DWE	L 1			USD 115.00	USD 115.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 009	4 5 2001	Transformer	HANSHIN	TR2002	L 1			USD 21.00	USD 21.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 010	12 7 2001	Codeless Telephone	Sony	SPP-68	L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.AMyazaki	*	C	since April 2003, new telephone system
2001	L 011	17 10 2001	Computer Table	COM-690	COM-690	L 1			USD 75.00	USD 75.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 012	17 10 2001	Filing Cabinet	Lesco	FC-014	L 1			USD 78.00	USD 78.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 013	17 10 2001	Book Shelf	Otani	S-S04	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 014	17 10 2001	Book Shelf	Otani	S-S02	L 1			USD 48.00	USD 48.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 015	17 10 2001	Book Shelf	Otani	S-S02	L 1			USD 48.00	USD 48.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 016	17 10 2001	Table			L 1			USD 85.00	USD 85.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 017	17 10 2001	Table			L 1			USD 85.00	USD 85.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 018	17 10 2001	Shelf	S-2136	S-2136	L 1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 019	6 11 2001	Wireless Lan Station	BUFFALO	AirStation WLAR-L11-M	L 1			USD 315.00	USD 315.00	Tuk Thla TSC	Mr.AMyazaki	*	C	since Apr 2003, wire LAN network installed.
2001	L 020	20 11 2001	Desktop Computer	MRT	Desktop Computer PIII 800	L 1			USD 1,580.00	USD 1,580.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 021	20 11 2001	Desktop Computer	MRT	Desktop Computer PIII 800	L 1			USD 1,330.00	USD 1,330.00	MOWRAM Project	Mr.AMyazaki	A	A	
2001	L 022	20 11 2001	Printer	HP	842C	L 1			USD 250.00	USD 250.00	MOWRAM Project	Mr.AMyazaki	A	A	
2001	L 023	29 11 2001	Paper Shredder	DOCU-SHRED	RDS-545	L 1			USD 135.00	USD 135.00	Tuk Thla TSC	Mr.AMyazaki	A	B	
2001	L 024	25 12 2001	Desk	Otani		L 1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 025	12 3 2002	Key Box	Lucky		L 1			USD 50.00	USD 50.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 026	29 3 2002	CD-Writer	HP	44x6 Plus (USB)	L 1			USD 240.00	USD 240.00	Tuk Thla TSC	Mr.AMyazaki	C	B	
2001	L 027	29 3 2002	2 Door Locker	SH-104	SH-104	L 1			USD 240.00	USD 240.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 028	29 3 2002	2 Door Locker	SH-104	SH-104	L 1			USD 240.00	USD 240.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 029	29 3 2002	2 Door Locker	SH-104	SH-104	L 1			USD 240.00	USD 240.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 030	29 3 2002	2 Door Locker	SH-104	SH-104	L 1			USD 240.00	USD 240.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 031	29 3 2002	2 Door Locker	SH-104	SH-104	L 1			USD 240.00	USD 240.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2001	L 032	29 3 2002	TV/VCR Table			L 1			USD 70.00	USD 70.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2002	E 147	12 3 2003	Water Level Logger	Topcon	RT510-W	E 1	JPY 350,000	JPY 350,000			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 148	12 3 2003	Water Level Logger	Topcon	RT510-W	E 1	JPY 350,000	JPY 350,000			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 149	12 3 2003	Card Reader			E 1	JPY 29,000	29,000			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 150	12 3 2003	Storage Box			E 2	JPY 49,000	98,000			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 151	12 3 2003	Assembly parts			E 2	JPY 330,000	660,000			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 152	31 3 2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E 1			USD 932.00	USD 932.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 153	31 3 2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E 1			USD 932.00	USD 932.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 154	31 3 2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E 1			USD 932.00	USD 932.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 155	31 3 2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E 1			USD 932.00	USD 932.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 156	31 3 2003	Desktop Computer	Compaq	Desk pro Pentium 4, 1.7Ghz	E 1			USD 932.00	USD 932.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 157	25 3 2003	Laser Jet Printer	HP	1200	E 1			USD 313.00	USD 313.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 158	25 3 2003	Laser Jet Printer	HP	1200	E 1			USD 313.00	USD 313.00	Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 159	14 7 2003	Meteorological Station	JS-360, D1-015-8A	JS-360, D1-015-8A	E 1	JPY 3,204,500	JPY 3,204,500			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 160	14 7 2003	Hydro Scale	102257	102257	E 2	JPY 7,800	15,600			Tuk Thla TSC	Mr.Te Av KM	*	A	received July 2003, has not been installed
2002	E 161	14 7 2003	Truck (LINC) Chassis No. JALPTR33M 3700 0055 Engine No. 8-9439-075 (41123-0020)	ISUZU	FTR33M	E 1	JPY 7,400,000	JPY 7,400,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2002	E 162	14 7 2003	Spare Parts for Truck			E	JPY 1,480,000	JPY 1,480,000			Tuk Thla Storehouse	Mr.Te Av KM	*	A	spare parts
2002	E 163	14 7 2003	Bulldozer Engine No. 03813	Komatsu	D20P-7	E 1	JPY 7,100,000	JPY 7,100,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2002	E 164	14 7 2003	Spare Parts for Bulldozer			E	JPY 2,500,000	JPY 2,500,000			Tuk Thla Storehouse	Mr.Te Av KM	*	A	spare parts
2002	E 165	14 7 2003	Truck (machinery transport) Engine No. 10PE1 188806	ISUZU	CX281Q	E 1	JPY 13,600,000	JPY 13,600,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2002	E 166	14 7 2003	Spare Part for Truck			E	JPY 2,720,000	JPY 2,720,000			Tuk Thla Storehouse	Mr.Te Av KM	*	A	spare parts
2002	E 167	14 7 2003	Plotter		C4714A#ABJ DesignJet430	E 1	JPY 828,500	JPY 828,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2002	E 168	14 7 2003	Spare Parts for Plotter			E	JPY 97,000	JPY 97,000			Tuk Thla Storehouse	Mr.Te Av KM	*	A	spare parts
2002	E 169	14 7 2003	Map Cabinet	1106BN	1106BN	E 1	JPY 260,000	JPY 260,000			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 170	14 7 2003	Tape Board		1157	E 5	JPY 4,100	JPY 20,500			Tuk Thla TSC	Mr.Te Av KM	A	A	
2002	E 171	14 7 2003	Book			E 1	JPY 4,000	JPY 4,000			Tuk Thla TSC	Mr.Te Av KM	D	A	
2002	E 172	14 7 2003	Book			E 1	JPY 2,900	JPY 2,900			Tuk Thla TSC	Mr.Te Av KM	D	A	
2002	E 173	14 7 2003	Software		The computation of the uniform flow Ver.1.2	E 2	JPY 50,000	JPY 100,000			Tuk Thla TSC	Mr.Te Av KM	D	A	
2002	E 174	14 7 2003	Software		The unequal water course surface of the water chase computation Ver.2.0	E 2	JPY 100,000	JPY 200,000			Tuk Thla TSC	Mr.Te Av KM	D	A	

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 Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2002	E 175	14 7 2003	Software	The computation of the sand volume (for Windows)	E	2	JPY 50,000	JPY 100,000			Tuk Thla TSC	Mr. Te Au KM	D	A	
2002	L 001	14 5 2002	Book Shelf	30366B	L	1			USD 115.00	USD 115.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 002	14 5 2002	Book Shelf	30366B	L	1			USD 115.00	USD 115.00	MOWRAM Project	Mr. A Myazaki	A	A	
2002	L 003	15 5 2002	Cup Board Partition	LK-402	L	1			USD 115.00	USD 115.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 004	12 6 2002	Fax machine	KXF105	L	1			USD 215.00	USD 215.00	MOWRAM Project	Mr. A Myazaki	A	B	
2002	L 005	19 9 2002	General Table	UTF-80180	L	1			USD 85.00	USD 85.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 006	19 9 2002	General Table	UTF-80180	L	1			USD 85.00	USD 85.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 007	19 9 2002	General Table	UTF-80180	L	1			USD 85.00	USD 85.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 008	19 9 2002	General Table	UTF-80180	L	1			USD 85.00	USD 85.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 009	23 9 2002	Printer	Canon	L	1			USD 515.00	USD 515.00	Tuk Thla TSC	Mr. A Myazaki	A	B	
2002	L 010	5 2 2003	Floppy Disk Drive	Mitsumi	L	1			USD 45.00	USD 45.00	Tuk Thla TSC	Mr. A Myazaki	A	B	
2002	L 011	12 2 2003	Mobile Wireless Phone	Motorola	L	1			USD 180.00	USD 180.00	Tuk Thla TSC	Mr. A Myazaki	A	B	
2002	L 012	12 2 2003	Mobile Wireless Phone	Motorola	L	1			USD 180.00	USD 180.00	Tuk Thla TSC	Mr. A Myazaki	A	B	
2002	L 013	12 2 2003	Mobile Wireless Phone	Motorola	L	1			USD 180.00	USD 180.00	Tuk Thla TSC	Mr. A Myazaki	A	B	
2002	L 014	12 2 2003	Mobile Wireless Phone	Motorola	L	1			USD 180.00	USD 180.00	Tuk Thla TSC	Mr. A Myazaki	A	B	
2002	L 015	24 3 2003	Desk 1200*700*740	LEECO	L	1			USD 118.00	USD 118.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 016	24 3 2003	Desk 1200*700*740	LEECO	L	1			USD 118.00	USD 118.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 017	24 3 2003	Desk 1600*700*740	LEECO	L	1			USD 135.00	USD 135.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 018	24 3 2003	Desk 1200*700*740	LEECO	L	1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 019	24 3 2003	Printer Table 1000*700*710	LEECO	L	1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 020	24 3 2003	Printer Table 1000*700*710	LEECO	L	1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 021	24 3 2003	Chair	LSC-421 LG-F400	L	1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 022	24 3 2003	Chair	LSC-421 LG-F400	L	1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 023	24 3 2003	File Shelf	LEECO	L	1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 024	24 3 2003	File Shelf	LEECO	L	1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 025	24 3 2003	File Shelf	LEECO	L	1			USD 90.00	USD 90.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 026	15 3 2003	Book Shelf	OTANI	L	1			USD 50.00	USD 50.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 027	28 3 2003	Floppy Disk Drive	Mitsumi	L	1			USD 50.00	USD 50.00	Tuk Thla TSC	Mr. A Myazaki	B	B	
2002	L 028	30 3 2003	Rattan chair		L	1			USD 44.00	USD 44.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 029	30 3 2003	Rattan chair		L	1			USD 44.00	USD 44.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 030	31 3 2003	Cupboard	LEECO	L	1			USD 123.00	USD 123.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 031	31 3 2003	Cupboard	LEECO	L	1			USD 123.00	USD 123.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 032	31 3 2003	Cupboard	LEECO	L	1			USD 123.00	USD 123.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 033	31 3 2003	Cupboard	LEECO	L	1			USD 123.00	USD 123.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 034	31 3 2003	Cupboard	LEECO	L	1			USD 123.00	USD 123.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 035	31 3 2003	Locker	LEECO	L	1			USD 78.00	USD 78.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 036	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 037	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 038	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 039	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 040	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 041	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 042	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 043	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 044	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 045	31 3 2003	Table 1.8m		L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 046	31 3 2003	Meeting table	AT2010	L	1			USD 160.00	USD 160.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 047	31 3 2003	Telephone table	AT420	L	1			USD 55.00	USD 55.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 048	31 3 2003	Telephone table	AT420	L	1			USD 55.00	USD 55.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 049	31 3 2003	Telephone table	AT420	L	1			USD 55.00	USD 55.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 050	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 051	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 052	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 053	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 054	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 055	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 056	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 057	31 3 2003	Meeting chair	MSN-S	L	1			USD 25.00	USD 25.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2002	L 058	31 3 2003	Storage shelf	S-2136	L	1			USD 60.00	USD 60.00	Tuk Thla TSC	Mr. A Myazaki	A	A	

