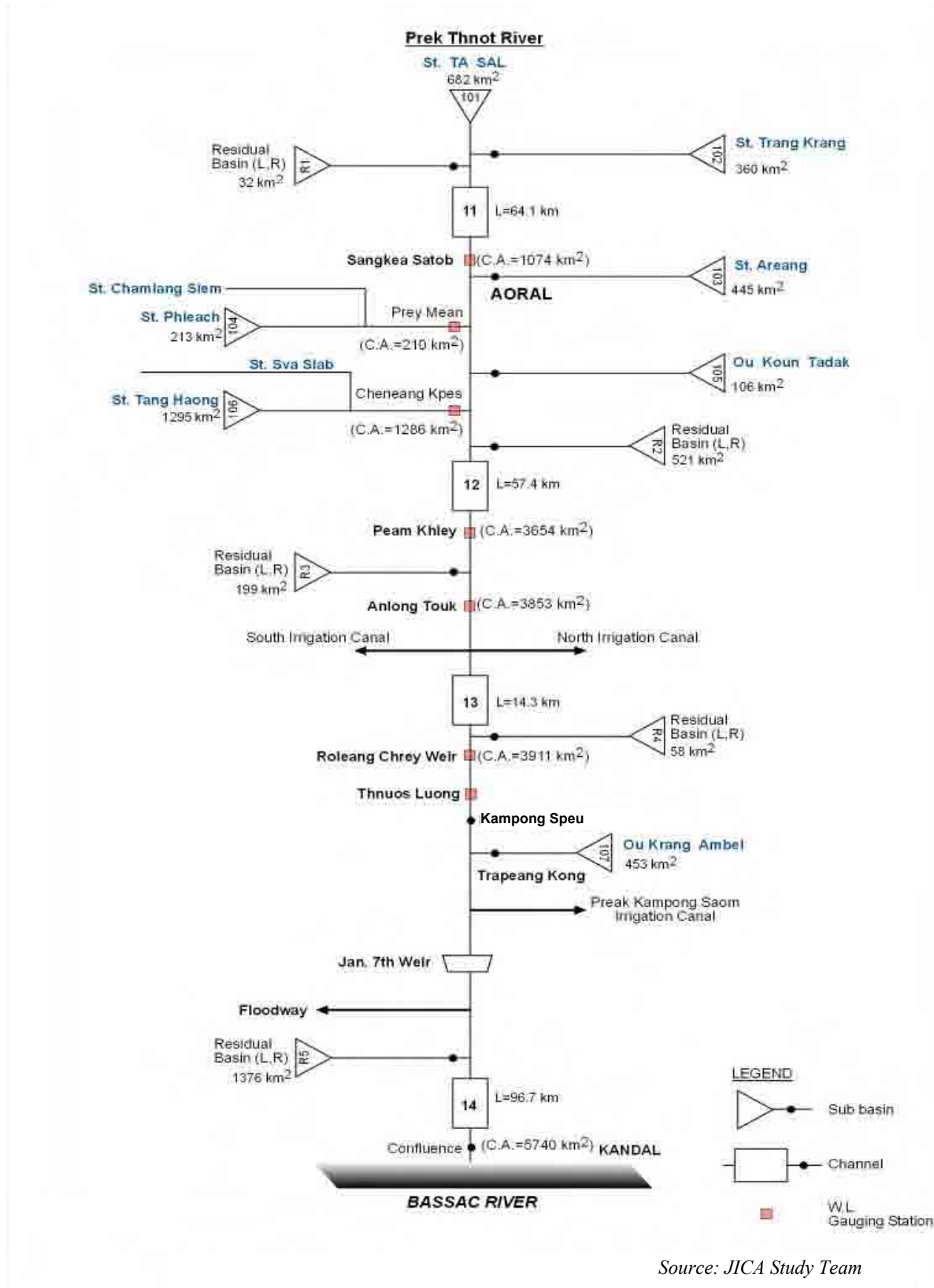


Figures

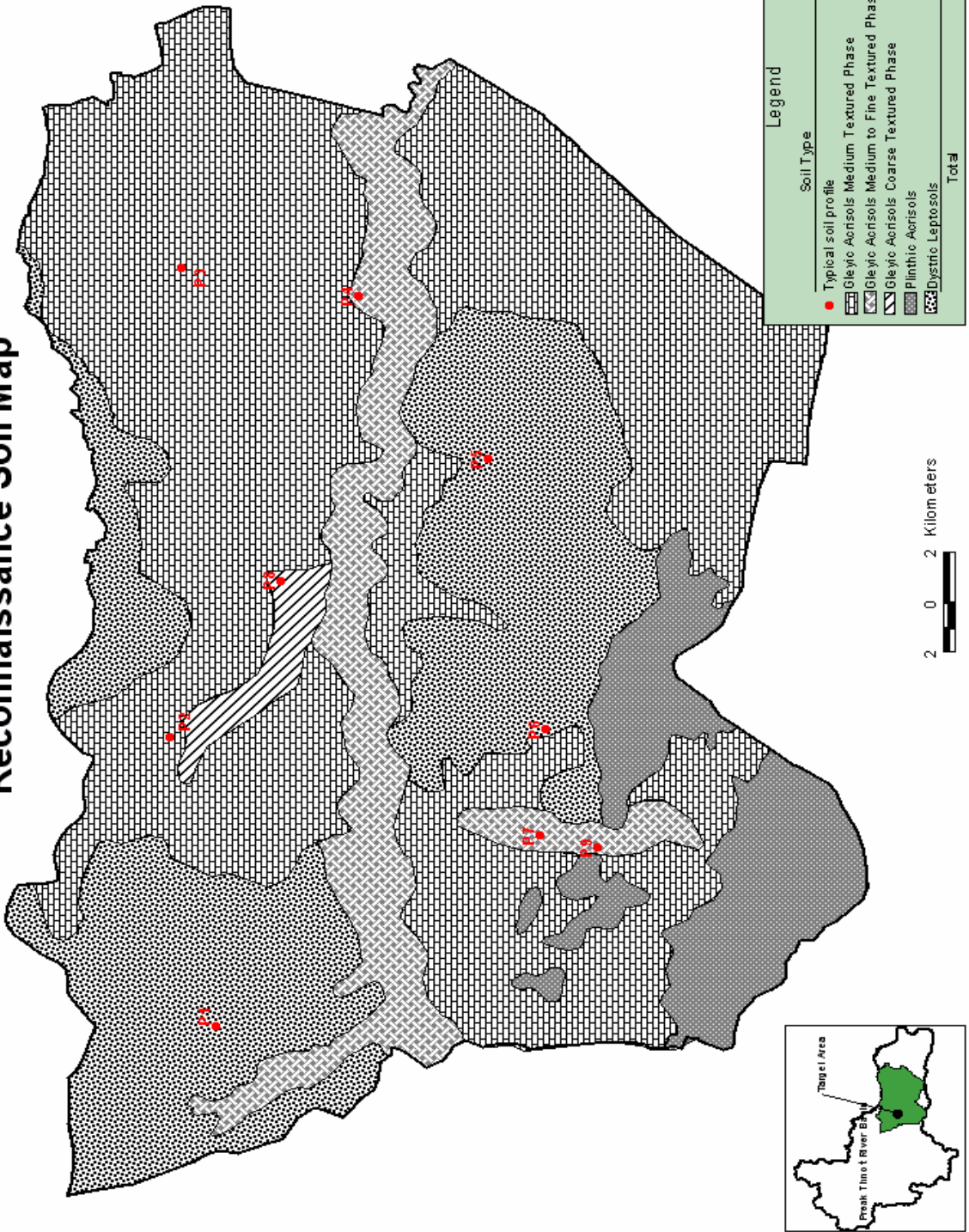


The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

Figure 3.2.1
Schematic Diagram of Prek Thnot River System

Reconnaissance Soil Map



The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

Figure 4.4.1
Reconnaissance Soil Map
of Target Area

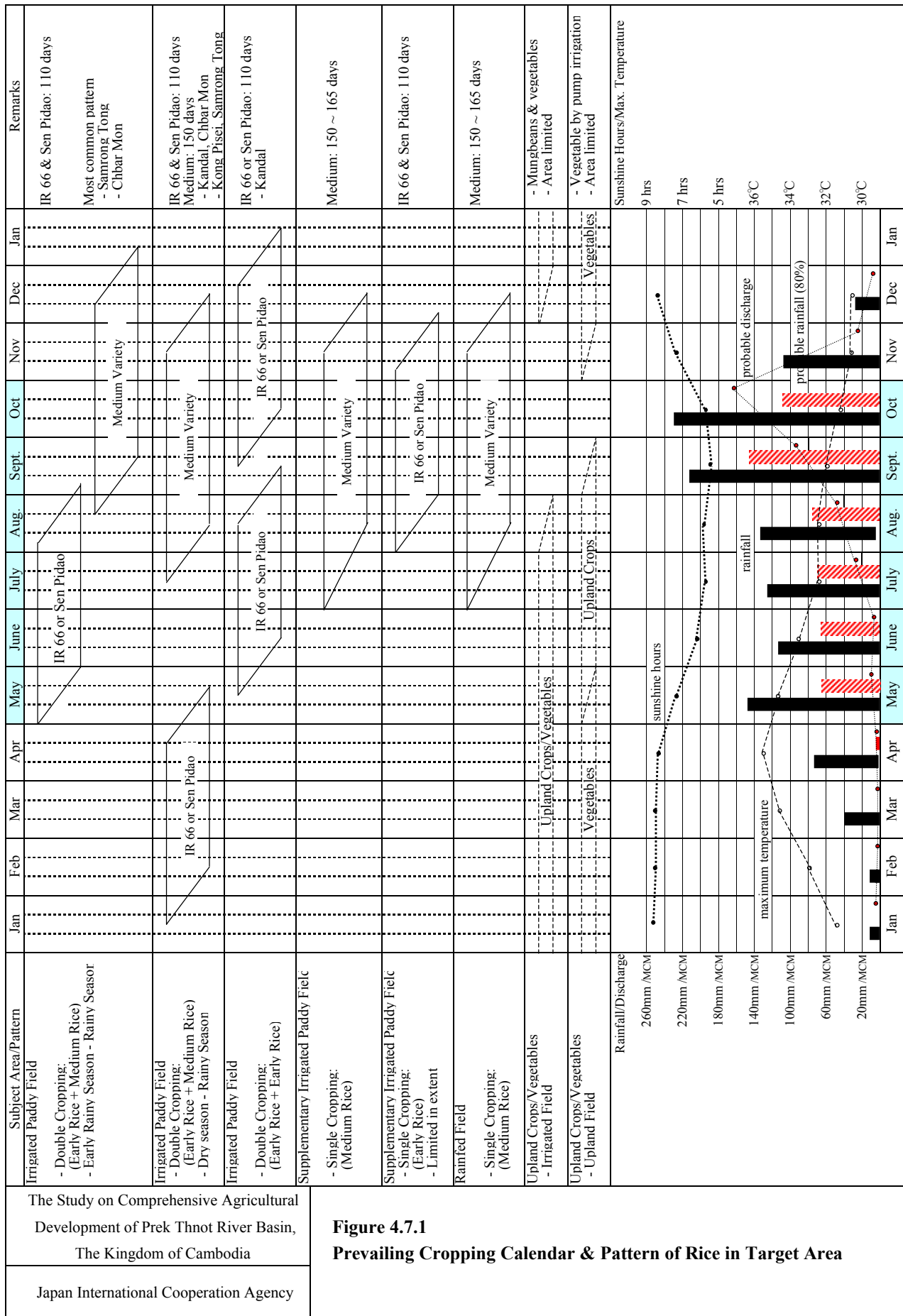
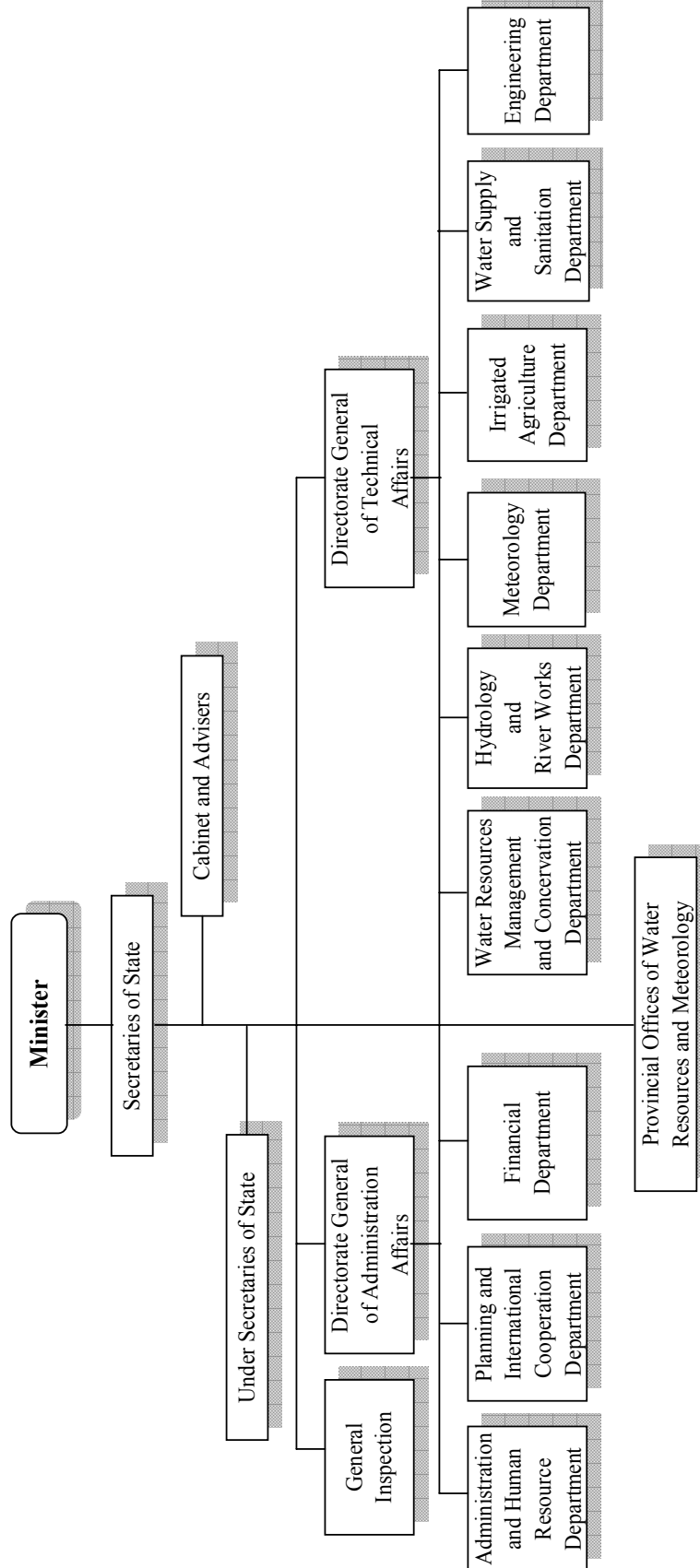