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 Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, *: refer to list of equipment)
 Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY.	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2002 L 059	31 3	2003 Storage shelf	S-2136	S-2136	L 1				USD 60.00	USD 60.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 060	31 3	2003 Storage shelf	S-2136	S-2136	L 1				USD 60.00	USD 60.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 061	31 3	2003 White board (1905cm)	BS-90180	BS-90180	L 1				USD 130.00	USD 130.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 062	31 3	2003 White board (1905cm)	BS-90180	BS-90180	L 1				USD 130.00	USD 130.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 063	31 3	2003 White board (1905cm)	BS-90180	BS-90180	L 1				USD 130.00	USD 130.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 064	31 3	2003 White board (1600cm)	BS-90150	BS-90150	L 1				USD 120.00	USD 120.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 065	31 3	2003 White board (1600cm)	BS-90150	BS-90150	L 1				USD 120.00	USD 120.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 066	31 3	2003 Camera	Olympus	MU 7000m 140 pano	L 1				USD 190.00	USD 190.00	Tuk Thla TSC	Mr.A.Miyazaki	D	B	
2002 L 067	31 3	2003 Camera	Olympus	MU 7000m 140 pano	L 1				USD 190.00	USD 190.00	Tuk Thla TSC	Mr.A.Miyazaki	D	B	
2002 L 068	31 3	2003 Digital camera	Canon	IXUS V2	L 1				USD 380.00	USD 380.00	Tuk Thla TSC	Mr.A.Miyazaki	*	C	since December 2004, broken
2002 L 069	31 3	2003 Digital camera	Canon	IXUS V2	L 1				USD 380.00	USD 380.00	Tuk Thla TSC	Mr.A.Miyazaki	A	B	
2002 L 070	31 3	2003 Digital camera	Canon	IXUS V2	L 1				USD 380.00	USD 380.00	Tuk Thla TSC	Mr.A.Miyazaki	A	B	
2002 L 071	31 3	2003 Printer	HP	DeskJet 1200 Color	L 1				USD 380.00	USD 380.00	Tuk Thla TSC	Mr.A.Miyazaki	C	B	
2002 L 072	31 3	2003 Printer	Canon	mxu i320	L 1				USD 129.00	USD 129.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 073	31 3	2003 Auto Level	TOPCON	AT-G4	L 1				USD 1,277.00	USD 1,277.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 L 074	31 3	2003 Auto Level	TOPCON	AT-G4	L 1				USD 1,277.00	USD 1,277.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 L 075	31 3	2003 Auto Level	TOPCON	AT-G4	L 1				USD 1,277.00	USD 1,277.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 L 076	27 3	2003 Generator	Denyo		L 1				USD 21,500.00	USD 21,500.00	Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 077	31 3	2003 Telephone PBX System	Panasonic	KX-TA3089	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 078	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 079	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 080	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 081	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 082	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 083	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 084	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 085	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 086	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 L 087	31 3	2003 Telephone	Panasonic	KX-T7730	L 1						Tuk Thla TSC	Mr.A.Miyazaki	A	A	
2002 J 001	12 11	2002 Plate Table Set	Tamaya	TPT-SET	J 1				USD 292.00	USD 292.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 J 002	28 4	2003 Digital Camera	FUJIFILM	DS-260HD	J 1				USD 1,070.00	USD 1,070.00	Tuk Thla TSC	Mr.A.Miyazaki	A	B	
2002 J 003	28 4	2003 Super Plate	TOPCON	SUP-S	J 1				USD 270.00	USD 270.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 J 004	5 5	2003 Current Meter	Cat.No.3-2	Cat.No.3-2	J 1				USD 3,000.00	USD 3,000.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 J 005	5 5	2003 GPS	e-Trex Vista	e-Trex Vista	J 1				USD 542.00	USD 542.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 J 006	5 5	2003 GPS	e-Trex Vista	e-Trex Vista	J 1				USD 542.00	USD 542.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 J 007	5 5	2003 GPS	e-Trex Vista	e-Trex Vista	J 1				USD 542.00	USD 542.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2002 J 008	5 5	2003 Mirror Stereoscope	Type III	Type III	J 1				USD 1,186.00	USD 1,186.00	Tuk Thla TSC	Mr.A.Miyazaki	C	A	
2003 E 176	9 4	2004 Ripper Bucket	Matsumoto Seisakush	for 312C	E 1	JPY 551,000	JPY 551,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 177	9 4	2004 Bank Forming Bucket	Matsumoto Seisakush	for 312C	E 1	JPY 555,000	JPY 555,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 178	9 4	2004 Trapezoidal Bucket	Matsumoto Seisakush	for 312C	E 1	JPY 344,000	JPY 344,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 179	9 4	2004 Water-level Meter	Ogasawara Keiki	LR-5022	E 1	JPY 559,000	JPY 559,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 180	9 4	2004 Step-down Transformer		for Water-level Meter	E 1	JPY 13,000	JPY 13,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 181	9 4	2004 Battery Box		for Water-level Meter	E 1	JPY 22,000	JPY 22,000				Tuk Thla TSC	Mr.Te Av KIM	A	A	
2003 E 182	9 4	2004 Manual (English/Japanese)	Ogasawara Keiki	for Water-level Meter	E 1	JPY 172,000	JPY 172,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 183	29 7	2004 Dump Truck, Chassis No.FH215C-	Mitsubishi	FH215CDBL	E 1	JPY 2,880,000	JPY 2,880,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 184	29 7	2004 Spare Parts for Dump Truck	Mitsubishi	for FH215CDBL	E 1	JPY 288,000	JPY 288,000				Tuk Thla TSC	Mr.Te Av KIM	*	A	spare parts
2003 E 185	29 7	2004 Total Station	TOPCON	GTS 229, Main unit	E 1	JPY 742,000	JPY 742,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 186	29 7	2004 Tripod	TOPCON	TP-110	E 1	JPY 18,500	JPY 18,500				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 187	29 7	2004 Compass	TOPCON	Type 6	E 1	JPY 8,900	JPY 8,900				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 188	29 7	2004 Reflector	TOPCON		E 1	JPY 114,000	JPY 114,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 189	29 7	2004 Reflector	TOPCON		E 1	JPY 114,000	JPY 114,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 190	29 7	2004 Transit Compass	TOPCON	Trough Compass-3	E 1	JPY 5,000	JPY 5,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 191	29 7	2004 Transit Compass	TOPCON	Trough Compass-3	E 1	JPY 5,000	JPY 5,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 192	29 7	2004 Transit Compass	TOPCON	Trough Compass-3	E 1	JPY 5,000	JPY 5,000				Tuk Thla TSC	Mr.Te Av KIM	C	A	
2003 E 193	29 7	2004 Current Meter	SANEI SOKURYOUKI	Type 3	E 1	JPY 254,000	JPY 254,000				Tuk Thla TSC	Mr.Te Av KIM	D	A	
2003 E 194	29 7	2004 Tape Measure (main unit)	Hisanaga	Expert (Main Unit) STE-100	E 1	JPY 27,300	JPY 27,300				Tuk Thla TSC	Mr.Te Av KIM	D	A	
2003 E 195	29 7	2004 Tape Measure (main unit)	Hisanaga	Expert (Main Unit) STE-101	E 1	JPY 27,300	JPY 27,300				Tuk Thla TSC	Mr.Te Av KIM	D	A	
2003 E 196	29 7	2004 Tape Measure (Clamp Handle)	Hisanaga	CLH-S	E 1	JPY 1,000	JPY 1,000				Tuk Thla TSC	Mr.Te Av KIM	D	A	
2003 E 197	29 7	2004 Tape Measure (Clamp Handle)	Hisanaga	CLH-S	E 1	JPY 1,000	JPY 1,000				Tuk Thla TSC	Mr.Te Av KIM	D	A	
2003 E 198	29 7	2004 Tape Measure (Thermometer for measure)	Hisanaga	GRH-S	E 1	JPY 6,000	JPY 6,000				Tuk Thla TSC	Mr.Te Av KIM	D	A	