Figure 4.7.1
Prevailing Cropping Calendar & Pattern of Rice in Target Area

Rainfall: mean monthly rainfall at Kampong Speu from 1901~2004 except for 1973~1980 & 15

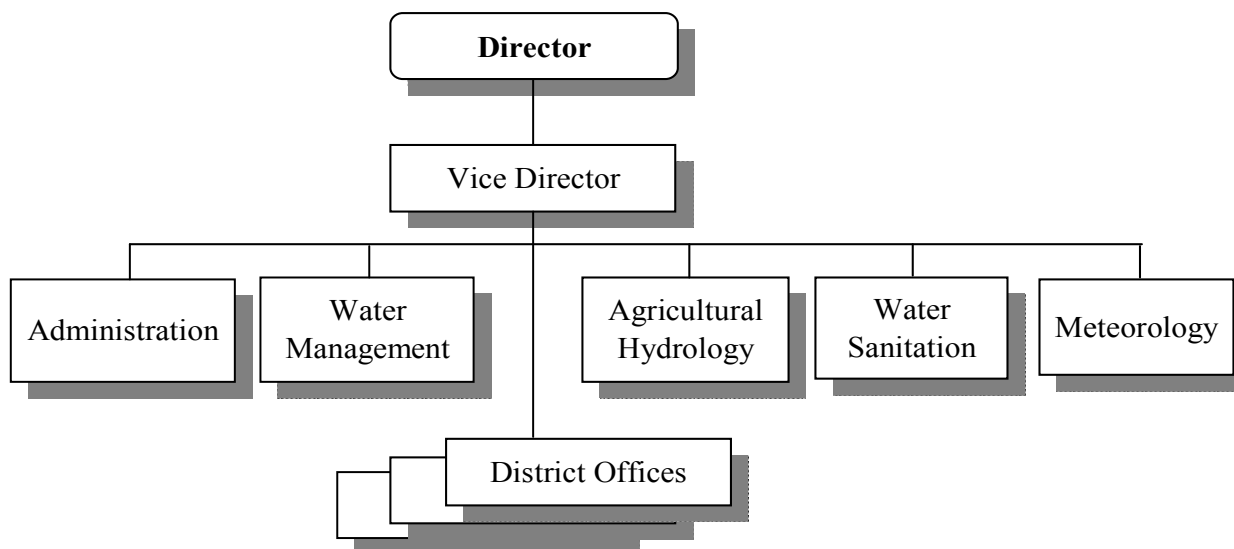
Probable discharge: At Roleng Chrey Headwork, Prek Khnot Riv Sunshine hour/maximum temperature: 1995 to 2005, source Department of Meteorology



The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

Figure 4.10.1
Organization Chart of MOWRAM



Staff Number of Provincial and District Offices Unit : no(s)

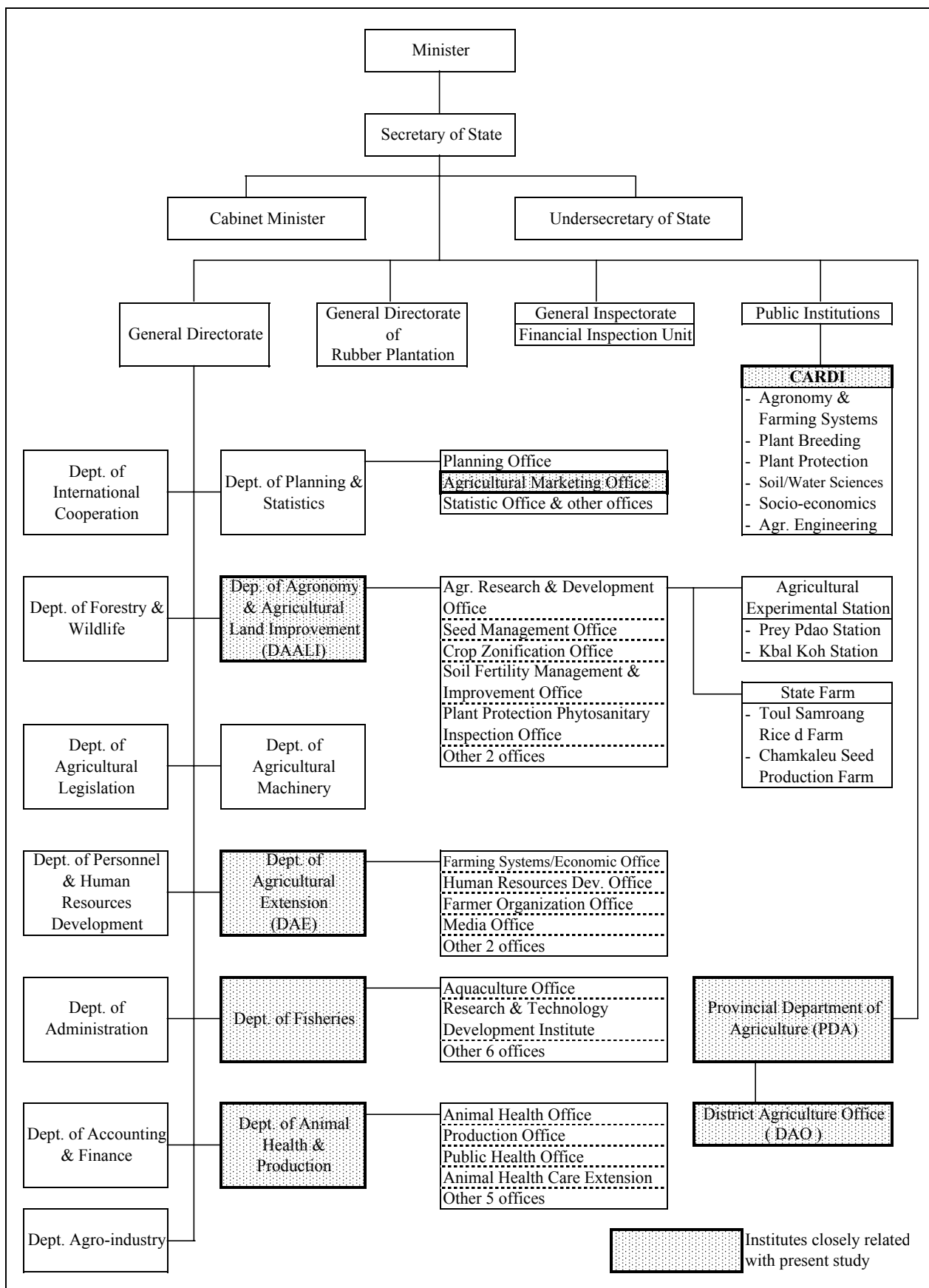
Province	Kampong Spue			Kandal	
(1) Provincial Office					
Director	1			1	
Vice Director	1			2	
Administration	5			7	
Water Management	5			3	
Agricultural Hydrology	7			9	
Water Sanitation	5			5	
Meteorology	5			2	
Total	29			29	
District	Chabar Mon	Kong Pisei	Samraong Tom	Kandal Stueng	Angk Snuol
(2) District Office	1	1	1	3	4

Source: Kampong Spue and Kandal PDOWRAM (As of November 2005)

The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

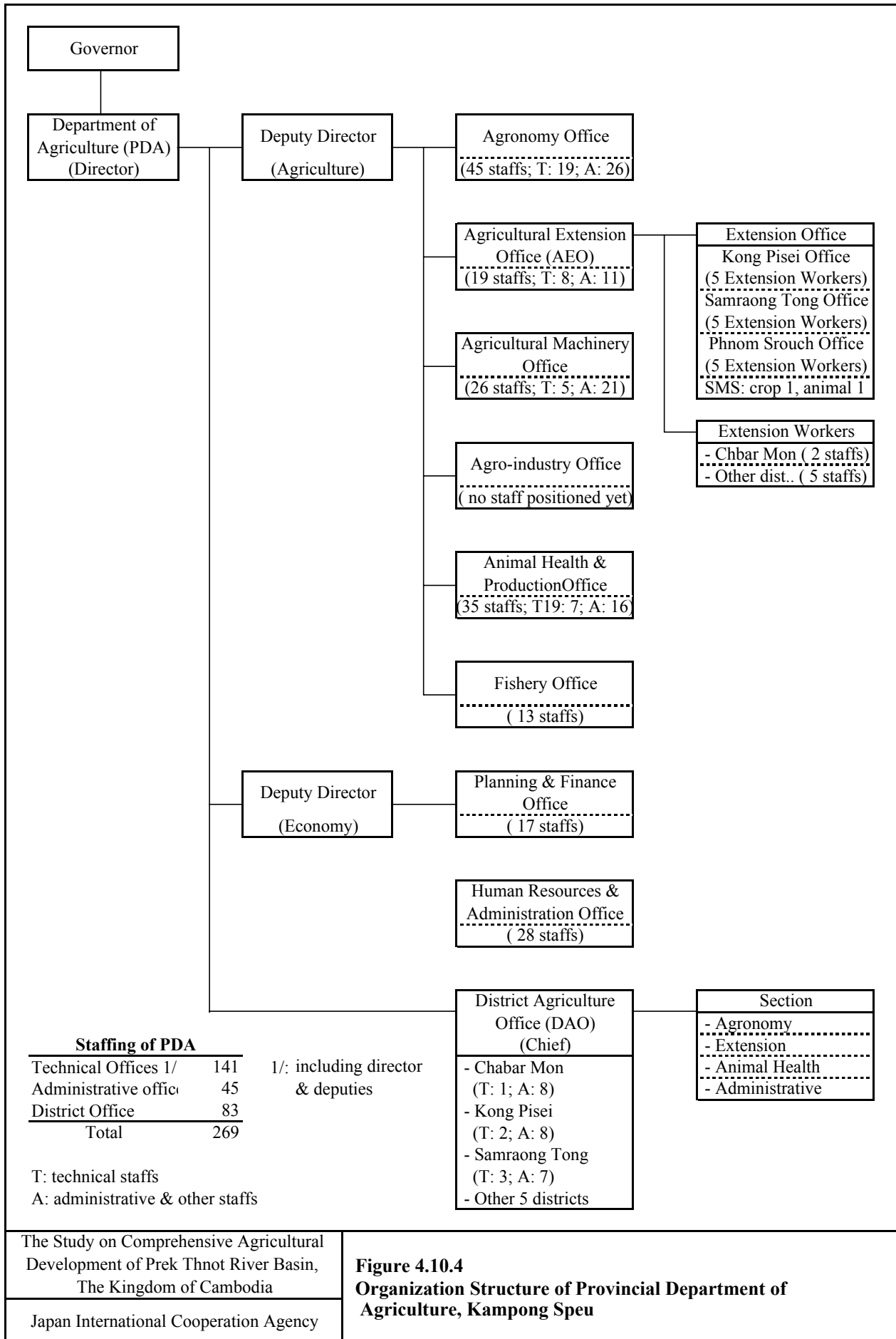
Figure 4.10.2
Organization Chart of PDOWRAM

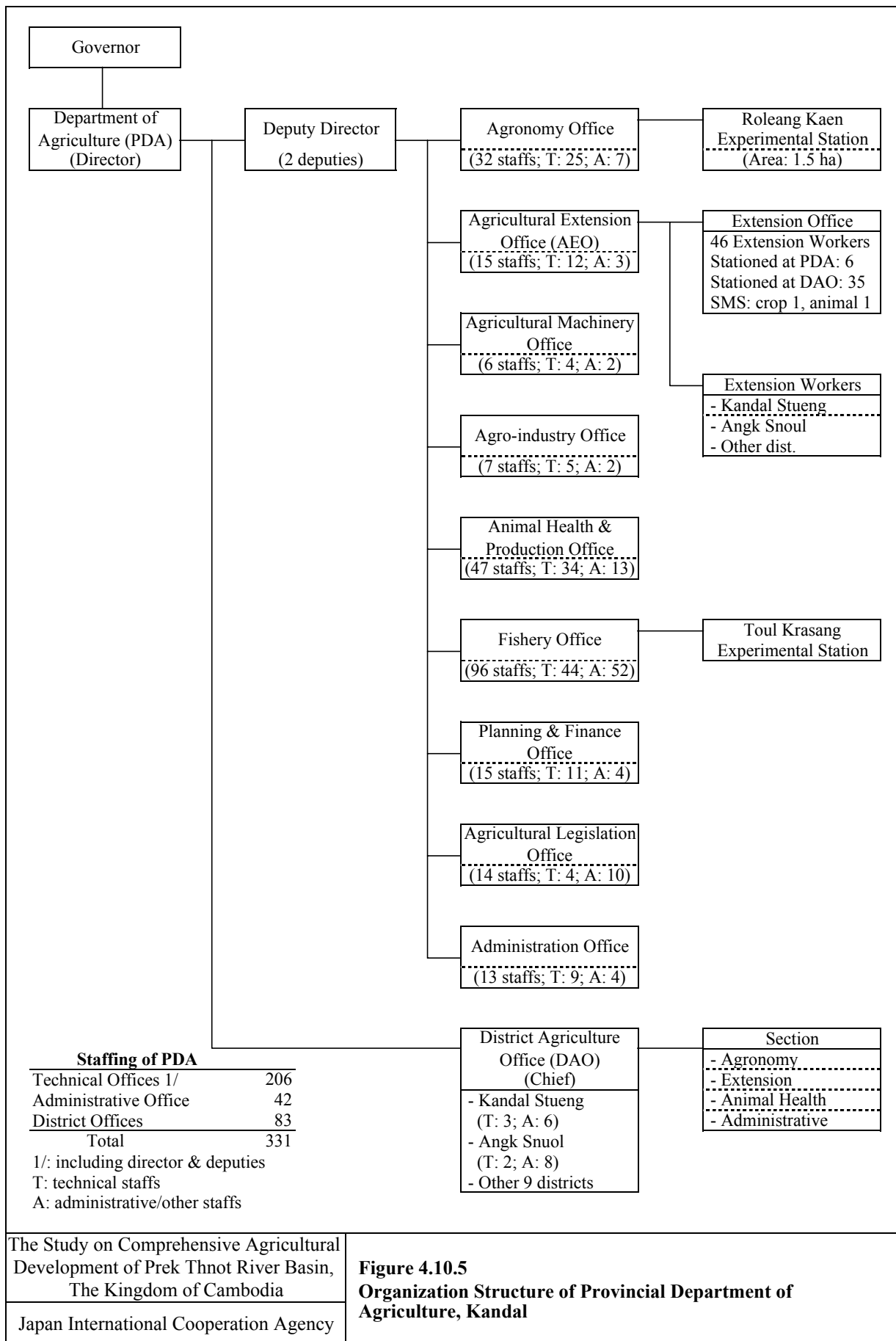


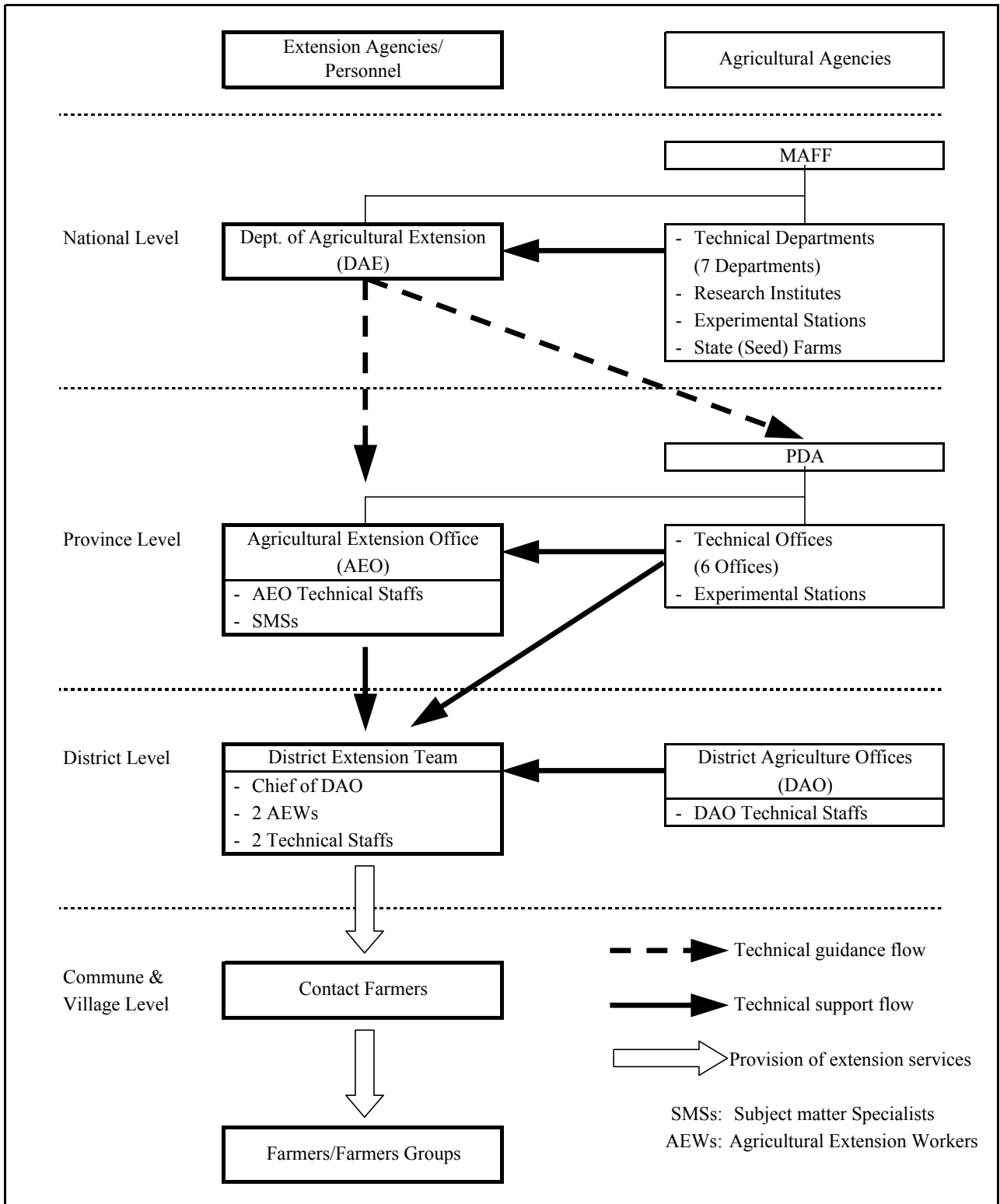
The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

Figure 4.10.3
Organization Structure of Ministry of Agriculture, Forestry & Fisheries (MAFF)



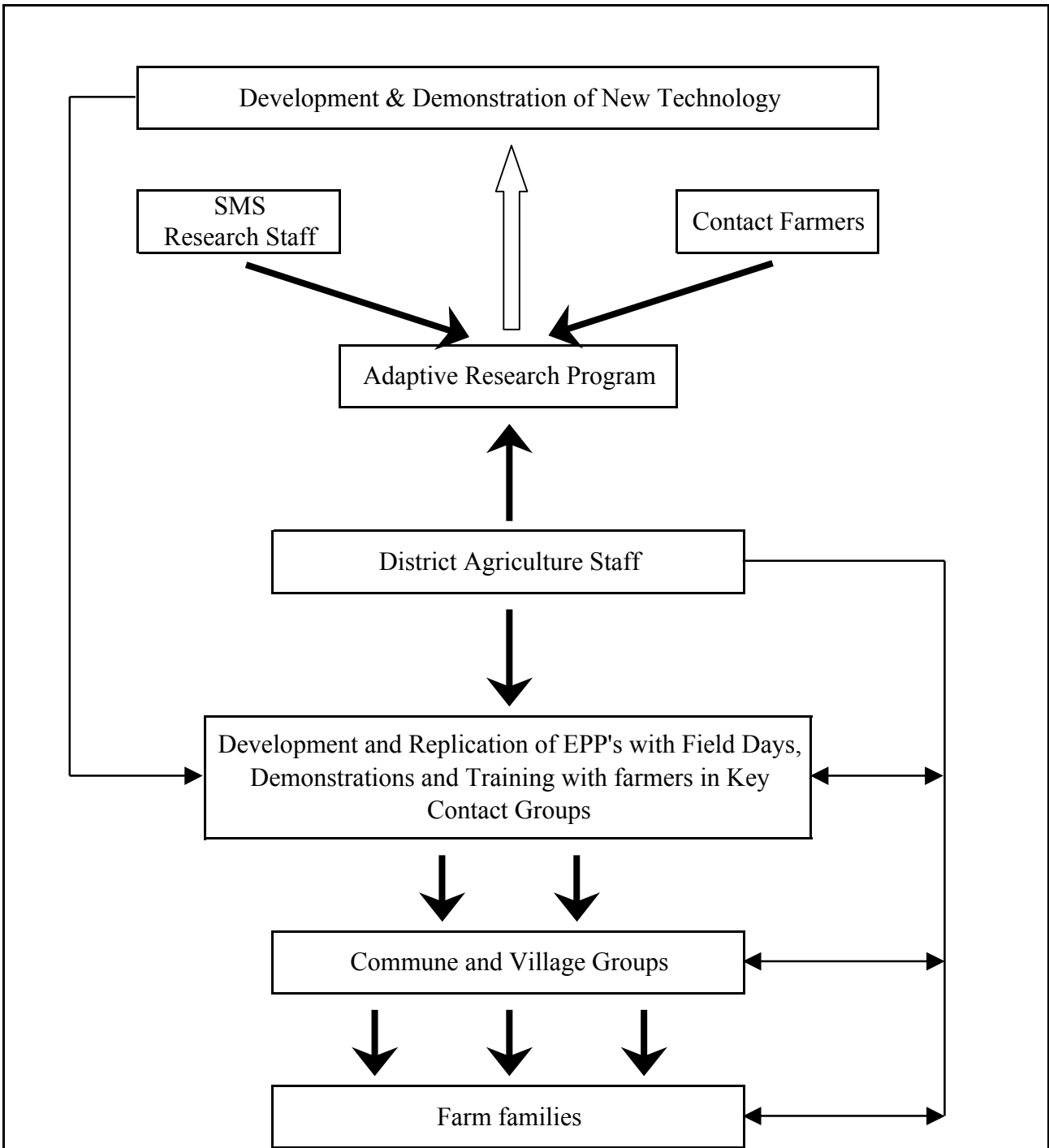




The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

Figure 4.11.1
Institutional Set-up of Proposed Agricultural Extension System in Cambodia

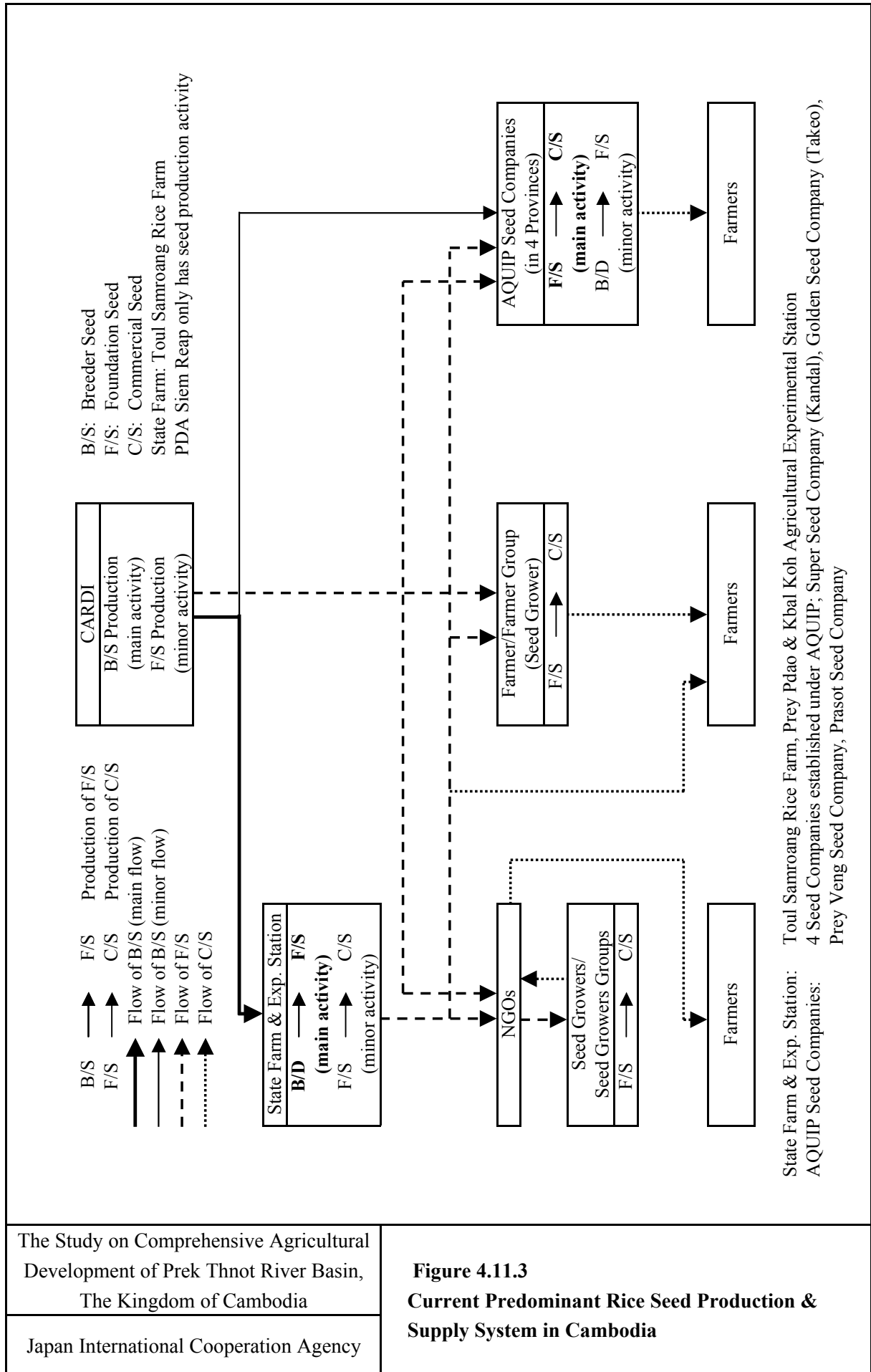


EPP: Extension Programs Package (currently named as TIP/Technical Implementation Procedures)