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 Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, * refer to list of equipment)
 Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2003 E 199	29 7 2004	Tape Measure (Thermometer for measure	Hisanaga	GRH-S	E 1	JPY	6,000	JPY 6,000			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 200	29 7 2004	Tape Measure (Spring Balance)	Hisanaga	SPB	E 1	JPY	4,300	JPY 4,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 201	29 7 2004	Tape Measure (Spring Balance)	Hisanaga	SPB	E 1	JPY	4,300	JPY 4,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 202	29 7 2004	Tape Measure	Hisanaga	NS-50H	E 1	JPY	7,500	JPY 7,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 203	29 7 2004	Tape Measure	Hisanaga	NS-50H	E 1	JPY	7,500	JPY 7,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 204	29 7 2004	Tape Measure	Hisanaga	NS-50H	E 1	JPY	7,500	JPY 7,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 205	29 7 2004	Curvimeter	Hisanaga	6936	E 1	JPY	2,300	JPY 2,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 206	29 7 2004	Curvimeter	Hisanaga	6936	E 1	JPY	2,300	JPY 2,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 207	29 7 2004	Curvimeter	Hisanaga	6936	E 1	JPY	2,300	JPY 2,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 208	29 7 2004	Curvimeter	Hisanaga	6936	E 1	JPY	2,300	JPY 2,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 209	29 7 2004	Curvimeter	Hisanaga	6936	E 1	JPY	2,300	JPY 2,300			Tuk Thla TSC	Mr.Te Av KM	D	A	
2003 E 210	29 7 2004	Distance Meter	Hisanaga	MODEL-2	E 1	JPY	33,700	JPY 33,700			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 211	29 7 2004	Level Gauge	Hisanaga	E-30	E 1	JPY	2,500	JPY 2,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 212	29 7 2004	Level Gauge	Hisanaga	E-30	E 1	JPY	2,500	JPY 2,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 213	29 7 2004	Level Gauge	Hisanaga	E-30	E 1	JPY	2,500	JPY 2,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 214	29 7 2004	Staff Table	Hisanaga	SSB-S	E 1	JPY	1,300	JPY 1,300			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 215	29 7 2004	Staff Table	Hisanaga	SSB-S	E 1	JPY	1,300	JPY 1,300			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 216	29 7 2004	Staff Table	Hisanaga	SSB-S	E 1	JPY	1,300	JPY 1,300			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 217	29 7 2004	Binocular	Hisanaga	UCF ZOOM	E 1	JPY	24,500	JPY 24,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 218	29 7 2004	Binocular	Hisanaga	UCF ZOOM	E 1	JPY	24,500	JPY 24,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 219	29 7 2004	Stand	Hisanaga	SS-01	E 1	JPY	14,300	JPY 14,300			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 E 220	27 2 2005	Standard Tool for Dump Truck	Mitsubishi		E 1	JPY	71,242	JPY 71,242			Tuk Thla TSC	Mr.Te Av KM	C	A	
2003 L 001	10 9 2003	Locker	CB-1	CB-1	L 1				USD 87.00	USD 87.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 002	10 9 2003	Locker	CB-1	CB-1	L 1				USD 87.00	USD 87.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 003	10 9 2003	Locker	CB-1	CB-1	L 1				USD 87.00	USD 87.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 004	10 9 2003	Locker	CB-1	CB-1	L 1				USD 87.00	USD 87.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 005	10 9 2003	Locker	CB-1	CB-1	L 1				USD 87.00	USD 87.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 006	11 9 2003	Water pump			L 1				USD 100.00	USD 100.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 007	11 9 2003	Storage shelf	S2136	S2136	L 1				USD 60.00	USD 60.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 008	11 9 2003	Storage shelf	S2136	S2136	L 1				USD 60.00	USD 60.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 009	11 9 2003	Storage shelf	S2136	S2136	L 1				USD 60.00	USD 60.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 010	11 9 2003	Bookshelf	304SGB	304SGB	L 1				USD 130.00	USD 130.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 011	11 9 2003	Bookshelf	304SGB	304SGB	L 1				USD 130.00	USD 130.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 012	19 9 2003	File cabinet	FC013	FC013	L 1				USD 68.00	USD 68.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 013	19 9 2003	Closet	304S	304S	L 1				USD 70.00	USD 70.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 014	2 2 2004	Uninterrupted Power Supply	Sun Pac	star 1200VA	L 1				USD 91.00	USD 91.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 L 015	25 2 2004	Storage shelf	S2136	S2136	L 1				USD 60.00	USD 60.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 J 001	26 5 2003	Laptop Computer	Toshiba	DynaBook V7/513LMDW	J 1				USD 3,000.00	USD 3,000.00	Tuk Thla TSC	Mr.AMyazaki	A	A	
2003 J 002	14 7 2003	Total Station	Topcon	GTS-229	J 1				USD 8,600.00	USD 8,600.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 J 003	14 7 2003	Prisms Target for Total Station	Topcon		J 1				USD 1,300.00	USD 1,300.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 J 004	14 7 2003	Prisms Target for Total Station	Topcon		J 1				USD 1,300.00	USD 1,300.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2003 J 005	21 12 2003	Desktop Computer with 17 inch Monitor	NEC	Value Star PC-VC500/7D	J 1	JPY	264,000	JPY 264,000			Tuk Thla TSC	Mr.AMyazaki	A	A	
2003 J 006	21 12 2003	Extension Memory 512MB	Princeton	PDD333-512	J 1	JPY	20,000	JPY 20,000			Tuk Thla TSC	Mr.AMyazaki	A	A	
2003 J 007	21 12 2003	Extension Memory 512MB	Princeton	PDD333-512	J 1	JPY	20,000	JPY 20,000			Tuk Thla TSC	Mr.AMyazaki	A	A	
2003 J 008	21 12 2003	Hard Disk Drive	Buffalo	DIU2-B160GB	J 1	JPY	27,000	JPY 27,000			Tuk Thla TSC	Mr.AMyazaki	A	A	
2003 J 009	31 3 2004	Digital Depth Sounder with accessory kit	Hondex	PS-7FL 30101	J 1				USD 528.00	USD 528.00	Tuk Thla TSC	Mr.AMyazaki	C	A	
2004 E 221	18 5 2005	Boat for Observation Study		FMI-305	E 1	JPY	156,000	JPY 156,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 222	18 5 2005	Electric Pump			E 1	JPY	4,500	JPY 4,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 223	18 5 2005	Equipment for Inspection			E 1	JPY	39,000	JPY 39,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 224	18 5 2005	Kit for Repair			E 1	JPY	3,000	JPY 3,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 225	18 5 2005	Outboard Motor		E8DMH-S	E 1	JPY	150,000	JPY 150,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 226	18 5 2005	Manual (English/Japanese)			E 1	JPY	2,500	JPY 2,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 227	18 5 2005	Service Manual (English/Japanese)			E 1	JPY	5,000	JPY 5,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 228	18 5 2005	Spare Parts			E 1	JPY	15,000	JPY 15,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 229	18 5 2005	Hydraulic Excavator.Engine No.		CAT303CR	E 1	JPY	2,945,000	JPY 2,945,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 230	18 5 2005	Quick Coupler			E 1	JPY	256,000	JPY 256,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 231	18 5 2005	Bucket for Excavator			E 1	JPY	69,000	JPY 69,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 232	18 5 2005	Service Manual			E 1	JPY	3,000	JPY 3,000			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 233	18 5 2005	Spare Parts			E 1	JPY	294,500	JPY 294,500			Tuk Thla TSC	Mr.Te Av KM	C	A	
2004 E 234	18 5 2005	Measuring Rope		5469	E 2	JPY	7,900	JPY 15,800			Tuk Thla TSC	Mr.Te Av KM	C	A	

mm

Note: R/P: Route of Procurement (E: Technical Equipment from Japan, J: Equipment for Experts, L: Equipment of Local Activities, T: Equipment transferred from other JICA Projects)
Frequency of Use (A: Daily, B: Monthly/Weekly, C: Use in specific period, D: Use less than 5 times / year, *: refer to list of equipment)
Condition (A: Good - B: Fair - C: Bad)

No.	Date of Arrival	Description				QTY.	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Frequency of Use	Condition	Remarks
		Item	Manufacture	Model Number	R/P						Location	Person in charge			
2004 E 235	18 5 2005	Weight for Rope		5480	E	2	JPY 3,350	JPY 6,700			Tuk Thla TSC	Mr. Te Av KM	C	A	
2004 J 010	11 4 2004	Desktop Computer with 17 inch Monitor	Fujitsu	Value Star PC-VC500/7D	J	1	JPY 298,000	JPY 298,000			Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 J 011	11 4 2004	Hard Disk Drive	Buffalo	HD-250IU2	J	1	JPY 33,200	JPY 33,200			Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 J 012	5 5 2004	Rack Stick for Concrete Testing Machine	Amsler Type	Amsler Type	J	1	JPY 61,200	JPY 61,200			Tuk Thla TSC	Mr. A Myazaki	*	A	Plan to be used
2004 J 013	5 5 2004	Joint Cable for Digital Current Meter	for UCM-1, sensor	for UCM-1, sensor	J	1	JPY 30,000	JPY 30,000			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 014	5 5 2004	Notebook Computer	Toshiba	Dynabook PAVX1W15LEDW	J	1	JPY 270,000	JPY 270,000			Tuk Thla TSC	Mr. A Myazaki	C	C	Display failure, under repair
2004 J 015	21 10 2004	Target Plate	Topcon	Targetplate-3	J	1	JPY 24,700	JPY 24,700			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 016	21 10 2004	Prism Adapter	Topcon	S2	J	1	JPY 21,680	JPY 21,680			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 017	21 10 2004	tribrach w/Optical Plummet wild Type	Topcon		J	1	JPY 44,800	JPY 44,800			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 018	21 10 2004	Aluminium Tripod	Topcon	TP-110	J	1	JPY 24,500	JPY 24,500			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 019	7 10 2004	Notebook Computer	IBM	Thinkpad T41-2373-7KA	J	1			USD 1,785.00	USD 1,785.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 J 020	9 3 2004	Sand Density Apparatus	LS-499	LS-499	J	1	JPY 66,600	JPY 66,600			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 021	9 3 2004	Sand Density Apparatus	LS-499	LS-499	J	1	JPY 66,600	JPY 66,600			Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 J 022	9 3 2004	Sieve		75,106,250,425,850µm,2,4,74mm	J	1	JPY 44,700	JPY 44,700			Tuk Thla TSC	Mr. A Myazaki	D	A	
2004 J 023	9 3 2004	Sieve		9.5,19,26.5,37.5,53mm	J	1	JPY 33,700	JPY 33,700			Tuk Thla TSC	Mr. A Myazaki	D	A	
2004 J 024	9 3 2004	Sieve		75,150,300,600µm,1.18,1.7,2.36,4.75mm	J	1	JPY 50,400	JPY 50,400			Tuk Thla TSC	Mr. A Myazaki	D	A	
2004 J 025	9 3 2004	Sieve		9.5,16,19,26.5,31.5,37.5,53,63,75,106	J	1	JPY 56,600	JPY 56,600			Tuk Thla TSC	Mr. A Myazaki	D	A	
2004 L 026	19 4 2004	Uninterrupted Power Supply	Sun Pac	star 1200VA	L	1			USD 80.00	USD 80.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 027	28 7 2004	Uninterrupted Power Supply	Sun Pac	star 650VA	L	1			USD 45.00	USD 45.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 028	3 8 2004	On-Board Battery	TOPCON	BT-52QA	L	1			USD 214.23	USD 214.23	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 029	3 8 2004	On-Board Battery	TOPCON	BT-52QA	L	1			USD 214.23	USD 214.23	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 030	18 11 2004	Water Pump	HONDA	WB30XT	L	1			USD 220.00	USD 220.00	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 031	18 11 2004	Water Pump	HONDA	WB30XT	L	1			USD 220.00	USD 220.00	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 032	22 11 2004	Mobile Phone	Nokia	N1100 Bule-353754006020808	L	1			USD 73.00	USD 73.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 033	22 11 2004	Mobile Phone	Nokia	N1100 Let Black-353754006045472	L	1			USD 73.00	USD 73.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 034	2 12 2004	Hard Disk Drive		40GB, IEEE, USB, desk type, metal case	L	1			USD 73.00	USD 73.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 035	13 1 2005	Water tank	1000L	1000L	L	1			USD 70.00	USD 70.00	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 036	13 1 2005	Water tank	1000L	1000L	L	1			USD 70.00	USD 70.00	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 037	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L	1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 038	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L	1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 039	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L	1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 040	19 1 2005	Memory card for digital camera	Compact Flash 128MB	Compact Flash 128MB	L	1			USD 26.00	USD 26.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 041	3 2 2005	Digital Camera	Canon	Digital IXUS 330, S/N(21)5041301288	L	1			USD 465.00	USD 465.00	Tuk Thla TSC	Mr. A Myazaki	A	A	
2004 L 042	16 2 2005	Water tank	300L	300L	L	1			USD 32.00	USD 32.00	Tuk Thla TSC	Mr. A Myazaki	C	A	
2004 L 043	4 3 2005	Hard Disk Drive unit	40GB, 7200rpm	40GB, 7200rpm	L	1			USD 65.00	USD 65.00	Tuk Thla TSC	Mr. A Myazaki	A	A	