The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia
 Japan International Cooperation Agency

Figure 4.11.2
Schematic Presentation of Technology Transfer Role of District Agriculture Staff

Source: Guidelines for Agricultural Extension in Cambodia, 2000, CAAEP



The Study on Comprehensive Agricultural Development of Prek Thnot River Basin, The Kingdom of Cambodia

Japan International Cooperation Agency

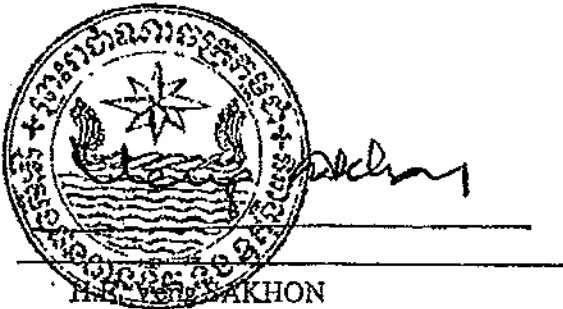
Figure 4.11.3
Current Predominant Rice Seed Production & Supply System in Cambodia

Attachments

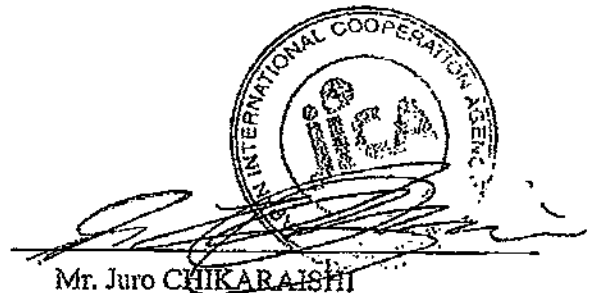
Attachment-1
Scope of Work for the Study
and
Minutes of Meeting on
Draft on Scope of Work

SCOPE OF WORK
FOR
THE STUDY
ON COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA
AGREED UPON BETWEEN
MINISTRY OF WATER RESOURCES AND METEOROLOGY
IN THE KINGDOM OF CAMBODIA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Phnom Penh, April 11, 2005



HEAVY VENGSAKHON
Secretary of State,
The Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia



Mr. Juro CHIKARAISHI
Resident Representative,
JICA Cambodia Office

I. INTRODUCTION

In response to the request of the Royal Government of Cambodia (hereinafter referred to as "RGC"), the Government of Japan (hereinafter referred to as "GOJ") decided to conduct the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

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The present document sets forth the Scope of Work with regard to the Study.

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The objectives of the Study are:

1. To formulate the master plan on Agricultural Development (hereinafter referred to as "M/P") in order to improve the agricultural productivity in the Prek Thnot River Basin;
2. To implement the feasibility study (hereinafter referred to as "F/S") on the rehabilitation of existing irrigation and drainage facilities with high priority / urgency mainly for the improvement of rice cultivation.
3. To formulate flood forecast and warning plan.
4. To transfer technologies to the counterpart personnel through on-the-job training in the course of the Study.

III. STUDY AREA

The target area of M/P will cover the agricultural land which is mainly paddy field in the Prek Thnot River basin that is located in Chabar Mon District, part of Samraong Tong and Kong Pisei Districts in Kampong Speu Province and part of Districts of Ang Snuol and Kandal Stueng Districts in Kandal Province situated from Roleang Chrey Regulator to the west of National Road No.3.

And the Study Area shall include the basin both in the upstream and downstream.

Refer to the location map attached as Annex 1.


IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Scope of Work for the Study shall cover the following activities:

[Phase 1]

(1) To carry out Basic Study.

- Review of the existing reports and relevant information on the Study area.



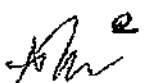
- Additional survey to the existing study.
- (2) To formulate Draft M/P composed of the following Items;
 1. Irrigation and Drainage / Management of the agricultural water.
 - Establishment of the appropriate irrigation and drainage system by efficiently utilizing existing facilities.
 - Efficient utilization / management of the agricultural water.
 2. Farming / Cultivation.
 - Farming / Cultivation plan suitable to the locations.
 - Improvement of technologies on farming / cultivation.
 3. Environmental and Social Considerations.
 - Execution of Initial Environmental Examination (IEE) as shown in Annex 3.
- (3) To formulate hydrological observation plan.
 - Establishment of hydrological observation system / equipment.
- (4) To formulate the framework on flood forecast and warning plan.
 - Survey on the flood damage.
 - Formulation of the framework on flood forecast and warning plan.

[Phase 2]

- (1) To verify Draft M/P through implementing a part of the priority items as Pilot Projects.
 - Testing cultivation with technologies on farming / cultivation shown in Draft M/P.
 - Implementation of utilization / management of the agricultural water on testing sites.
- (2) To implement F/S within one year on the rehabilitation of existing irrigation and drainage facilities with high priority / urgency.
 - Implementation of F/S on the rehabilitation of existing irrigation and drainage facilities with high priority.
 - Implementation of Environmental Impact Assessment (EIA) as shown in Annex 3.
- (3) To follow up hydrological observation plan
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 - Drawing up the hazard map of flood.
 - Formulation of the operation rules for the Roleang Chrey and the Kandal Stung Regulators.
 - Establishment of the flood forecast and warning system.
- (5) To finalize M/P.
 - To feed back the result of the Pilot Projects to Draft M/P.
 - To finalize M/P.

[Phase I and II]

To transfer technologies to the counterpart personnel through on-the-job training in the course



of the Study.

- Technology on formulating plans.
- Technology on Environmental and Social Considerations in the development.

V. WORK SCHEDULE

The Study will be carried out in accordance with the tentative schedule as attached in the Annex 2.

VI. REPORTS

JICA shall prepare and submit the following reports in English to RGC.

1. Inception Report:

Thirty (30) copies at the commencement of Phase 1 work in Cambodia.

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3. Interim Report 1 and 2:

Interim Report 1 and 2 include the results of Draft M/P and F/S respectively

Thirty (30) copies at the commencement of the Phase 2 works in Cambodia.

4. Progress Report 2 and 3:

Thirty (30) copies at the end of the Phase 2 works in Cambodia.

5. Draft Final Report:

Thirty (30) copies after the Phase 2 work in Japan. RGC shall submit its comments to JICA Cambodia Office within one (1) month after the receipt of the Draft Final Report.

6. Final Report:

Fifty (50) copies will be submitted within one (1) month after the receipt of the comments on the Draft Final Report.

VII. UNDERTAKINGS OF THE RGC

1. To facilitate the smooth conduct of the Study; RGC shall take necessary measures:

- (1) To permit the members of the Japanese study team to enter, leave and sojourn in Cambodia for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees;
- (2) To exempt the members of the Japanese study team from taxes, duties and any other charges on equipment, machinery and other material brought into Cambodia for the implementation of the Study;
- (3) To exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the



- Japanese study team for their services in connection with the implementation of the Study;
- (4) To provide necessary facilities to the Japanese study team for the remittance as well as utilization of the funds introduced into Cambodia from Japan in connection with the implementation of the study;
2. RGC shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the Japanese study team.
 3. Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and Ministry of Agriculture, Forestry and Fisheries (hereinafter referred to as "MAFF") act as counterpart agencies to the Japanese study team and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study, on behalf of RGC.
 4. MOWRAM and MAFF shall, at their own expense, provide the Japanese Study Team with the following, in cooperation with other organizations concerned:
 - (1) Security-related information on as well as measures to ensure the safety of the Japanese study team;
 - (2) Information on as well as support in obtaining medical services;
 - (3) Available data (including maps and photographs) and information related to the Study;
 - (4) Counterpart personnel;
 - (5) Suitable office space with necessary equipment; and
 - (6) Credentials or identification cards.

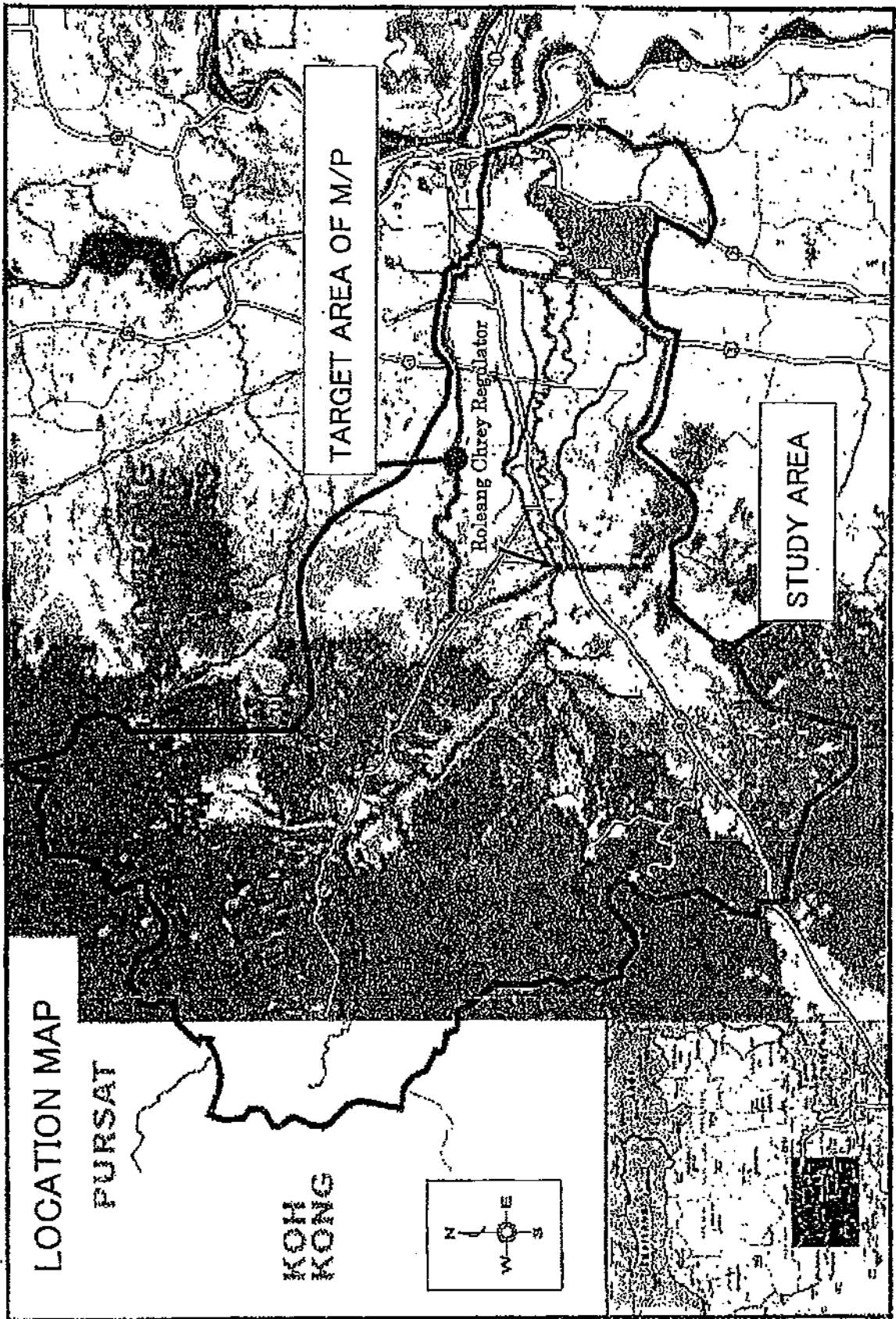
VIII. CONSULTATION

JICA, MOWRAM and MAFF shall consult with each other in respect of any matter that may arise from or in connection with the Study.



Location Map

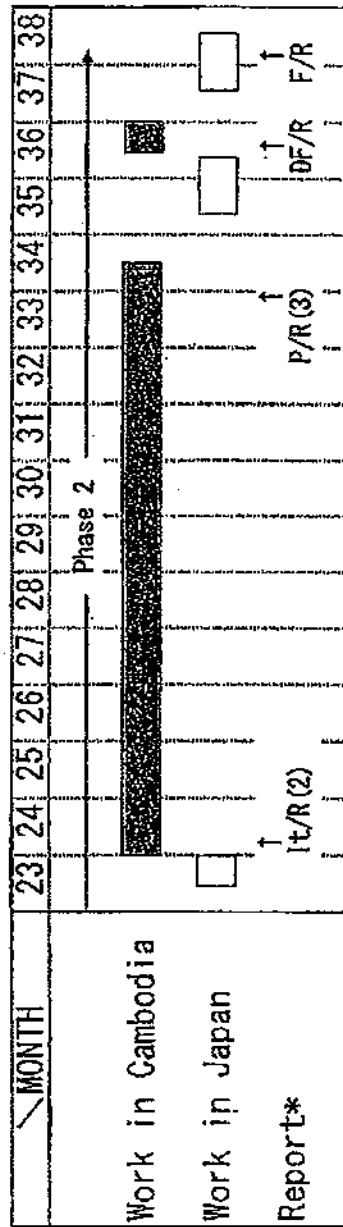
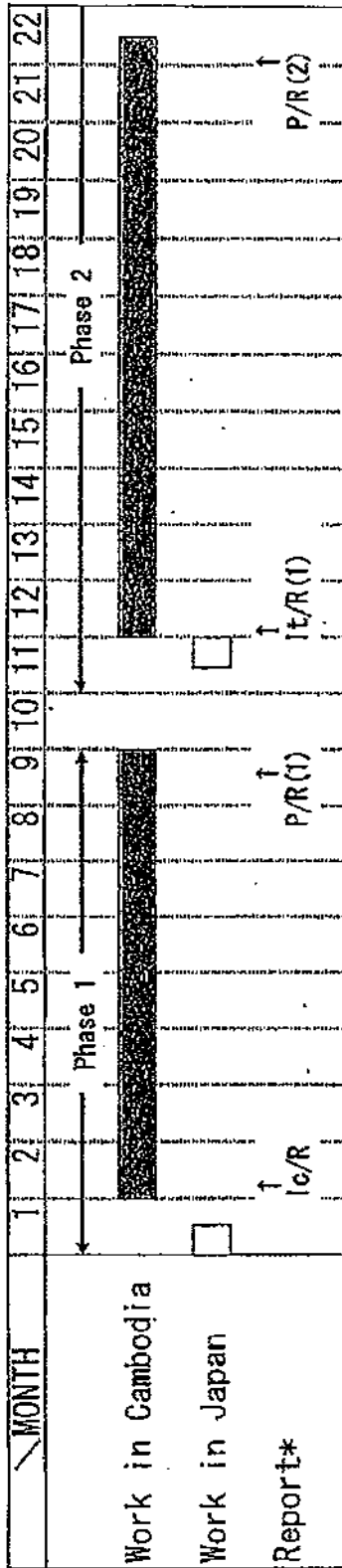
(Annex 1)



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TENTATIVE WORK SCHEDULE

(ANNEX2)



*Report

Ic/R: Inception Report P/R: Progress Report It/R: Interim Report,
 DF/R: Draft Final Report F/R: Final Report

Handwritten signature

Draft Terms of Reference (TOR) for Environmental and Social Consideration Study

Initial Environmental Examination (IEE)

The IBE study includes the following items.