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List of Equipment

1) Activities completed

20-Jul-05

No.	Date of Arrival			Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Condition	Remarks
				Item	Manufacture	Model Number	R/P						Location	Person in charge		
2000 E 024	12	10	2001	Cone Penetrometer	Marui	MIS-243-1-01	E	1	JPY 390,000	JPY 390,000			Tuk Thla TSC	Mr.Te Av KIM	A	activities completed

2) Plan to be used

2000 E 027	12	10	2001	Falling-Head Permeameter	Marui	MIS-227-1-03	E	1	JPY 789,400	JPY 789,400			Tuk Thla TSC	Mr.Te Av KIM	B	for short-term expert in Sep 2005
2001 E 101	23	7	2002	Oven		SSA-135	E	1	JPY 469,000	JPY 469,000			Tuk Thla TSC	Mr.Te Av KIM	A	never used, plan to install in 2nd Quarter in 2005
2001 E 117	23	7	2002	Filters for Automatic Water Distiller		01301055	E	5	JPY 420	JPY 2,100			Tuk Thla TSC	Mr.Te Av KIM	A	
2001 E 118	23	7	2002	Filters for Automatic Water Distiller		01301090	E	5	JPY 420	JPY 2,100			Tuk Thla TSC	Mr.Te Av KIM	B	
2001 E 119	23	7	2002	Automatic Water Distiller	Toyo	GS-2000	E	1	JPY 512,800	JPY 512,800			Tuk Thla TSC	Mr.Te Av KIM	B	
2001 E 139	23	7	2002	Root-in Meter	TokyoShinohara	SS-C-516A	E	1	JPY 243,760	JPY 243,760			Tuk Thla TSC	Mr.Te Av KIM	B	for short-term expert in Sep. 2005
2001 E 146	23	7	2002	Evaporation Pan	Ootakeiki	No.41	E	1	JPY 38,800	JPY 38,800			Tuk Thla TSC	Mr.Te Av KIM	A	plan to use for training course in Sep 2005
2002 E 160	14	7	2003	Hydro Scale		102257	E	2	JPY 7,800	JPY 15,600			Tuk Thla TSC	Mr.Te Av KIM	A	
2004 J 012	5	5	2004	Rack Stick for Concrete Testing Machine	Amsler Type	Amsler Type	J	1	JPY 61,200	JPY 61,200			Tuk Thla TSC	Mr.A.Miyazaki	A	

3) Broken

2000 J 002	14	3	2001	Laptop Computer	IBM	ThinkPad I Series 1800	J	1		USD 2,408.00	USD 2,408.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since May 2003, broken
2000 J 006	14	3	2001	Wireless Print Server	BUFFALO	AirP's LPV-WL11	J	1		USD 192.00	USD 192.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since May 2001, broken
2000 J 008	14	3	2001	Digital Camera	Canon	IXY Digital	J	1		USD 492.00	USD 492.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since Jan 2005, broken
2000 J 010	14	3	2001	Laptop Computer	IBM	ThinkPad I Series 1800	J	1		USD 1,917.00	USD 1,917.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since May 2003, broken
2002 L 068	31	3	2003	Digital camera	Canon	IXUS V2	L	1		USD 380.00	USD 380.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since December 2004, broken
2000 J 007	14	3	2001	Wireless Lan Station	BUFFALO	AirStation WLAR-L11-M	J	1		USD 275.00	USD 275.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since April 2003, wire LAN network installed, broken
2001 L 019	6	11	2001	Wireless Lan Station	BUFFALO	AirStation WLAR-L11-M	L	1		USD 315.00	USD 315.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since April 2003, wire LAN network installed, broken

4) Equipment not used (new system was installed)

2001 L 010	12	7	2001	Codeless Telephone	Sony	SPP-68	L	1		USD 80.00	USD 80.00		Tuk Thla TSC	Mr.A.Miyazaki	C	since April 2003, new telephone system installed
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4) List of Spair Parts

20-Jul-05

No.	Date of Arrival	Description				QTY	Unit Price JPY	S-total JPY	Unit Price US\$	S-total US\$	Place of Storage		Condition	Reason of idle
		Item	Manufacture	Model Number	R/P						Location	Person in charge		
2001 E 051	21 12 2001	Spare Parts for Crawler Carrier			E		JPY 850,035	JPY 850,035			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 053	21 12 2001	Spare Parts for Concrete Breaker			E		JPY 2,800	JPY 2,800			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 056	21 12 2001	Spare Parts for Air Compressor			E		JPY 272,000	JPY 272,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 058	21 12 2001	Spare Parts for Generator			E		JPY 328,000	JPY 328,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 061	28 12 2001	Spare Part for 312C & Bulldozer D5M XL			E		JPY 2,700,000	JPY 2,700,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 064	28 12 2001	Spare Parts for 115AD&75S			E		JPY 400,000	JPY 400,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2001 E 066	25 2 2002	Spare Parts for Dump Truck			E		JPY 272,000	JPY 272,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 162	14 7 2003	Spare Parts for Truck			E		JPY 1,480,000	JPY 1,480,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 164	14 7 2003	Spare Parts for Bulldozer			E		JPY 2,500,000	JPY 2,500,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 166	14 7 2003	Spare Part for Truck			E		JPY 2,720,000	JPY 2,720,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2002 E 168	14 7 2003	Spare Parts for Plotter			E		JPY 97,000	JPY 97,000			Tuk Thla Storehouse	Mr.Te Av KIM	A	spare parts
2003 E 184	29 7 2004	Spare Parts for Dump Truck	Mitsubishi	for FH215CDBL	E		JPY 288,000	JPY 288,000			Tuk Thla TSC	Mr.Te Av KIM	A	spare parts

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ANNEX VII Local Cost Implementation by Japanese Side

Unit: United States Dollar US\$

No.	Category	Budgetary Year						Amount
		JFY 2000	JFY 2001	JFY 2002	JFY 2003	JFY 2004	JFY 2005 (Plan)	
1	General Budget (Running Expenses)	19,089.99	48,208.50	61,536.68	65,114.00	53,136.66	51,215.00	298,300.83
2	General Budget (Facilities, Activities)	9,848.70	14,805.40	0.00	0.00	91,662.10	40,600.00	156,916.20
3	Project Budget (Facilities)	0.00	0.00	38,836.00	61,540.40			100,376.40
4	Project Budget (Activities)	0.00	10,994.25	0.00	8,730.00			19,724.25
5								
6								
7								
8								
Total		28,938.69	74,008.15	100,372.68	135,384.40	144,798.76	91,815.00	575,317.68

*JFY: Japanese Fiscal Year (from April to March)

ANNEX VIII Allocation of Budget by Cambodian Side

Unit: Cambodia Riel / United States Dollars

Unit: Cambodia Riel / United States Dollars

No.	Description	2001	2002	2003	2004	2005	Total	
1	Salary of counterparts and supporting staff	Received Budget (in Riel)	26,880,360	52,997,250	5,541,125	56,065,300	34,331,592	175,815,627
		Expenditure (in Riel)	26,880,360	52,997,250	5,541,125	56,065,300	34,331,592	175,815,627
2	TSC Building Construction	Received Budget (in US\$)	US\$155,227.00					US\$155,227.00
		Expenditure (in US\$)	US\$155,172.95					US\$155,172.95
3	Electricity / Water charges	Received Budget	Electricity/water for project office	Electricity/water for project office	Electricity/water for project office	Electricity/water for project office	Electricity/water for project office	
		Expenditure						
4	Local Telephone Charges (2 lines)	Received Budget (in US\$)	US\$120.00	US\$480.00	US\$480.00			US\$1,080.00
		Expenditure (in US\$)	US\$120.00	US\$480.00	US\$480.00			US\$1,080.00
5	Fuel for Project Vehicles and Heavy Equipment	Received Budget (in Riel)	5,182,656	13,039,488	12,526,164	22,634,872	17,766,880	71,150,060
		Expenditure (in Riel)	5,182,656	13,039,488	12,526,164	22,634,872	17,766,880	71,150,060
Total Received Budget		32,063,016/US\$155,347.00	66,036,738/US\$480	18,067,289/US\$480	78,700,172	52,098,472	246,965,687/US\$156,307.00	
Total Expenditure		32,063,016/US\$155,292.95	66,036,738/US\$480	18,067,289/US\$480	78,700,172	52,098,472	246,965,687/US\$156,252.95	
Total Expenditure (Equivalent in US\$/ 4,000riel=\$1)		US\$163,308.70	US\$16,989.18	US\$4,996.82	US\$19,675.04	US\$13,024.62	US\$217,994.37	

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ANNEX IX Achievement of Activities of the Project