1. Policy, Legal and Administrative Framework
2. Project Description
 - 2.1 Irrigation and Drainage Facilities
 - 2.2 Operation and Management of Irrigation and Drainage Facilities
 - 2.3 Farming and Cultivation
3. Description of Environment in the Study Area
To use secondary data and conduct simple field surveys
4. Environmental Impacts
To predict and assess environmental impacts
5. Analysis of Alternatives
6. Environmental Management Plan (EMP)
To prepare mitigation measures and monitoring plans
7. Consultation
To record consultation meetings with stakeholders

Terms of Reference (TOR) for Environmental Impact Assessment (EIA) are prepared.

Environmental Impact Assessment (EIA)

The following items are examples of the study contents. TOR is decided in IEE study.

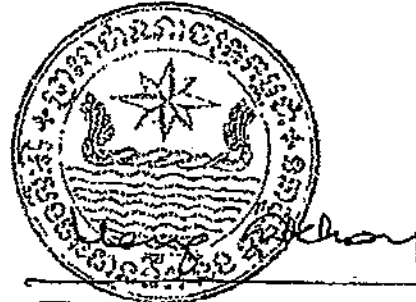
1. Policy, Legal and Administrative Framework
2. Project Description
3. Description of Environment in the Study Area
 - 3.1 Sampling and Analysis of Water Quality and Soil
 - 3.2 Site Survey of Surrounding Ecosystems and Biological Communities
4. Environmental Impacts
5. Analysis of Alternatives
6. Environmental Management Plan (EMP)
7. Consultation

MINUTES OF MEETING
ON
DRAFT
ON
SCOPE OF WORK
FOR
THE STUDY
ON COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA
AGREED UPON BETWEEN
MINISTRY OF WATER RESOURCES AND METEOROLOGY
IN THE KINGDOM OF CAMBODIA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Phnom Penh, January 26, 2005

荒井博之

Mr. Hiroyuki ARAI
Leader,
Preparatory Study Team,
Japan International Cooperation
Agency (JICA)



H.E. Veng SAKHON
Secretary of State,
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia

I. INTRODUCTION

In response to a request of the Royal Government of Cambodia (hereinafter referred to as "RGC"), the Preparatory Study Team headed by Mr. Hiroyuki ARAI (hereinafter referred to as "the Japanese side"), was sent to the Kingdom of Cambodia by Japan International Cooperation Agency (hereinafter referred to as "JICA"), from 17th January to 6th February, 2005 for the purpose of discussing and confirming the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study").

The Japanese side held a series of discussions with the relevant authorities of Cambodia represented by H.E. Veng SAKHON, Secretary of State, Ministry of Water Resources and Meteorology, the Kingdom of Cambodia (hereinafter referred to as "the Cambodian side"). As a result of the discussions, the Cambodian side and the Japanese side agreed on the Draft on Scope of Work for the Study as shown in Annex 1.

The followings are the main issues discussed and agreed on by both sides in relation to the Draft on Scope of Work for the Study. The list of participants in the series of meetings is attached as Annex 2.

II. RESULTS OF DISCUSSION

[Implementing structure of the study]

1. Steering Committee

For the smooth and effective implementation of the Study, both sides agreed that it is essential to establish the Steering Committee chaired by the Secretary of State, Ministry of Water Resources and Meteorology and vice-chaired by the Undersecretary of State, Ministry of Agriculture Forestry and Fisheries. The Steering Committee will be held to examine the results and activities of the Study once a year and more if necessary. Expected members of the Steering Committee are as follows:

(a) Cambodian side:

- Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM")
- Ministry of Agriculture Forestry and Fisheries (hereinafter referred to as "MAFF")
- Cambodia National Mekong Committee (hereinafter referred to as "CNMC")
- Ministry of Environment
- Ministry of Economy and Finance

(b) Japanese side:

- The Japanese study team
- JICA Cambodia Office
- Embassy of Japan



2. Counterpart Personnel

Both sides agreed that the Steering Committee should take responsibility for assigning qualified counterpart personnel for the Japanese study team at the beginning of the Study.

[Scope of the Study]

1. Topographic Survey

The Cambodian side requested the topographic survey in the target area. The Japanese side recognized the necessity of the survey.

2. Hydrological Observation

Both side agreed that the hydrological observation would be conducted as soon as possible after the installation of observation equipments.

3. Feasibility Study

Both sides agreed that the Feasibility Study would be conducted on the rehabilitation of existing irrigation and drainage facilities with high priority / urgency shown in Draft M/P in Phase 2, and the contents of the Feasibility Study would be decided in Phase 1.

4. Pilot Project

Both sides agreed that the Pilot Projects would be implemented for the prior activities shown in Draft M/P in Phase 2, and the contents of the Pilot Projects would be decided in Phase 1.

5. Environmental and Social Considerations

The Cambodian side requested the technology transfer of Environmental and Social Considerations. The Japanese side recognized the necessity of the technology transfer.

[Report]

1. Final Report

Both sides agreed that the Final Report of the Study would be made open to the public.

2. Reports in Khmer language

The Cambodian side requested summaries of Inception Report, Interim Reports, and Final Report will be translated into Khmer language.

[Under Taking]

1. Necessary Equipment and Facilities for the Study

The Cambodian side will provide suitable office spaces equipped with desks, chairs and telephone lines in Phnom Penh to the Japanese study team.

The Cambodian side requested that the following equipments for the Study would be provided by

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JICA. The Japanese side promised to convey the request to JICA headquarters.

- Vehicles
- Agro-Meteorological station
- Water quality monitoring equipment

[Technology Transfer]

1. Seminar

Both sides agreed to hold seminars in the course of and at the end of the Study. The seminars are to be jointly organized by the Cambodian side and the Japanese study team.

2. Training of Counterpart Personnel in Japan

The Cambodian side requested counterpart training in Japan for effective technology transfer. The Japanese side promised to convey the request to the JICA headquarters.

[Others]

1. Signing of the Scope of Work

The Scope of Work will be signed between JICA Resident Representative and Secretary of State, MOWRAM afterwards.

2. Commencement of the Study

The Japanese side notified that the Study will be commenced at the beginning of June 2005 at present time.

3. Implementation of the concerned project

The Cambodian side requested that some rehabilitation projects (e.g. repair of gates and canals or development of small scale structures) will be implemented as soon as possible even in the course of the Study, and the concerned project will be implemented without delay. The Japanese side promised to convey it to the Government of Japan.

DRAFT
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- Technology on formulating plans.
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 - (5) Suitable office space with necessary equipment; and
 - (6) Credentials or identification cards.

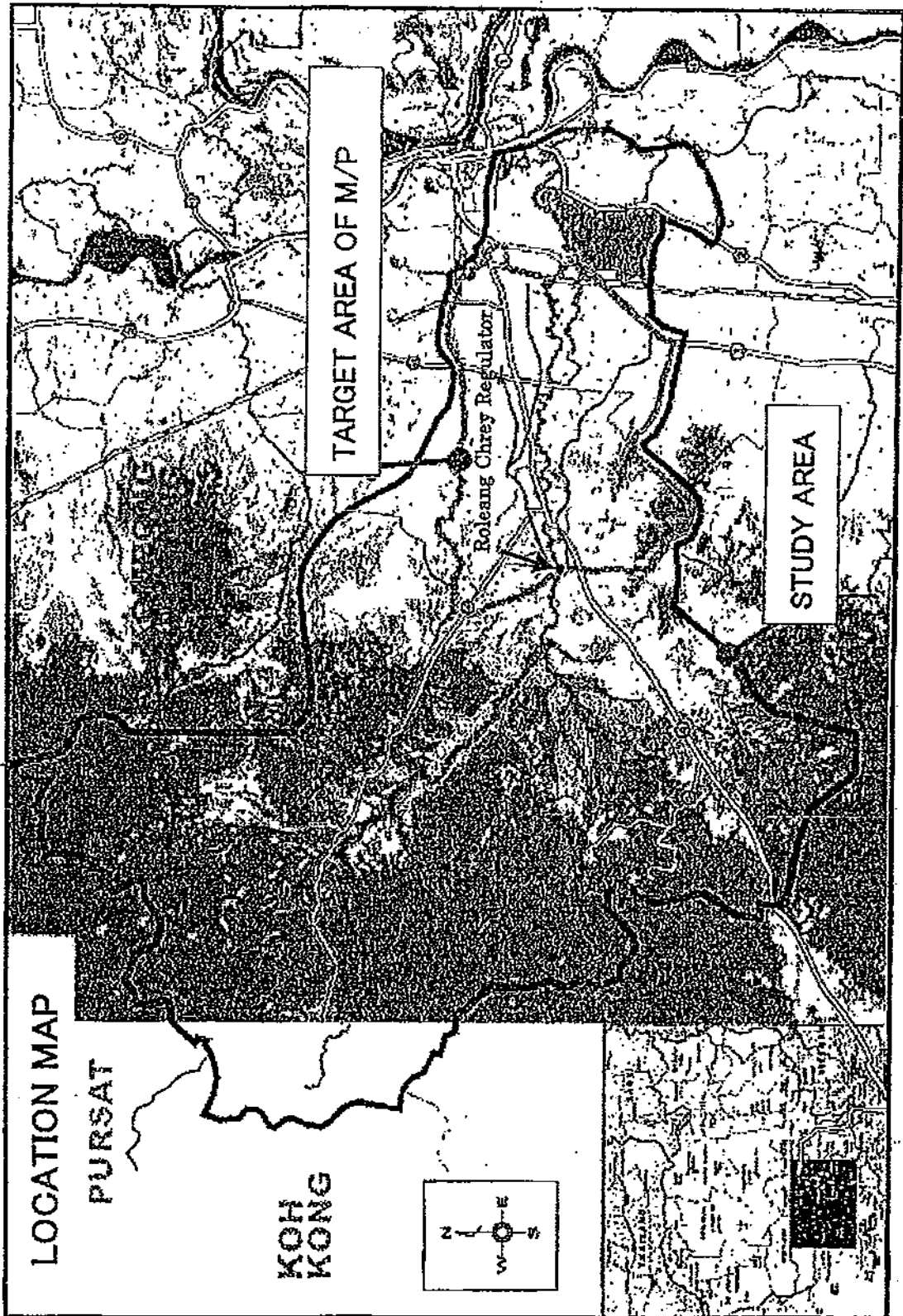
VIII. CONSULTATION

JICA, MOWRAM and MAFF shall consult with each other in respect of any matter that may arise from or in connection with the Study.



Location Map

(Annex 1 of Draft S/W)

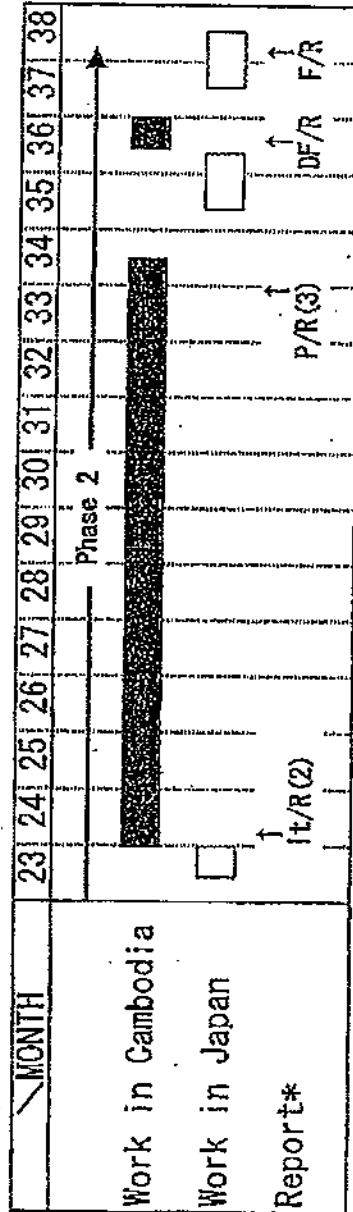
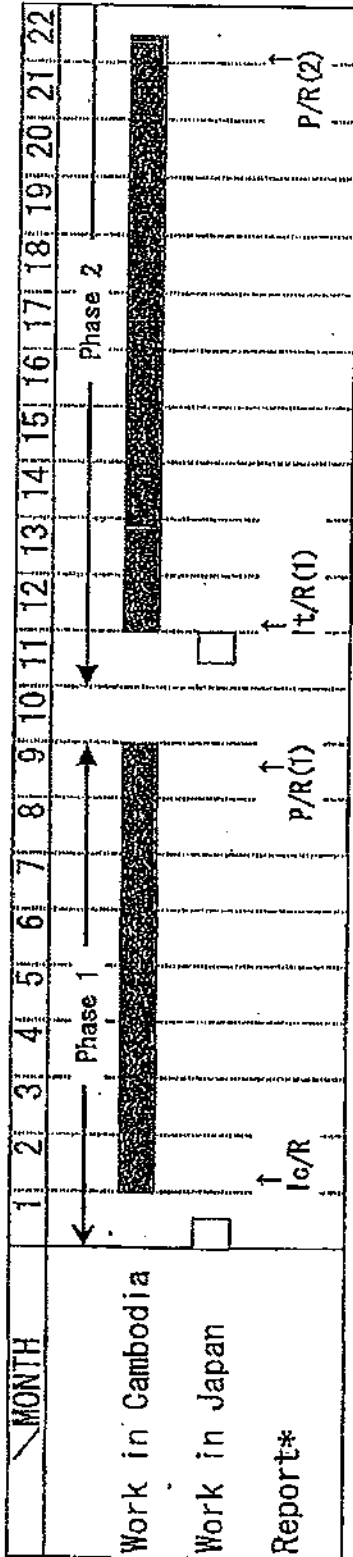


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TENTATIVE WORK SCHEDULE

(ANNEX2 of Draft S/W)



*Report
 Ic/R: Inception Report P/R: Progress Report It/R: Interim Report,
 DF/R: Draft Final Report F/R: Final Report



(Annex 3 of Draft S/W)

Draft Terms of Reference (TOR) for Environmental and Social Consideration Study

Initial Environmental Examination (IEE)

The IEE study includes the following items.

1. Policy, Legal and Administrative Framework
2. Project Description
 - 2.1 Irrigation and Drainage Facilities
 - 2.2 Operation and Management of Irrigation and Drainage Facilities
 - 2.3 Farming and Cultivation
3. Description of Environment in the Study Area
To use secondary data and conduct simple field surveys
4. Environmental Impacts
To predict and assess environmental impacts
5. Analysis of Alternatives
6. Environmental Management Plan (EMP)
To prepare mitigation measures and monitoring plans
7. Consultation
To record consultation meetings with stakeholders

Terms of Reference (TOR) for Environmental Impact Assessment (EIA) are prepared.

Environmental Impact Assessment (EIA)

The following items are examples of the study contents. TOR is decided in IEE study.

1. Policy, Legal and Administrative Framework
2. Project Description
3. Description of Environment in the Study Area
 - 3.1 Sampling and Analysis of Water Quality and Soil
 - 3.2 Site Survey of Surrounding Ecosystems and Biological Communities
4. Environmental Impacts
5. Analysis of Alternatives
6. Environmental Management Plan (EMP)
7. Consultation

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List of Participants

MOWRAM

- H.E. Veng Sakhon (Secretary of State)
- H.E. Bun Hean (Director General of Technical Affairs)
- Mr. Chout Bithol (Deputy Director General of Technical Affairs)
- Mr. Pich Veasna (Director, Department of Planning and International Cooperation)
- Mr. Em Bun Thoeun (Director, Department of Engineering)
- Mr. Mao Hak (Director, Department of Hydrology and River Works)
- Mr. Theng Tara (Director, Department of Water Resources Management and Conservation)
- Ms. Seth Vannareth (Director, Department of Meteorology)
- Mr. Te Auv Kim (Director, Department of Irrigated Agriculture)
- Mr. Keo Sercy Pich (Office Chief)

MAFF

- Dr. Hean Vanhan (Deputy Director, Department of Agronomy and Agricultural Land Improvement)

CNMC

- Mr. Pich Dun (Deputy Secretary General)
- Mr. Kim Sciha (Chief of Finance)

MOE

- Mr. Chammao (Chief of Monitoring Office)

JICA Experts

- Mr. Takanobu Kobayashi (JICA Advisor, MOWRAM)
- Mr. Akira Miyazaki (Chief Advisor, Technical Service Center for Irrigation System Project)
- Mr. Yasunori Araki (JICA Advisor, MAFF)

JICA Cambodia Office

- Mr. Jiro Takeichi (Project Formulation Advisor)

JICA Study Team

- Mr. Hiroyuki Arai (Leader)
- Mr. Hiromu Uno (Irrigation and Drainage)
- Mr. Yasunori Hasegawa (Farming System/ Farm Management)
- Mr. Yuji Hatakeyama (Environmental and Social Considerations)
- Mr. Kazutaka Ekawa (Project Planning)

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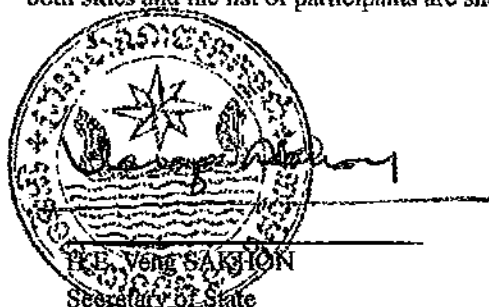
Attachment-2
Minutes of Meeting on
Inception Report

MINUTES OF MEETING
ON
INCEPTION REPORT
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

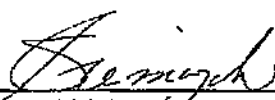
The Study Team arrived in Cambodia on July 28, 2005, for commencement of the 1st field work in Phase I of the Study on Comprehensive Agricultural Development of Prek Thnot River Basin (hereinafter referred to as "the Study"). In connection with the commencement of the Study, the Study Team submitted beforehand thirty (30) copies of the Inception Report in English and Khmer respectively, to the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM"), in accordance with the Scope of Work for the Study signed between the MOWRAM and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005.

A meeting on the Report was held with the Steering Committee on August 02, 2005. In the meeting, the Study Team explained the contents of the Report and further highlighted basic approaches and plan of operation of the Study. Thereafter, a series of discussions was made among them. As a result of the discussions, in principle the Report was agreed by both sides. The main issues discussed by the both sides and the list of participants are shown in ANNEXES attached hereto.

August 3, 2005



HE VENG SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia


Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

(Witness)


Mr. Kenji SAKURAI
Project Planning
Japan International Cooperation Agency

Main Issues Confirmed and Agreed at the Meetings

1. **Roles of Ministry of Agriculture, Forestry and Fisheries (MAFF) in the Study**
Irrigation provides an effective environment for stability and increase of agricultural production. However, irrigation by itself could not realize the remarkable increase of agricultural production without agricultural support by MAFF. Nevertheless, the roles of MAFF in the Study seem not to be thoroughly discussed in the Report. It was thus agreed that the roles of MAFF in the Study should be clarified through elaboration of work plan for counterpart personnel, and if necessary, further discussion among MOWRAM, MAFF and the JICA Study Team.
2. **Assignment of Counterpart Personnel**
The JICA Study Team will prepare the list and work plan of counterpart personnel based on the scope of work. With these list and work plan, MOWRAM will officially request MAFF and other relevant agencies to nominate the appropriate counterpart personnel for smooth execution of the Study and also proper technology transfer to them.
3. **Seminars**
In the Study, some seminars will be held for the relevant stakeholders to explain the basic concepts and contents of the Study, the results of Draft Master Plan, and the purpose, components, schedule and effect of the pilot projects. These seminars should be conducted by the initiative of MOWRAM in cooperation with MAFF.
4. **Repairs of Roleang Chrey Regulator**
It was confirmed that the scope of repairs of Roleang Chrey Regulator such as replacement of gate ropes and generator, should be clarified in Phase 1.
5. **Urgent/Priority Projects**
It was confirmed that the urgent/priority projects should be selected in Phase 1 and be given the Feasibility Study for early implementation.
6. **Model of River Basin Development**
The JICA Study Team explained that since the Study was expected as a model of river basin development for other river basins, the employed technical approach and methodology such as flood model analysis and storage function method, would be applicable for other basins.

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List of Participants

1. Cambodian Side

(1) MOWRAM

- | | |
|------------------------|---|
| (a) H.E. Veng SAKHON | Secretary of State |
| (b) Mr.Chuon Bithol | Deputy Director General of Technical Affairs |
| (c) Mr.Pich Veasna | Director of Planning and International Cooperation
Department |
| (d) Mr.Theng Tara | Director of Water Resources Management and
Conservation |
| (e) Mr.Te Auv Kim | Director of Irrigated Agriculture Department |
| (f) Mr.Sok Moniratana | Director of Water Supply Sanitation Department |
| (g) Mr.Em Bun Thoeun | Director of Engineering Department |
| (h) Mr.Chuon Vann Rith | Deputy Director of Administration and Human
Resources Department |
| (i) Mr.Long Saravuta | Deputy Director of Hydrology and River Work
Department |
| (j) Mr.Klok Sam Ang | Head of International Office |

(2) MAFF

- | | |
|------------------|-------------------------|
| (a) Mr.San Vanty | Deputy Director General |
|------------------|-------------------------|

(3) Other Government Agencies

- | | |
|-------------------|--------------------------------|
| (a) H.E.Tea Chup | Under Secretary of State, MOE |
| (b) H.E.Pich Dun | Deputy Secretary General, CNMC |
| (c) Mr.You Phirun | Deputy Director, MEF |

2. Japanese Side

(1) Embassy of Japan

- | | |
|-----------------------|-----------|
| (a) Mr.Ryutaro Takaku | Secretary |
|-----------------------|-----------|

(2) JICA Cambodia Office

- | | |
|------------------------|--------------------------------|
| (a) Mr. Hiroto Mitsugi | Deputy Resident Representative |
|------------------------|--------------------------------|

(3) JICA Experts

- | | |
|---------------------------|--|
| (a) Mr. Akira Miyazaki | Chief Advisor, Technical Service Center for Irrigation
System Project |
| (b) Mr. Nobuhiro Moriyama | JICA Advisor, MOWRAM |
| (c) Mr. Yasunori Araki | JICA Expert on Agricultural Policy Planning, MAFF |

Handwritten initials/signature

(4) JICA Headquarters

(a) Mr. Kenji Sakurai

Project Planning

(5) JICA Study Team

(a) Mr. Hitoshi Shimazaki

Leader

(b) Mr. Masayuki Kodama

Staff

(c) Mr. Takashi Shiraki

Staff

(d) Mr. Tomoki Nakamura

Staff

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Attachment-3
Minutes of Meeting on
Progress Report (1)


MINUTES OF MEETING
ON
PROGRESS REPORT (1)
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

In accordance with the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study"), signed between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005, the Study Team submitted thirty (30) copies of the Progress Report (1) to MOWRAM on February 17, 2006. The Report presents the results of field work executed for about 7 months from end of July 2005 to end of February 2006.

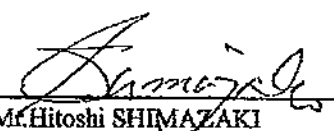
In connection with the Progress Report (1), the Steering Committee Meeting was held on February 22, 2006 at the conference room of MOWRAM. In the meeting, the Study Team explained the contents of the Report, focusing on findings, Master Plan, selection of propriety/urgent projects for Feasibility Study and selection of pilot projects for Verification Study. This was followed by discussions on the contents of the Report among the Participants. As the result of the discussions, the contents of the Report were accepted by the Steering Committee. The main issues discussed among Participants and the list of Participants are shown in ANNEXES attached hereto.

February 24, 2006





Mr. H. SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia



Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

Main Issues Confirmed and Agreed at the Meetings

1. Selection of Priority/Urgent Projects for Feasibility Study

In the Progress Report (1), two Priority/Urgent Projects were selected for Feasibility Study, which will be conducted in Phase 2. These are "Case 1: Roleang Chrey Regulator Gates Improvement Project" and "Case 2: Roleang Chrey Regulator Gates Improvement Project and Irrigated Agriculture Improvement Model Project". After discussion on selection criteria and procedure for them, the committee agreed at the selection of these cases as Priority/Urgent Projects for Feasibility Study although these should be further discussed in the JICA Headquarters.

2. Selection of Pilot Projects for Verification Study

The Report proposed the "Irrigated Agriculture On-farm Technology Improvement Pilot Project" and Rainfed Agriculture Improvement Pilot Project" as the Pilot Projects for Verification Study. The Study Team explained the criteria and procedure of selection of them to the committee member. Finally, the committee agreed at selection of these Pilot Projects for Verification Study and also further discussion on them in the JICA Headquarters.

3. Confirmation of Need of Strengthening of Close Coordination between MOWRAM and MAFF

In the meeting, it was confirmed that close coordination between MOWRAM and MAFF was indispensable for successful irrigated agricultural development, especially for execution of selected Pilot Projects in Phase 2.

4. Confirmation of Need of Strengthening of Environmental Assessment by Executing Agency

The Study Team explained the need of strengthening of environmental assessment by the executing agency because the environmental assessment would be carried out by the executing agency himself whenever the project development is newly planned and implemented. This explanation was fully understood by all participants.

5. Crop Diversification

In the Report, "the Improvement of Agricultural Productivity Centering Rice" is determined as a strategic target of the Master Plan. In connection with the words of "Centering Rice", the discussion was made among the participants for the need of crop diversification. The Study Team explained that the rice is absolutely in short supply in the Target Area and thus a focus should be given to paddy cultivation, but the proposed cropping pattern includes upland crops for certain area. Besides, the Study Team explained that in the coming Pilot Projects, the upland crop cultivation including farming practice might be experimented subject to the approval of the JICA Headquarters. In connection with the crop diversification, it was confirmed that establishment of proper marketing system was essential for its promotion to the farmers.

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6. Need of Consideration of Further Development

The steering committee asked why the rice rate was down after the target year 2015. The Study Team replied that it occurred due to the population increase, therefore further agricultural development or new water resource development after implementation of Master Plan should be taken into consideration. The committee understood the severe situation for the Target Area.