Activities in Plan of Operations										Implementation		Final Target / Evaluation (Issues to be implemented)	Achieved rate (%)	
Items				Project Period					contact person	Activities	Results / Achievements			
				1st yr	2nd yr	3rd	4th yr	5th yr						
1. Assessment of technical capacity and setting of technical level	1-1. Collect data	1-1-1. Conduct general survey of existing conditions (construction work, operation and maintenance of facilities by the Cambodian side and international cooperation organizations)		●	●						- Collected data of PRASAC, Komping Puoy, etc. - Observe sites of projects	- data are scattered and difficult to analyse systematically. - O&M methods has not been established.	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
	1-2. Assess present technical capacity in the field of survey	1-2-1. Assess present technical capacity of survey		●	●						- Interviewed staff of MOWRAM, ITC and other institutes on staff training and teaching materials.	- There are no recruitment or certification exams in irrigation and construction sector. - Education focuses on basic knowledge. - lack of theoretical understanding	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
	1-3. Assess present technical capacity in the field of planning	1-3-1. Assess present technical capacity of irrigation planning		●	●						- Interviewed staff of MOWRAM, ITC and other institutes on staff training and teaching materials.	- No irrigation planning is based on water requirement study. - Some projects were implemented without planning.	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
	1-4. Assess present technical capacity in the field of design	1-4-1. Collect design documents		●	●						- Collected data from related departments of MOWRAM.	- Technical data on hydraulic and structural analysis and drawings are not systematically arranged in design reports. - lack of criteria for designing hydraulic structures	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
		1-4-2. Study cases of existing structures		●	●						- Observed sites of projects.	- Made a list of hydraulic facilities in the model site and its vicinities.	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
	1-5. Assess present technical capacity in the field of construction management	1-5-1. Assess present technical capacity in the field of construction management		●	●						- Collected data about construction management. - Interviewed the C/Ps and others.	- Lack of clear criteria and standards on construction management - Operators have a basic skills but significant difference in knowledge and skills among them.	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
		1-5-2. Assess present knowledge of construction control			●	●					- Evaluated operations of construction machinery.			100%
	1-6. Assess present technical capacity in the field of water management	1-6-1. Collect manuals of water management as case studies		●	●						- Visited and studied the Farmer Water Users Communities (FWUC) in Komping Speu, Battambang and Komping Cham.	- No manuals on FWUC were found except for that in MOWRAM's policy. - The difficulties in water management were caused by poor facilities and unstable water supply.	- Present situation was mostly observed. - Any further survey is not necessary for this activity.	100%
		1-6-2. Evaluate present water management techniques through case studies		●	●									100%
	1-7. Set the level of skills to be transferred in each field	1-7-1. Set the level of skills to be transferred survey/planning		●	●						- Selected the technical contents to be transferred in the Project based on the collected data and the present conditions of C/Ps.	- The technical contents are: / basic operations of survey instruments and data arrangement; / knowledge and skills in route survey and topographic survey for design of tertiary canals; and / basic knowledge and skills of other kind of surveying.	- The target technical contents to be transferred to C/Ps in the Project were decided.	100%
1-7-2. Set the level of skill in design/water management			●	●						- Selected the technical contents to be transferred in the Project based on the collected data and the present conditions of C/Ps.	- The technical transfer for C/Ps is to design small and simple irrigation canal. - The technical transfer should be better on practical knowledge and skills than on theoretical knowledge. - The technical training for water management C/Ps should be done on establishing cohesive farmers' group for operation and maintenance for tertiary and delivery canals.	- The target technical contents to be transferred to C/Ps in the Project were decided.	100%	

Activities in Plan of Operations										Implementation		Final Target / Evaluation (Issues to be implemented)	Achieved rate (%)	
Items				Project Period					contact person	Activities	Results / Achievements			
				1st yr	2nd yr	3rd	4th yr	5th yr						
		1-7-3. Set the level of skill in construction management		●—●						- Selected the technical contents to be transferred in the Project based on the collected data and the present conditions of C/Ps.	The technical transfer to C/Ps is to make construction management for small-scale irrigation canals, such as tertiary canals, including construction planning, construction control and process control.	- The target technical contents to be transferred to C/Ps in the Project were decided.	100%	
Scope for Sustainability	This items aims to conduct study on the existing condition and to establish the technical contents to be transferred in the Project in order to formulate the detailed plan of operation. Therefore, it does not relate to sustainability.													
2. Transfer of technology through OJT	2-1. Transfer survey technique through OJT	2-1-1. Conduct general survey of existing conditions (social, farm system, water use, etc.)	2-1-1-A. Farmers survey								- Conducted a baseline study.	- The present situation of farmers in the model site become clear with the baseline study. - C/Ps had little experience in the baseline study but they acquired methods of study and data arrangement.	- Farmer Survey will be conducted as a activity of water management section.	100%
			2-1-1-B. Confirmation of existing structures	●—●							- Conducted an inventory study on hydraulic structures in and near the model site.	- Prepared inventory of hydraulic structures in and near the model site.	- The study finished.	100%
			2-1-1-C. Topographic map	●—●							- Collected topographic maps. - Made a topographic map of the model site and land use survey.	- Basic data for designing a layout of irrigation canals in the model site were prepared.	- The study finished.	100%
			2-1-1-D. Hydrology and meteorology survey	●—●—●—●—●—●—●—●							- Installed a meteorological station and collected the data. - Arranged the meteorological data. - Collaborated with Dept. of Meteorology.	- C/Ps understood the methods of collecting meteorological data and the data arrangement.	- The data collection and arrangement will be continued. - Another station will be installed. - The collaboration with DOM will be continued.	80%
		2-1-2. Conduct discharge survey	2-1-2-A. Water level measurement	●—●—●—●—●—●—●—●							- Conducted water level measurement along the main canal. - Installed automatic water level gauge and conducted consecutive water level observation at the intake. - data arrangement on the above measurements	- C/Ps acquired the methods of measuring level and velocity of water flow. - C/Ps acquired basic knowledge about H-Q curve. - C/Ps continued the observation and understood importance of maintenance.	- The water level observation at the intake and along the main canal will be continued. - The water level observation along a certain tertiary canal will be conducted.	90%
			2-1-2-B. Discharge measurement	●—●—●—●—●—●—●—●							- Conducted flow rate measurement in accordance with the above water level observation along the main canal. - A trial for drawing a relation curve between water levels and flow rates (H-Q Curve).		- The flow rate observation will be conducted along the tertiary canal and check the canal capacity on flow rate.	70%
		2-1-3. Transfer survey techniques	2-1-3-A. Basic survey skill	●—●—●—●—●—●—●—●							- Learned basic operation of survey instruments, such as levels, plane-tables and theodolite, and data arrangement and processing. - Conducted traverse survey.	- C/Ps acquired methods of operating survey instruments including data arrangement. - C/Ps acquired the method of closed traverse survey and its data arrangement.	- The connected traverse survey will be conducted.	90%
			2-1-3-B. Practical survey techniques for the model site	●—●—●—●—●—●—●—●							- Conducted a longitudinal survey along the bank of main canal. - Conducted route survey along tertiary canals. - Conducted survey with total-stations. - Conducted training on making topographic maps.	- C/Ps acquired the methods of route survey and its data arrangement. - C/Ps acquired basic knowledge and skills on making topographic map using total-stations.	- Some difference in levels among the C/Ps were observed but most of the C/Ps attained sufficient results as a whole.	100%
			2-1-3-C. Application of the above techniques to the model site	●—●—●—●—●—●—●—●							- Conducted route survey and plan survey for designing tertiary canals in the model site.	- C/Ps acquired the methods of survey, such as route survey, for designing canals.	- Route survey for tertiary canals will be conducted in the model site.	80%
		Scope for Sustainability	Some difference among the C/Ps are observed in skills in survey but most of them acquired basic knowledge and skills. The C/Ps, therefore, will be able to do survey with their capacity obtained. The C/Ps also learned the basic knowledge and skills of making topographic maps with total-stations and they did fine job on it. However, they still need to learn more about mathematics and geometrics which are indispensable for such survey. In terms of other surveillance methods, the C/Ps acquired basic knowledge and methods of operating instruments, and therefore, knowledge											

Activities in Plan of Operations								Implementation		Final Target / Evaluation (Issues to be implemented)	Achievement rate (%)			
Items				Project Period					contact person			Activities	Results / Achievements	
				1st yr	2nd yr	3rd	4th yr	5th yr						
	2-2. Transfer planning techniques through OJT	2-2-1. Transfer techniques of unit water requirement survey (Water requirement rate)				●	●	●			- Learned methods of using water requirement survey apparatus. - Conducted water requirement survey. - Conducted the data arrangement.	- C/Ps acquired methods of water requirement survey and its data arrangement.	- The water requirement survey will be continued. - The calculation of unit water requirement rate will be tried.	80%
		2-2-2. Produce an irrigation plan for the model site				●	●	●	●		- Conducted a study on layout of canal system for the model site.	- The route and beneficiary area for each canal were decided.	- C/Ps will learn irrigation planning, especially calculation of irrigation rate at the intake from unit water requirements.	50%
Scope for Sustainability	C/P acquired the methods of measuring water requirement rate and its data arrangement in water requirement survey. It will be useful to calculate unit water requirement and acquire methods for irrigation planning, and it will contribute to appropriate irrigation planning and improvement of projects in Cambodia. Calculating water requirement at the plots, the canals and the intake will be conducted to acquire basic and key methods of irrigation planning, using textbooks and examples of Japan.													
	2-3. Transfer design techniques through OJT	2-3-1. Basic design techniques for model site			●	●	●	●	●		- Learned basic knowledge on hydraulics, structural analysis and soil engineering. - Prepared the textbooks	- C/Ps acquired basic knowledge for designing small irrigation canals. - Some textbooks were prepared. - Some supplementary materials were prepared.	- C/Ps will continue to learn basic knowledge for various design of canal system through the OJT.	60%
		2-3-2. Practical desing techniques for irrigation and drainage canals in the model site			●	●	●	●	●		- Conducted hydraulic and structural analysis, drawing and making a material list in the design work for the model site.	- C/Ps became able to design tertiary canals and related structures by themselves.	- Practice of designing tertiary canals will be continued. - Practices will be conducted in designing box culverts and slab bridges which are not seen in the present design of the tertiary canals.	80%
		2-3-3. Practical design techniques for related structures in the model site			●	●	●	●	●				80%	
Scope for Sustainability	C/Ps acquired most of the methods of designing small irrigation canals and their related structures. However, C/Ps will should acquire more about basic design technical knowledge so as to design large structures, such as dams, barrages and main canals. For the moment, C/Ps should learn designing methods for the related structures, such as checks, diversions, box culverts and slab bridges, so that they can design most of the structures in irrigaiton canal systems except for headworks.													
	2-4. Transfer construction management techniques through OJT	2-4-1. Prepare for construction (road repair, etc.)			●	●					- Conducted repair of the main canal bank as a practice in operation of construction machines.	- Operators improved their skill in operating machines. - The existing skills of operators in MOWRAM were evaluated.	- The activity finished.	100%
		2-4-2. Train operators of construction machinery	2-4-2-A. Operation			●	●	●	●		- Conducted practices in operating construction machines.	- Operators improved their skill in operating machines. - The existing skills of operators in MOWRAM were evaluated.	- The activity finished.	100%
			2-4-2-B. Maintenance			●	●	●	●	●	- Conducted practices in maintenance of construction machines. - Conducted weekly maintenance on construction machines.	- Contents of routine check and maintenance were decided. - C/Ps and the operators acknowledged importance of routine check and maintenance	- Routine check and maintenance will be continued every week.	100%
		2-4-3. Produce construction planning and design documents	2-4-3-A. Construction procedure			●	●	●	●	●	- Determined construction process for earth and concrete work. - Improved the construction process. - Conducted practices in setting fixed rulers.	- C/Ps became able to determine and improve constuction process with consideration on construction conditions. - C/Ps acquired proper skills in setting fixed rulers in tertiary canal construction.	- The construction process will be examined and improved considering results of construction.	90%
			2-4-3-B. Design documents			●	●	●	●	●	- Examined the design with the drawings and the material list. - Prepared construction plans. - Prepared construction schedule.	- C/Ps became able to read drawings and calculate amounts of materials correctly. - C/Ps acquired basic knowledge on construction planning and schedule.	- The practices will be continued so that C/Ps can prepare a construction plan and schedule by themselves.	70%
		2-4-4. Construct facilities	2-4-4-A. Irrigation canals			●	●	●	●	●	- Conducted earth and concrete work in tertiary canal construction. - Conducted practice for supervising construction in the above construction.	- C/Ps became able to conduct supervision, directions to staff, and procurement of materials appropriately in the tertiary canal construction.	- The series of construction of tertiary canals finished in the five-year project period.	100%
			2-4-4-B. Other facilities			●	●	●	●	●				100%
			2-4-5. Take construction control	2-4-5-A. Schedule control			●	●	●	●	●	- Conducted schedule management of construction. - Wrote daily reports of work.	- C/Ps became able to write daily reports properly and check progress of work.	- Data on progress will be arranged and analyzed after construction. - Planning and management of construction schedule will be learned.