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List of Participants

I. Cambodian Side

(1) MOWRAM

- | | |
|-----------------------|--|
| (a) H.E. Veng SAKHON | Secretary of State |
| (b) Mr.Chuon Bithol | Deputy Director General of Technical Affairs |
| (c) Mr.Pich Veasna | Director of Planning and International Cooperation
Department |
| (d) Ms.Set Vannareth | Director of Department Meteorology |
| (e) Mr.Te Auv Kim | Director of Irrigated and Drainage Department |
| (f) Mr.Sok Moniratana | Director of Water Supply Department |
| (g) Mr.Chea Chhunkeat | Director of Administration and Human Resource
Department |
| (h) Mr.Long Saravuta | Deputy Director of Hydrology and River Work
Department |
| (i) Mr.Chi Somaly | Deputy Director |
| (j) Mr.Thach Sovana | Chief Office |
| (k) Mr.Klok Sam Ang | Chief Office |

(2) MAFF

- | | |
|------------------|--------------------|
| (a) Mr.Am Phirum | Vice Chief Officer |
|------------------|--------------------|

(3) Other Government Agencies

- | | |
|----------------------|------------------------------|
| (a) Mr.Ngoun Kong | Deputy Director General, MOE |
| (b) Mr.Huong Sunthan | WUP Coordinator, CNMC |

2. Japanese Side

(1) Embassy of Japan

- | | |
|-----------------------|-----------------------------|
| (a) Mr.Ryutaro Takaku | Secretary, Embassy of Japan |
|-----------------------|-----------------------------|

(2) JICA Cambodia Office

- | | |
|------------------------|---|
| (a) Mr. Hiroto Mitsugi | Deputy Resident Representative, JICA Cambodia Office |
| (b) Ms. Tomoko Tanaka | Assistant Resident Representative, JICA Cambodia Office |

(3) JICA Experts

- | | |
|---------------------------|----------------------|
| (a) Mr. Nobuhiro Moriyama | JICA Advisor, MOWRAM |
|---------------------------|----------------------|

(4) JICA Study Team

- | | |
|---------------------------|--------|
| (a) Mr. Hitoshi Shimazaki | Leader |
| (b) Mr. Masayuki Kodama | Staff |
| (c) Mr. Takashi Shiraki | Staff |

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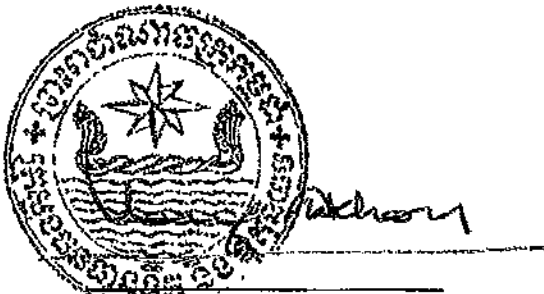
Attachment-4
Minutes of Meeting on
Interim Report (1)

MINUTES OF MEETING
ON
INTERIM REPORT (1)
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

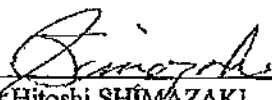
In accordance with the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study"), signed between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005, the Study Team submitted thirty (30) copies of the Interim Report (1) to MOWRAM on May 31, 2006. The Report consists of Summary (English and Khmer), Main Report and Appendix. The Report presents the study results in Phase 1, and also reflects the comments given in the Steering Committee in February 2006 and the JICA Advisory Committee in April 2006.

In connection with the Interim Report (1), the Steering Committee Meeting was held on June 16, 2006 at the conference room of MOWRAM. In the meeting, the Study Team explained the contents of the Report, focusing on concept and strategy of Master Plan, selection of propriety/urgent projects for Feasibility Study, and selection and implementation of pilot projects for Verification Study. This was followed by discussions on the contents of the Report among the Participants. As the result of the discussions, the contents of the Report were accepted by the Steering Committee. The main issues discussed among Participants and the list of Participants are given in ANNEX 1 and ANNEX 2 respectively, which are attached hereto.

June 22, 2006



H.E. Veng SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia


Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

Main Issues Confirmed and Agreed at the Meetings

1. Need of Capacity Building of Local Staff

There was a question whether capacity building of local staff was included in the Master Plan or not. The Study Team explained that the Master Plan proposed the "Provincial Departments Strengthening Project" under the Subject-wise Improvement Plan in due consideration of need of capacity building of local authority.

2. Selection Process of Projects contained in Master Plan

The Report proposes the 27 projects/studies in the Master Plan, to attain the increase of agricultural production centering on rice. In this connection, there was a question on the selection process of these projects/studies. The Study Team replied that these projects/studies were determined through not only the analysis on problems and constraints obtained by site inspection, PCM workshops, RRA and SWOT analysis, but also the discussion in the Steering Committee Meeting.

3. Formation of Advisory Team and Implementation Team for Pilot Projects

The Study Team proposed the need of establishment of the task force consisting of Advisory Team and Implementation Team, for successful implementation of pilot projects. The proposed members of the Advisory Team and Implementation Team are as follows:

Advisory Team

Member: staff of MOWRAM, MAFF, CARDI and JICA Cambodia Office and JICA Experts

Secretariat: JICA Study Team

Implementation Teams

Member: staff of PDOWRAM, PDA, NGO, Prey Pda Experimental Station and JICA Study Team

The Steering Committee agreed to this proposal although the members from MOWRAM and MAFF for the Advisory Team will be nominated later.

4. Need of Environmental Study

The Steering Committee confirmed that the environmental study was properly carried out in the Master Plan study in accordance with the environmental laws and regulations in Cambodia.

5. Implementation of Master Plan

The Steering Committee recognized that the timely financial arrangement was essential, so as to implement the Master Plan as planned and eventually to attain the proposed strategic target. In this regard, the Committee explained the need of cooperation of donors including Japan toward smooth implementation of Master Plan, although the Government would make the best efforts for such financial arrangement.

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List of Participants

1. Cambodian Side

(1) MOWRAM

- | | |
|-------------------------|--|
| (a) H.E. Veng SAKHON | Secretary of State |
| (b) Mr.Pich Veasna | Director of Planning and International Cooperation Department |
| (c) Mr.Sok Moniratana | Director of Water Sanitation and Hygiene Department |
| (d) Mr.Thach Sovanna | Deputy Director |
| (e) Mr.Chhea Bunrith | Deputy Director of Planning and International Cooperation Department |
| (f) Mr.Ngoun Pich | Deputy Director of Engineering Department |
| (g) Mr.Phiv Phalkun | Chief Officer of Construction Office |
| (h) Mr.Tong Seng | Vice Chief Officer |
| (i) Mr.Koeut Kittineath | Vice Chief Office of Engineering Office |
| (k) Mr.Sarun Sambath | Vice Chief Office of Engineering Office |
| (l) Mr.Khiev Visith | Vice Chief Office |
| (m) Mr. Ea Piseth | Director of PDOWRAM/Kampong Speu |
| (n) Mr.Ung Phally | Officer of Irrigated Agriculture Department |
| (o) Mr.Sourn Sam Aun | Officer |
| (p) Mr.Chea Sivutha | Officer |
| (q) Mr.Phan Sophy | Staff |
| (r) Mr.Chhum Sok Chann | Staff |
| (s) Mr.Thong Aun | Staff |

(2) MAFF

- | | |
|------------------------|-----------------------------|
| (a) Mr.Op Pich | Chief Officer |
| (b) Mr.Khean Sovannara | Vice Chief Officer, DALLI |
| (c) Mr.Am Phirum | Vice Chief Officer, DAALI |
| (d) Mr.Tea Leang Hoth | Deputy Director, PDA/Kandal |

(3) Other Government Agencies

- | | |
|----------------------|-------------------------|
| (a) Mr.Wait Botkosol | Director, CNMC |
| (b) Mr.Ou Sophorn | Vice Chief Officer, MOB |

2. Japanese Side

(1) Embassy of Japan

- | | |
|--------------------------|------------------------------------|
| (a) Mr.Kenichi Kobayashi | Second Secretary, Embassy of Japan |
|--------------------------|------------------------------------|

(2) JICA Cambodia Office

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- | | |
|------------------------------|---|
| (a) Mr. Yusuke Murakami | Deputy Resident Representative, JICA Cambodia Office |
| (b) Ms. Tomoko Tanaka | Assistant Resident Representative, JICA Cambodia Office |
| (3) JICA Experts | |
| (a) Mr. Nobuhiro Moriyama | JICA Advisor, MOWRAM |
| (4) Technical Service Center | |
| (a) Mr. Shigemitsu Tsukamoto | Chief Advisor |
| (5) JICA Study Team | |
| (a) Mr. Hitoshi Shimazaki | Leader |
| (b) Mr. Takashi Shiraki | Staff |
| (c) Mr. Jun Tsurui | Staff |
| (d) Ms. Akemi Ishikawa | Staff |
| (e) Ms. Natsuno Matsuura | Staff |

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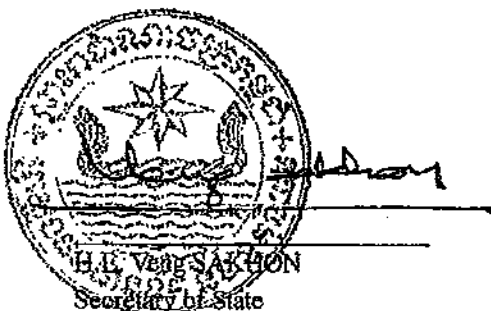
Attachment-5
Minutes of Meeting on
Progress Report (2)

MINUTES OF MEETING
ON
PROGRESS REPORT (2)
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

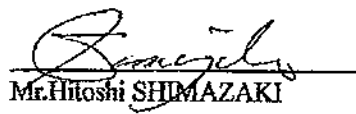
In accordance with the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study"), signed between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005, the Study Team submitted thirty (30) copies of the Progress Report (2) to MOWRAM on February 15, 2007. The Progress Report (2) consists of three volumes; Volume-I: Summary, Volume-II: Feasibility Study for Priority/Urgent Projects, and Volume-III: Pilot Projects. The Progress Report (2) presents the results of feasibility study for priority/urgent projects, namely the Roleang Chrey Regulator and Intakes Improvement Project and Irrigated Agriculture Improvement Model Project, and also the interim results for Pilot Projects activities, which were conducted from May 2006 to February 2007.

In connection with the Progress Report (2), the Steering Committee Meeting was held on February 22, 2007 at the conference room of MOWRAM. In the meeting, the Study Team explained the contents of the Progress Report (2), focusing on the development plans for both projects and lessons learned from the Pilot Projects. This was followed by brisk discussions on the contents of the Progress Report (2) among the Participants. As the result of the discussions, the contents of the Progress Report (2) were in principle accepted by the Steering Committee. The main issues discussed among Participants and the list of Participants are given in ANNEX 1 and ANNEX 2 respectively, which are attached hereto.

February 26, 2007



H.E. Veng SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia


Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

Main Issues Confirmed and Agreed at the Meetings

Feasibility Study for Priority/Urgent Projects

1. Flood for Prek Thnot River

There was a question on operation of the Rolcang Chrey Regulator against food because it should be necessary to be carefully operated considering inundation condition at the upstream area and the downstream area. The Study Team explained that the Rolcang Chrey Regulator should be attentively controlled by observing the water level at upstream reach and downstream situation, and thus it was proposed to establish the communication system among the Peam Khley observation station, Rolcang Chrey Regulator and Kandal Sreng Headworks, which was mentioned in the Progress Report (2). Concerning flood for the Prek Thnot River, the Study Team further explained that the flood warning system would be studied in the next stage.

2. Water Demand of Downstream Area

The Steering Committee asked the Study Team whether the water demand of downstream area was considered or not when the irrigable area was determined. The Study Team replied that the water demand of downstream area such as Kandal Steung Irrigation Project, Dangor Irrigation Project, Tonle Batt Irrigation Project and river maintenance flow were taken into due consideration.

3. Environmental Issues

There were some questions and suggestions on environmental issues. These are land acquisition for canal construction, dust pollution at construction time, interference in agricultural activities at construction time, and use of excessive chemical fertilizer. The Study Team explained that these environmental issues were duly studied and incorporated into the Progress Report (2). In this connection, the Study Team emphasized the need of environmental management and monitoring by the executing agency even at the planning stage of the project. The Steering Committee also recognized it.

4. Project Office

The Study Team proposed the establishment of a Project Office for implementation of Irrigated Agriculture Improvement Model Project, in due consideration of strengthening of coordination between PDA and PDOWRAM, execution of environmental monitoring and application of participatory approach. In this regard, the Steering Committee accepted this proposal in principle although MOWRAM as an executing agency, would be required to review the activity results of the similar existing organization if any, and to monitor the effect to the project management by the establishment of Project Office.

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5. Capacity of Existing Box Culvert Crossing with National Road No.4

The Steering Committee asked the Study Team whether the existing box culvert of the South Main Canal, crossing with the National Road No.4 would be planned to increase its flow capacity or not, to flow the required discharge determined in the feasibility study. The Study Team replied that the flow capacity of existing box culvert was increased by adding one box culvert, to ensure the capacity to flow the required discharge.

6. Possibility of Use of Rubber Dam

The Steering Committee asked the Study Team about possibility of use of rubber dam. The Study Team replied that the use of rubber dam for the Roleang Chrey Regulator is not suitable from the following reasons:

- Rubber dam requires the span length more than 3 times of dam height. If this requirement is not satisfied, the rubber dam could not completely fall down at flood time. In case of Roleang Chrey Regulator, height and span of sluice gate are 6.7 m and 12.5 m, respectively, and this requirement could not be satisfied at all.
- Rubber dam is more sensitive against abrasion occurred by rolling stones from upstream side and continuous strong sunshine, which would shorten its life year.
- Gate pier and sluiceway of Roleang Chrey Regulator are still in good condition. In the proposed improvement plan, these facilities will be used as they are, which is one of basic considerations, to save construction cost. If rubber dam is applied, these facilities should be totally changed so as to install it, which will require the quite high additional cost.