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Activities in Plan of Operations										Implementation		Final Target / Evaluation (Issues to be implemented)	Achieved rate (%)
Items			Project Period					contact person	Activities	Results / Achievements			
			1st yr	2nd yr	3rd	4th yr	5th yr						
			2-4-5-B. Quality control (soil test, concrete test)							- Conducted practice on soil and concrete tests. - Conducted setting fixed rulers. - Conducted water content control of soil, density control at site and dimension control. - Conducted concrete mixing control, slump tests, compression tests, bar arrangement check and dimension	- C/Ps acknowledged necessity of quality control and methods of control and testing at site. - C/Ps acknowledged roles and relations between soil tests in laboratory and quality control at site.	Data on quality control will be arranged and analyzed after construction.	80%
			2-4-5-C. Control of finished work quality							- Conducted check on finished works in tertiary canal construction. - Arranged the checked data.	- C/Ps acknowledged necessity and methods of checking finished works and allowable errors between finished works and design.	Data on checking finished works will be arranged and analyzed after construction.	80%
Scope for Sustainability	Through the three times of tertiary canal construction, C/Ps acquired a set of methods for constructing small irrigation canals, such as construction planning, construction control, data arrangement and reporting. C/Ps became able to make proper supervision in constructing small canals and concrete structures. C/Ps should acquire knowledge and skills in preparing budget plan of construction and control its execution. In addition, C/Ps will be expected to learn and experience construction management for larger and more sophisticated structures.												
	2-5. Transfer water management techniques through OJT with participation of farmers	2-5-1. Promote participation of farmers at the model site (Enhance of farmers' group capability)	2-5-1-A. Participatory activities							- Conducted interview to farmers in the model site about the existing water use.	- The existing water use and the farmers' thinking and attitudes for irrigation systems were acknowledged.	- Group work among the farmers will be activated in maintenance activities. - Representatives of the farmer group will make study trips to some advanced area.	78%
			2-5-1-B. Farmers meetings							- Conducted interview to farmers about changes in water use after the construction of canals in the model site. - Established farmer groups along T3.2.0 and conducted a series of workshops. - Assisted farmers with setting outlets to fields and crossings.	- The farmers established their groups and discussed their own rules of water use and maintenance of the tertiary and delivery canals. - The groups voluntarily conducted cleaning of their tertiary canal. - C/Ps acknowledged needs of farmers in water use through experience of facilitators in discussion among the farmers.	- The activities for stimulating the farmers' discussion will be continued to establish farmer groups and prepare their own rules	
		2-5-2. Produce a water management plan with participation of farmers for the model site	2-5-2-A. Study visit to existing water users associations							- Conducted a study visit of farmers in the T3.2.0 area on a farmer water user community in Kompong Speu.	- The farmers exchanged information and opinions on water management with farmers in another irrigated area.	- The activity finished.	100%
			2-5-2-B. Collection of documents on water management planning							- Collected data on water management in Cambodia and from abroad.	- Data on water management with farmers' participation were collected from Cambodia, FAO, Philippines and others.	- The activity finished.	100%
			2-5-2-C. Reconnaissance survey and inventory of available resources							- Conducted interview to farmers about their water use, its stakeholders, and other group activities in the village.	- Farmer groups in the community related to issues other than water were acknowledged on their existence, purposes and structures.	- Data arrangement and preparing a report will be done.	90%
			2-5-2-D. Assist farmers' group in establishment of water management rule							- Examined MOWRAM policy and strategies in water management. - Collected examples water management rules. - Facilitated discussions of farmer groups.	- C/Ps studied policy, strategies and rules on water management through the data collection.	- C/Ps will assisted the farmer groups to establish water use rules for their groups.	60%
Scope for Sustainability	It has been difficult to transfer water management technique, such as optimization and equity of water allocation, due to the delay of rehabilitation of main irrigation facilities funded by the Grant Aid, and farmers expectation on absence of water. However, C/Ps assisted farmers to establish their own groups, formulate their own rules and collaborate on operation and maintenance in terms of water management in the tertiary and delivery canals. Through the activities, C/Ps has acknowledged farmers' needs on irrigation water.												

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Activities in Plan of Operations									Implementation		Final Target / Evaluation (Issues to be implemented)	Achieved rate (%)	
Items				Project Period					contact person	Activities			Results / Achievements
				1st yr	2nd yr	3rd	4th yr	5th yr					
3. Production of manuals	3-1. Produce a manual on survey technique	3-1-1. Produce a manual of farmers survey			●●					- Prepared a survey manual as a component of the baseline study.	- C/Ps learned methods of farmer survey.	- Considering necessity and priorities of other activities, the activity finished.	100%
		3-1-2. Produce a manual on survey				●			●	- Prepared a manual on basic survey. - Prepared english manuals on angle measurement and traverse survey. - Prepared an english manual on making topographic maps.	- C/Ps acquired basic knowledge on survey more firmly and appropriately through preparation of manuals. - C/Ps conducted training for irrigation engineers including other C/Ps with the manuals.	- A manual on route survey will be prepared. - The prepared manuals will be reexamined and improved. - The manuals will be translated into Khmer.	80%
		3-1-3. Produce a manual on hydrology and meteorology survey							●●	- Is considering detailed contents, preparing process and methods.	- Materials for preparing the manual was collected through installation, operation, measurement and data arrangement conducted by C/Ps.	- The manual will be prepared for installation and operation of instruments, measuring methods and data arrangement in cooperation with DOM.	30%
		3-1-4. Produce a manual on discharge measurement				●●			●●	- Prepared a manual on measuring flow rate.	- C/Ps acquired their knowledge more firmly and appropriately on methods of measuring flow rate and preparing H-Q curves.	- The manual will be translated into Khmer. - The manual will be reexamined to revise.	80%
Scope for Sustainability	Land survey is the most necessary technique in survey work of irrigation in Cambodia, and we, therefore, spent the most time for land survey in the section's activities. Preparing the manuals has contributed to firm understanding technical knowledge on land survey methods. The English abilities of C/Ps are constraints for preparing manuals with the experts and additionally, there are few people who can translate English writings on irrigation into Khmer. If TSC prepares Khmer technical manuals in the irrigation sector, it will contribute very much to technical extension and capacity building.												
	3-2. Produce manuals on planning technique	3-2-1. Produce a manual on design water requirement and drainage discharge				●●			●●	- Prepared a manual on unit water requirement survey.	- Dr. Hara, former expert of DOM helped preparing the manual, which C/Ps are always using in the measurement and data arrangement.	- A manual will be prepared on basic knowledge in calculating design water requirement. - The manuals will be translated into Khmer.	50%
Scope for Sustainability	The project set the technical target so that C/Ps can appropriately conduct a series of work for tertiary canals, after considering technical conditions of Cambodian irrigation engineers. To attaining the target for technical transfer, the Project focus on basic knowledge and skills in irrigation engineering including basic subjects, such as land survey, hydraulics, structural analysis and soil mechanics. In learning planning for irrigation projects, engineers should acquire basic technical knowledge and skills in irrigation engineering before learning irrigation planning methods, which includes various contents, such as farming plan, cost-benefit analysis and environmental study. Since water use plan is one of the most important plans in irrigation planning, C/Ps should understand basic knowledge in preparing a water use plan and conduct some practice on it. It will give some targets for their further study and understanding on importance in conducting the related survey.												
	3-3. Produce design standard and manuals on design techniques and project evaluation	3-3-1. Produce design manuals	3-3-1-A. Open canals			●			●	- Prepared education materials on basic knowledge of hydraulics. - Prepared a manual on basic knowledge of designing small irrigation canals.	- C/Ps have used design reports on six tertiary canals and two structures as textbooks or references for their design.	- The manuals prepared in design work of tertiary canals will be revised and edited as a manual on designing small irrigation canals.	80%
			3-3-2-B. Related structures			●			●	- Prepared a manual for design work arranging the methods and results of calculation and design which were conducted for these years. - Prepared a supplementary materials on design and calculation methods.		- A manual will be prepared for designing box culverts and slab bridges as crossing structures over the irrigation canals. - The manuals will be translated into Khmer.	70%
Scope for Sustainability	The project set the technical target so that C/Ps can appropriately conduct a series of work for tertiary canals. According to the target, some practical manuals were prepared by using technical papers in OJT. C/Ps seems to understand the contents. They have become able to design canals by themselves, referring these manuals. However, C/Ps should learn more about basic subjects and design methods of various types of structures and larger and sophisticated structures, such as headworks and other main irrigation facilities.												
	3-4. Produce manuals on construction management techniques	3-4-1. Produce specifications for construction	3-4-1-A. General specifications			●●			●●	- Prepared general specifications for construction - Prepared criteria of construction control.	- C/Ps understood important specifications in construction.	- The contents of the manuals will be revised according to the results of construction.	90%
			3-4-1-B. Construction process (fixed ruler, banking, concrete structures)					●●●●●	●●	- Prepared a manual on setting fixed rulers. - Prepared education materials on design of concrete mixing. - Prepared items included in a manual on construction process of earth and concrete work for tertiary canals.	- C/Ps acquired knowledge on fixed rulers and concrete mixing design more firmly and appropriately through the preparation of the manuals.	- A manual will be prepared for construction process of tertiary canals in terms of earth and concrete work.	50%

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Activities in Plan of Operations										Implementation		Final Target / Evaluation (Issues to be implemented)	Achieved rate (%)
Items				Project Period					contact person	Activities	Results / Achievements		
				1st yr	2nd yr	3rd	4th yr	5th yr					
		3-4-2. Produce manuals for construction control	3-4-2-A. Schedule control							- Prepared a manual on schedule control, quality control and check of finished works using a Japanese construction control manual. - Prepared a education material for necessity and importance of construction control.	- The materials is useful for C/Ps to understand necessity and importance of construction control during OJT.	- The manual on outline of construction control will be revised and improved.	80%
			3-4-2-B. Quality control (soil test, concrete test)										
			3-4-2-C. Control of finished work quality										
Scope for Sustainability	C/Ps acquired technical knowledge and skills of constructing small irrigation canals and its construction control through the OJT. C/Ps will arrange the knowledge into manuals so that they can get such knowledge more firmly. There is a big issue that Cambodia does not have criteria and standards of construction control which could be guidelines for contract construction. Preparing appropriate criteria and standards will require more learning on proper construction methods to tackle the issue.												
	3-5. Produce manuals on water management techniques	3-5-1. Produce a manual on operation and maintenance of irrigation structures on-farm level								- Collected and arranged the papers and data related to water management. - Examined the existing water use through the workshop with farmers. - Conducted a series of workshops with the farmers of the T3.2.0 area.	- C/Ps examined and analyzed the papers and data. - The outline of water management manual were prepared. - C/Ps learned and confirmed process for activating farmer group work through conducting and reporting the workshops.	- A guideline will be prepared for using irrigation facilities in the model site. - C/Ps will assist the farmers of T3.2.0 in making their own O&M plan.	50%
		3-5-2. Produce a manual on water management techniques on-farm level										- A guidance will be prepared for solving problems in water management by farmers. - An example on establishing farmer groups and activating group work will be reported as an example of facilitation.	50%
Scope for Sustainability	Different from engineering matters, water management has not been technically established, and issues to be tackled in participatory water management differ in places according to the area's history, irrigation customary practices and socio-economic conditions. Considering short history in farmer group work for water management and short of experiences in water management of irrigation systems in Cambodia, TSC does not prepare manuals for established technique but reports on activities and process assisting farmers in establishing their own group and activating their group work. It will contribute to accumulation of experiences in the sector. In addition, C/Ps will acquire facilitating skills and knowledge for farmer group work through the activities.												
4. Training	4-1. Conduct training on survey	4-1-1. Conduct training on survey								- Conducted two training courses on basic survey targeting engineers and technicians of provincial level: 12 participants in March 2004, 16 participants in March 2005	- Provincial staff acquired basic knowledge and skills of survey. - C/Ps acquired the knowledge and skills more firmly through the experience of trainers in the lectures and practices.	- The target of the project was attained and provincial staff should learn more and higher knowledge and skills in survey.	100%
		4-1-2. Conduct training on hydrology and meteorology survey								- Conducted a training course for participants from Mekong Sub-region according to the request from Mekong River Commission.	- JICA experts made lectures but C/Ps helped conducting practices at site utilizing their experience of the survey in the OJT.	- A training course will be held in October 2005 with survey of flow rate and unit water requirement.	10%
		4-1-3. Conduct training on discharge measurement										- A training course will be held in October 2005 with survey of unit water requirement and meteo-hydrological observation.	0%
Scope for Sustainability	Since C/Ps acquired proper technical knowledge and skills through the OJT and preparing manuals, the Project conducted two training courses on basic survey for provincial staff. Though the technical levels of the participants varies considerably, many of them are still beginners and some of them can operate survey instruments without appropriate knowledge about survey and data arrangement. So, it will be necessary to conduct more training. C/Ps became able to make lectures and instructions in practices, and C/Ps should acquire wider knowledge and skills and prepare more teaching materials.												
	4-2. Conduct training on planning	4-2-1. Training on design water requirement and drainage discharge								- Conducted a training course for participants from Mekong Sub-region according to the request from Mekong River Commission.	- JICA experts made lectures but C/Ps helped conducting practices at site utilizing their experience of the survey in the OJT.	- A training course will be held in October 2005 with survey of flow rate and unit water requirement.	10%
Scope for Sustainability	According to the request from Mekong River Commission, TSC played an important role in conducting the training course on water requirement study in cooperation with Dr. Hara, former expert of DOM. C/Ps themselves will make lectures and practices in training courses which will be conducted for engineers and technicians of provincial departments, and it will help C/Ps firm understanding.												
	4-3. Conduct training on design techniques	4-3-1. Conduct training on design of open canal								- Conducted a training course on basic hydraulics for designing small irrigation canals in March 2004. - Conducted a training course on practical design for small irrigation canals and its related structures in March 2005.	- 10 participants from provincial departments acquired basic knowledge on hydraulics. - 15 participants from provincial departments experienced and learned design of small irrigation canals. - C/Ps acquired knowledge and skills more firmly through lectures and practices as lecturers.	- A training course will be held for designing canal crossing structures in September or October 2005.	70%
		4-3-2. Conduct training on design of related structures											
Scope for Sustainability	It was hard jobs for C/Ps to conduct training courses as lecturers just after their learning in the OJT and they have done fine jobs in such conditions and raise their own capabilities. Sustainability in conducting training courses will require more knowledge of C/Ps on basic subjects and more practices for them in designing various kinds of hydraulic structures. In addition, engineers and technicians of provincial departments has poor experience in designing irrigation facilities, and so the training courses on design have high priority in irrigation sector to implement more and better projects.												

Activities in Plan of Operations										Implementation		Final Target / Evaluation (Issues to be implemented)	Achieved rate (%)
Items				Project Period					contact person	Activities	Results / Achievements		
				1st yr	2nd yr	3rd	4th yr	5th yr					
	4-4. Conduct training on construction management techniques	4-4-1. Conduct training on construction planning and design documents	4-4-1-A. Construction process				●●			- Conducted a training course on basic construction control including outline of construction control, reading drawings and setting fixed rulers in November 2004 with 20 participants.	- many of provincial staff does not have experience in construction control and they understood its importance and tackle the practices very keenly. - C/Ps acquired knowledge and skills more firmly through lectures and practices as lecturers.	- The expected results were attained in practices in basic knowledge and skills.	100%
			4-4-1-B. Construction planning					●●				- A training course will be held on construction planning and construction control in October 2005.	0%
			4-4-2. Conduct training on construction management						●●●●		- Conducted a training course on practical construction control at the model site in January to April 2005 with 19 participants who joined the previous course.	- The participants acquired more practical knowledge and skills through the experience in the real construction site.	- A training course will be held on construction planning and construction control in October 2005.
Scope for Sustainability	Since C/Ps experience a couple times of construction for tertiary canals including construction planning, arrangement and control, they well conducted training courses on construction management for small irrigation canals. C/Ps also acquired proper knowledge and skills through the experience in training course as instructors. C/Ps will study harder to construct large and more sophisticated structures which requires careful planning and detailed control. Though many of training participants from provincial departments have some experience in construction, they do not have proper and sufficient experience in construction control. So, the training courses are very useful for them. The practices in the model site are very practical and effective for raising their capabilities, and it could therefore be applied in the future training courses.												
	4-5. Conduct training on water management techniques with participation of farmers	4-5-1. Conduct training on water management on farm level						●●		- Considered farmers' needs in training through a series of workshops. - Collected data from other areas - Collected information on the visit place for leaders of farmer groups where the farmer groups are active.	- Information from Takeo Province was collected and analyzed. - Information on three targeted areas was collected. - A draft of training plan was prepared. - A part of education materials were prepared.	- A training course will be held for the farmers in the model site in the second half of 2005.	40%
		4-5-2. Conduct training operation and maintenance of irrigation structure on farm						●●				- A workshop will be held for introducing the project activities on assistance of the farmer groups with participation of MOWRAM and PDWRAM staff in November 2005.	30%
Scope for Sustainability	Training is practical and effective for farmers to assist their water management work. It is important to listen farmers' opinions through conversations with farmers and to establish a framework where the farmers join various kinds of their own activities in order to determine the farmers' needs appropriately. Through a series of workshops among farmers, C/Ps are acquiring methods of finding issues in water management, solving them, and mobilizing farmers into various activities and whereby C/Ps also learns their proper positions with the farmers and methods of communicating the farmers. Some systems or training systems, with which C/Ps could share their experience and findings with other MOWRAM staff, are required to implement more and better water management in irrigation projects.												
Scope for Sustainability	The Project aims to raise a core group of irrigation engineers for technical supports and extension, based on the existing conditions of lack of technical supports and extension services, framework and human resources for conducting such services. The Project also recognized proper knowledge and skills in constructing small irrigation canals like tertiary canals and their water management with establishing active farmer groups as a feasible technical target. It could be said that C/Ps have acquired basic capacities to implement these kinds of jobs properly in a sustainable manner. If we think about sustainability of technical support and extension services which are primary and the most important target of the Project, organizational capacity building including establishing an organization for the services and its management system will be required in combination with more individual capacity building of its staff after the Project attains a certain level of capacity building of the C/Ps.												

- Achievement rate should be described in percent of progress against the final target.

- "Scope for sustainability" should be described for each type of activity, such as OJT, manuals and training, of each section.

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ANNEX II Tentative Project Design Matrix (1/2)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Irrigation projects are properly implemented by the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Provincial Bureau Services of Water Resources and Meteorology (hereinafter referred to as "PBSWRAM").	Number of rehabilitation projects undertaken by engineers and technicians of MOWRAM and PBSWRAM	Project records	
Project Purpose The technical capacity of the engineers and technicians of MOWRAM and PBSWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems.	Number of engineers and technicians who acquired sufficient knowledge and skill through training	1. Certificates issued for completion of training courses. 2. Self-evaluation of the trainees 3. Examination	1. Engineers and technicians who received training remain at MOWRAM and PBSWRAM. 2. The financial resources for MOWRAM are secured.
Outputs 1. The technical capacity of the counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT). 2. A training system is developed to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PBSWRAM.	Rate of achievement of the goals in each field that will be set at the first stage of this project Manuals related to survey, planning, design, construction management and water management with participation of farmers 10 C/Ps (2 C/Ps in each field × 5 fields) are trained to become trainers at the Technical Service Center. Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are prepared.	Mutual evaluation between Japanese experts and C/Ps Manuals Mutual evaluation between C/Ps and trainees Records of instruction by C/Ps Texts and curricula	1. Sufficient number of engineers and technicians of MOWRAM and PBSWRAM take the training courses.

Tentative Project Design Matrix (2/2)

Activities	Inputs		1. The counterparts continuously work with the Project.
	(Japanese Side)	(Cambodian Side)	
1. Assessment of technical capacity	1. Dispatch of experts: (1) Long-term experts: several persons / year such as: Chief Advisor; Project Coordinator / Farmers Survey; and Experts in the fields of 1) Survey / Planning 2) Design / Water Management 3) Construction Management	1. Assignment of counterpart personnel and other supporting staff members. (1) Project Director (2) Project Manager (3) Project Sub-Manager (4) counterpart personnel in the fields of: 1) Survey / Planning 2) Design / Water Management 3) Construction Management 4) Short-term experts (5) Administrative Staff (6) Technical Staff	
			Preconditions
			1. Adequate number of qualified counterparts are assigned.
2. Transfer of technology through OJT	(2) Short-term experts will be sent according to necessity.		2. Farmers are not against the Project.
2.1 Transfer survey techniques through OJT		2. Provision of land, buildings and facilities related to the Project	
2.2 Transfer planning techniques through OJT			
2.3 Transfer design techniques through OJT			
2.4 Transfer construction management techniques through OJT			
2.5 Transfer water management techniques with participation of farmers through OJT	2. Provision of equipment		
3. Production of manuals	3. Training of Cambodian counterpart personnel in Japan	3. Provision of machinery necessary for the Project.	
3.1 Produce a manual on survey techniques		4. Allocation of budget for:	
3.2 Produce a manual on planning techniques		(1) operation and maintenance of irrigation systems	
3.3 Produce design standard and a manual on design techniques and project evaluation		(2) personnel expenses of counterparts and other supporting staff	
3.4 Produce a manual on construction management techniques		(3) operating expenses necessary for the implementation of the Project	
3.5 Produce a manual on water management techniques with participation of farmers			
4. Training			
4.1 Conduct training on survey techniques			
4.2 Conduct training on planning techniques			
4.3 Conduct training on design techniques			
4.4 Conduct training on construction management techniques			
4.5 Conduct training on water management techniques with participation of farmers			

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Project Design Matrix (PDM)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Irrigation projects are properly implemented by the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Provincial Bureau Services of Water Resources and Meteorology (hereinafter referred to as "PBSWRAM").	Number of rehabilitation projects undertaken by engineers and technicians of MOWRAM and PBSWRAM Area where rehabilitation of irrigation facilities was conducted in Kandal Stung irrigation area by using technique that was transferred at the TSC project	Project records	
Project Purpose The technical capacity of the engineers and technicians of MOWRAM and PBSWRAM is improved in the fields of survey, planning, design, construction management and water management with participation of farmers for irrigation systems.	Number of engineers and technicians who acquired sufficient knowledge and skill through training	1. Certificates issued for completion of training courses. 2. Self-evaluation of the trainees 3. Examination	1. Engineers and technicians who received training remain at MOWRAM and PBSWRAM. 2. The financial resources for MOWRAM are secured.
Outputs 1. The technical capacity of the counterparts in the fields of survey, planning, design, construction management and water management with participation of farmers is improved through the On-the-Job Training (OJT). 2. A training system is developed to transfer skills in survey, planning, design, construction management and water management with participation of farmers to other engineers and technicians of MOWRAM and PBSWRAM.	Technology in the fields of Survey, Planning, Design, Construction management and Water management is transferred to 10 C/Ps (engineers and technicians), and 10 C/Ps become trainers and hold training courses. Manuals related to survey, planning, design, construction management and water management with participation of farmers. Texts and curricula for training courses on survey, planning, design, construction management and water management with participation of farmers are prepared.	Mutual evaluation between Japanese experts and C/Ps Report of Transferring technology through OJT Manuals Text and curricula Record of instruction by C/Ps	Sufficient number of engineers and technicians of MOWRAM and PBSWRAM take the training courses.
Activities 1. Assessment of technical capacity and setting of technical level 1.1. Collect data 1.2. Assess present technical capacity in the field of Survey 1.3. Assess present technical capacity in the field of planning 1.4. Assess present technical capacity in the field of design 1.5. Assess present technical capacity in the field of construction management 1.6. Assess present technical capacity in the field of water management 1.7. Set the level of skills to be transferred in each field 2. Transfer of technology through OJT 2.1. Transfer survey technique thorough OJT 2.2. Transfer planning techniques thorough OJT 2.3. Transfer design techniques through OJT 2.4. Transfer construction management techniques through OJT 2.5. Transfer water management techniques with participation of farmers thorough OJT 3. Production of manuals 3.1. Produce a manual on survey technique 3.2. Produce a manual on planning technique 3.3. Produce design standard and a manual on design techniques and project evaluation 3.4. Produce manuals on construction management techniques 3.5. Produce manuals on water management techniques with participation of farmers 4. Training 4.1. Conduct training on survey techniques 4.2. Conduct training on planning techniques 4.3. Conduct training on design techniques 4.4. Conduct training on construction management techniques 4.5. Conduct training on water management techniques with participation of farmers	Inputs (Japanese Side) 1. Dispatch of experts: (1) Long-term experts: several persons / year such as: Chief Advisor; Project Coordinator / Farmers Survey; and Experts in the fields of 1) Survey / Planning 2) Design / Water Management 3) Construction Management (2) Short-term experts will be sent according to necessity. 2. Provision of equipment 3. Training of Cambodian counterpart personnel in Japan	(Cambodian Side) 1. Assignment of counterpart personnel and other supporting staff members. (1) Project Director (2) Project Manager (3) Project Sub-Manager (4) Counterpart personnel in the fields of: 1) Survey / Planning 2) Design / Water Management 3) Construction Management 4) Short-term experts (5) Administrative Staff (6) Technical Staff 2. Provision of land, buildings and facilities related to the Project 3. Provision of machinery necessary for the Project. 4. Allocation of budget for: (1) operation and maintenance of irrigation systems (2) personnel expenses of counterparts and other supporting staff (3) operating expenses necessary for the implementation of the Project	The counterparts continuously work with the Project. Preconditions 1. Adequate number of qualified counterparts is assigned. 2. Farmers are not against the Project.

h-2

中間評価用 PDM (PDM e-mid)

プロジェクト名: 灌漑技術センター(TSC)計画
 ターゲットグループ: TSC の常勤カウンターパート及び水資源気象省、同省地方事務所の技術者
 対象地区: カンボジア全国
 プロジェクトサイト: トクトウラ、プノンペン(プロジェクト事務所)、及びカンダラスタン、カンダラ県(モデル地区)
 実施者: 水資源気象省(同省地方事務所含む)及び JICA
 協力期間: 5 年間(2001 1/10 - 2006 1/9)

バージョン: 3
 修正日: 2003 10/28

プロジェクトの要約	指標	指標データ入手手段	外部条件
上位目標 灌漑事業が水資源気象省と同省地方事務所により適切に実施される。	2011 年までに TSC で移転された技術を用いて、10 以上の事業が実施される。	水資源気象省文書	
プロジェクト目標 灌漑のための、調査、計画、設計、施工管理及び参加型水管理の分野で、水資源気象省及び同省地方事務所の技術者の技術力が向上する。	1. プロジェクト終了までに、10 名の常勤カウンターパートが、灌漑システムの研修を実施できるだけの技術力を身に付ける。 2. プロジェクト終了までに、水資源気象省と同省地方事務所の 100 名以上の技術者が、TSC の研修を通して技術力を向上する。	1. プロジェクト文書 2. 研修報告	1. 研修を受けた技術者が、水資源気象省及び同省地方事務所に残る。 2. 水資源気象省の予算が確保される。
成果 1. 調査、計画、設計、施工管理及び参加型水管理の分野で、常勤カウンターパートの技術力が、OJT(オンザジョブトレーニング)を通じて改善される。 2. 調査、計画、設計、施工管理及び参加型水管理の分野で、水資源気象省及び同省地方事務所の他の技術者に技術移転するための一連の研修が実施される。	1.1 プロジェクト終了までに、OJT を通じて習得した技術を用いて、カウンターパートによって灌漑排水施設が適切に整備される。 1.2 プロジェクト終了までに、調査、計画、設計、施工管理及び参加型水管理に関するマニュアルが作成される。 2. プロジェクト終了までに、調査、計画、設計、施工管理及び参加型水管理に関する研修のためのテキスト及びカリキュラムが作成される。	1.1 プロジェクト資料、モデル地区 1.2 マニュアル 2. テキスト及びカリキュラム	
活動			
1. 技術力の評価と目標技術レベルの設定 1.1. データを収集する 1.2. 調査分野での現況技術力を評価する 1.3. 計画分野での現況技術力を評価する 1.4. 設計分野での現況技術力を評価する 1.5. 施工管理分野での現況技術力を評価する 1.6. 参加型水管理分野での現況技術力を評価する 1.7. 各分野での技術移転のレベルを設定する 2. OJT を通じた技術移転 2.1. OJT を通じて調査技術を移転する 2.2. OJT を通じて計画技術を移転する 2.3. OJT を通じて設計技術を移転する 2.4. OJT を通じて施工管理技術を移転する 2.5. OJT を通じて参加型水管理技術を移転する 3. マニュアル作成 3.1. 調査技術のマニュアルを作成する 3.2. 計画技術のマニュアルを作成する 3.3. 設計基準及び設計技術と事業評価のマニュアルを作成する 3.4. 施工管理技術のマニュアルを作成する 3.5. 参加型水管理技術のマニュアルを作成する 4. 研修 4.1. 調査技術の研修を実施する 4.2. 計画技術の研修を実施する 4.3. 設計技術の研修を実施する 4.4. 施工管理技術の研修を実施する 4.5. 参加型水管理技術の研修を実施する	インプット		常勤カウンターパートは継続してプロジェクトで働く。
	(日本側) 1. 専門家派遣: (1) 長期専門家: 数名/年、以下参照: - チーフアドバイザー; - 業務調整/農家調査: 及び - 各分野専門家 1) 調査/計画 2) 設計/水管理 3) 施工管理 (2) 短期専門家は必要に応じて派遣される。 2. 資機材の調達 3. カウンターパート職員の本邦研修	(カンボジア側) 1. カウンターパート及び他職員の配置: (1) プロジェクトダイレクター (2) プロジェクトマネージャー (3) サブマネージャー (4) 常勤カウンターパート職員 1) 調査 / 計画 2) 設計 / 水管理 3) 施工管理 4) 短期専門家 (5) 事務職員 (6) 技術職員 2. プロジェクトに関する土地、建物及び施設の提供 3. プロジェクトに必要な機材の提供 4. 以下についての予算措置: (1) 灌漑システムの維持管理 (2) カウンターパート及び他職員の給与 (3) プロジェクト実施に必要な運転経費	前提条件 1. 十分な数の有能なカウンターパートが配置される。 2. 農民がプロジェクトに反対しない。