Pilot Projects

7. Water Distribution by Plot or Block

The Steering Committee said that water distribution would be made by plot or by block, so that the problem would occur because the farmers would not share the water to other plot or block. The Study Team explained that the water users group would be formed and trained at watercourse level, aiming to settle such a undesirable matter and to realize even water distribution within it, under the "FWUC Sub-groups Establishment Practices" and "Proper Irrigation water Use Education Practice" in the Participatory Irrigation Management Development.

8. Passive FWUC Attitude

The Steering Committee asked the Study Team why FWUC's attitude is still passive. The Study Team replied that FWUC had been formed, but had not been provided with proper follow-up training at all, so that the PDOWRAM under support of the Study Team should be obliged to have started the training to FWUC from the beginning in this reporting period, but FWUC is still passive especially for

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organizing the meeting. The Study Team also replied that further training to FWUC will be conducted continuously in the next stage, to improve such situation.

9. Raising of Ecological Chicken

The Steering Committee asked the Study Team why there are only 5 farmers who raise the ecological chicken because Cambodian farmers mostly raise chicken. The Study Team replied that there is a definition on "ecological chicken", being different from ordinary one which is specified in the Progress Report (2).

10. Target of Pilot Projects

The Steering Committee asked the Study Team how we can know that the project has improved the farmers' living since the project shows the result of crop yield only. The Study Team replied that the target of the project is to improve the agricultural productivity, not farmers' living although formation of saving group and promotion of ecological chicken raising related to improvement of living standard were conducted.

Handwritten initials or marks.

List of Participants

1. Cambodian Side

(1) MOWRAM

- | | |
|--------------------------|--|
| (a) H.E. Veng SAKHON | Secretary of State |
| (b) Mr. Em Bunthoeun | Director of Department of Engineering |
| (c) Mr. Theng Tara | Director of Department |
| (d) Mr. Thach Sovanna | Deputy Director |
| (e) Mr. Long Saravuth | Deputy Director of Department of Hydrology and River Works |
| (f) Mr. Tong Seng | Vice Chief Officer |
| (g) Mr. Koeut Kittineath | Vice Chief Office of Engineering Office |
| (h) Mr. Khiev Visith | Vice Chief Office |
| (i) Mr. Chek Try | Vice Chief Office |
| (j) Mr. Ea Piseth | Director of PDOWRAM/Kampong Speu |
| (k) Mr. Soy Phana | Deputy Director of PDA/Kampong Speu |
| (l) Mr. Kheth Piseth | Officer |
| (m) Mr. Chea Sivutha | Officer |

(2) MAFF

- | | |
|-----------------------|---------------------------|
| (a) Ms. Pheng Sophada | Vice Chief office |
| (b) Mr. Am Phirum | Vice Chief Officer, DAALI |

(3) Other Government Agencies

- | | |
|------------------------|-------------------------------|
| (a) Mr. Watt Botkosol | Director, CNMC |
| (b) Mr. Pich Dun | Deputy Director General, CNMC |
| (c) Mr. Koch Savath | Deputy Director General, MOE |
| (d) Dr. Prum Somany | Deputy Director, IFReDI/FiA |
| (e) Mr. Sarom Sothoeun | Vice Chief Office, MEF |

2. Japanese Side

(1) Embassy of Japan

- | | |
|---------------------------|------------------------------------|
| (a) Mr. Kenichi Kobayashi | Second Secretary, Embassy of Japan |
|---------------------------|------------------------------------|

(2) JICA Cambodia Office

- | | |
|-----------------------|---|
| (a) Ms. Tomoko Tanaka | Assistant Resident Representative, JICA Cambodia Office |
|-----------------------|---|

(3) JICA Experts

- | | |
|---------------------------|----------------------|
| (a) Mr. Nobuhiro Moriyama | JICA Advisor, MOWRAM |
|---------------------------|----------------------|

Handwritten initials/signature

(4) Technical Service Center

(a) Mr. Shigemitsu Tsukamoto Chief Advisor

(5) JICA Study Team

(a) Mr. Hitoshi Shimazaki Leader

(b) Mr. Takashi Shiraki Staff

(c) Mr. Jun Tsurui Staff

(d) Mr. Seiji. Yakushiji Staff

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Attachment-6
Minutes of Meeting on
Interim Report (2)

MINUTES OF MEETING
ON
INTERIM REPORT (2)
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

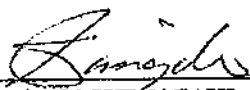
In accordance with the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study"), signed between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005, the Study Team submitted thirty (30) copies of the Interim Report (2) to MOWRAM on May 18, 2007, and thirty (30) copies of Summary in Khmer on May 23, 2007. The Interim Report (2) consists of four volumes; Volume-I: Summary, Volume-II: Feasibility Study for Priority/Urgent Projects (Main Report), Volume-III: Feasibility Study for Priority/Urgent Projects (Appendixes) and Volume-IV: Pilot Projects. The Interim Report (2) reflects the comments raised to the Progress Report (2) in the Steering Committee Meeting held on February 22, 2007 in Cambodia and also in the Advisory Committee Meeting held on April 16, 2007 in Japan.

In connection with the Interim Report (2), the Steering Committee Meeting was held on June 14, 2007 at the conference room of MOWRAM. In the meeting, the Study Team explained the contents of the Interim Report (2), focusing on the development plans for both projects, lessons learned from the Pilot Projects and work program in 2007/08. This was followed by brisk discussions on the contents of the Interim Report (2) among the Participants. As the result of the discussions, the contents of the Interim Report (2) were accepted by the Steering Committee. The main issues discussed and suggested in the meeting and the list of Participants are given in ANNEX 1 and ANNEX 2 respectively, which are attached hereto.

June 18, 2007



H.E. Veng SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia


Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

Main Issues Discussed and Suggested in the Meeting

Questions and Discussions

1. Water Quantity and Cropping Pattern

There were questions on water quantity to irrigated area and cropping calendar. The Study Team explained that the water quantity to irrigated area in the Irrigated Agriculture Improvement Model Project was calculated from water requirement and cropping calendar. The Study Team continued to explain that the water requirement was calculated using evapo-transpiration of crop, percolation, and effective rainfall on the 5-day basis, and cropping calendar was worked out from viewpoints of rainfall pattern and availability of river discharge, which were made for Zones-1 to 3 in the Master Plan Study.

2. Water Harvesting System

The Steering Committee asked the Study Team about introduction of water harvesting system into rainfed area (Zone-4 area). The Study Team explained that some farmers in Zone-4 have already introduced it, that is, the rainfall water was effectively used by making small and shallow pool at corner of paddy field, however there were no topographically suitable places in Zone-4, for constructing the small reservoir to store rainfall water in the rainy season.

3. Criteria of Zoning

The Steering Committee asked the Study Team about the criteria of zoning. The Study Team explained that the study area in the Master Plan was classified into four zones based on the following criteria: Zone-1: irrigated area with 80% dependability, Zone-2: irrigated area with 50% dependability, Zone-3: water harvesting area, and Zone-4 rainfed area. The Study Team also explained that in general zoning for potential of irrigation development was made considering three factors: water resources, land resources and socio-economic factors such as poverty condition and road density. The Study Team further explained that the study area was already developed as agricultural land, so that zoning for the study area was made focusing on water environment.

4. Hazard Map and Flood Warning System

The Steering Committee asked the Study Team whether preparation of hazard map and flood warning system would include their implementation or not. The Study Team replied that preparation of hazard map and flood warning system in this Study would not include their implementation.

5. Irrigable Area by Improvement of Roleang Chrey Regulator

The Steering Committee asked the Study Team how many areas could be irrigated by improving the Roleang Chrey Regulator. The Study Team answered that 16,700 ha could be irrigated by improving the Roleang Chrey Regulator according to the water balance study.

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Suggestions

1. Application of Modern Technology for Preparation of Hazard Map

The Steering Committee suggested the Study Team to apply the modern technology for preparation of hazard map. The Study Team explained that the hazard map would be prepared using the "FLO-2D" soft ware, and such technology would be transferred to the counterpart personnel during study period accordingly.

2. Flood Warning System

The Steering Committee suggested the Study Team that the flood warning system should be simple and practical even if modern technology is applied. The Study Team fully agreed to this suggestion, and mentioned that the most suitable flood warning system to local condition should be prepared keeping close communication with counterpart personnel.

3. Explanation of the Study at Technical Working Group

JICA suggested the Steering Committee that counterpart personnel to the Study Team should timely present the study results at Technical Working Group. The Steering Committee agreed to this suggestion, and promised to nominate an appropriate person.

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List of Participants

1. Cambodian Side

(1) MOWRAM

(a) H.E. Veng SAKHON	Secretary of State
(b) Mr. Pich Veasna	Deputy Director General of Administrative Affairs
(c) Mr. Theng Tara	Director of Water Resources Management and Conservation
(d) Mr. Long Saravuth	Director Department of Meteorology
(e) Mr. Tong Seng	Vice Chief Office of Hydrology Department
(f) Mr. Chhea Bunrith	Director of Planning Department
(g) Mr. Mao Hak	Director of DMRW
(h) Mr. Koent Kittineath	Vice Chief Office of Engineering Office
(i) Mr. Khiev Visith	Vice Chief Office
(j) Mr. Sarun Sambath	Vice Chief Office
(k) Mr. Sourn Sam Aun	Vice Chief Office
(l) Mr. Ea Piseth	Director of PDOWRAM/ Kampong Speu
(m) Mr. Reang Phirun	Deputy Director
(n) Mr. Sim Saraun	Officer
(o) Mr. Chea Sivutha	Officer
(p) Mr. Lim Theng	Officer
(q) Mr. Bun Hean	Officer

(2) MAFF

(a) Mr. Bin Sareth	Director of PDA/ Kampong Speu
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2. Japanese Side

(1) Embassy of Japan

(a) Mr. Kenichi Kobayashi	Second Secretary, Embassy of Japan
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(2) JICA Cambodia Office

(a) Mr. Kazuhiro Yoneda	Resident Representative, JICA Cambodia Office
(b) Ms. Tomoko Tanaka	Assistant Resident Representative, JICA Cambodia Office

(3) JICA Experts

(a) Mr. Yasunori Araki	JICA Advisor, MAFF
(b) Mr. Nobuhiro Moriyama	JICA Advisor, MOWRAM

(4) Technical Service Center

(a) Mr. Kenji Washino	Water Management Expert
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(5) JICA Study Team

(a) Mr. Hitoshi Shimazaki Leader

(6) Observer

(a) Mr. Masayuki Kodama Leader of JICA Study Team for Basin-wide Irrigation
(b) Dr. Kazuhiko Yagi Chief Advisor, BRAND

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Attachment-7
Minutes of Meeting on
Progress Report (3)

MINUTES OF MEETING
ON
PROGRESS REPORT (3)
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

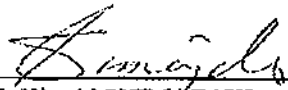
In accordance with the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study"), signed between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005, the Study Team submitted thirty (30) copies of the Progress Report (3) to MOWRAM on February 18, 2008. The Progress Report (3) consists of 2 volumes; summary and main text. The Progress Report (3) shows the activities of Pilot Projects and the results of hydrological study and environmental management basic capacity strengthening study, which were conducted from May 2007 to February 2008.

In connection with the Progress Report (3), the Steering Committee Meeting was held on February 20, 2008 at the conference room of MOWRAM. In the meeting, the Study Team explained the contents of the Progress Report (3). This was followed by brisk discussions on the contents of the Progress Report (3) among the Participants. As the result of the discussions, the contents of the Progress Report (3) were accepted by the Steering Committee. The main issues discussed and suggested in the meeting and the list of Participants are given in ANNEX 1 and ANNEX 2 respectively, which are attached hereto.

February 22, 2008



H.E. Veng SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia


Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

Main Issues Discussed and Suggested in the Meeting

Questions and Discussions

1. Estimate of Costs for Pilot Projects

There was a question whether the required costs for the Pilot Projects, that is Irrigated Agriculture On-farm Technology Improvement Pilot Project and Rainfed Agriculture Improvement Pilot Project, were estimated or not. The Study Team explained that the costs for these Pilot Projects were estimated in the Master Plan Study, since these Pilot Projects were included in the list of 27 projects proposed in the Master Plan.

2. Irrigation Service Fee (ISF)

The Steering Committee raised a question whether the amount of ISF collected was enough to execute the O&M for canal system or not. The Study Team explained that the present amount of ISF, Riel 30,000/ha, might not be enough to cover the total O &M cost for the corresponding canal system, but it was determined with consent of FWUC, PDOWRAM, NGO and the Study Team considering the initial stage of ISF collection. The Study Team further explained that the amount of ISF should be higher gradually so as to satisfy the required amount of O&M, as the FWUC members would mature.

3. Procedure of ISF Collection

The Steering Committee asked the Study Team about the procedure of ISF collection. The Study Team explained that the ISF collection in the Pilot Project was carried out by FWUC, not local authority like commune chief and village chief. The Study Team also explained that the FWUC-oriented ISF collection might be more effective than intervention of local authority although intensive support to FWUC was required.

4. Application of Fertilizer

The Steering Committee asked the Study Team whether the farmers used fertilizers before starting the Pilot Projects. The Study Team explained that most of farmers applied fertilizers, but they did not have adequate knowledge on timing and doses of them. The Study Team additionally explained that in the small scale adaptability test, fertilizer trail was thus carried out aiming to examine and demonstrate effects of fertilizer doses on rice growing and yield.

5. Backwater Effect of the Bassac River

There was a question about backwater effect of the Bassac River to gate operation of Kandul Steung Weir and Teuk Thla Weir. The Study Team replied that the result of non-uniform calculation showed that the backwater of the Bassac River did not have substantial influence to the gate operation of Kandul Steung Weir and Teuk Thla Weir due to the exist of large retardation area.

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6. Comparison of Benefit accrued from Increase of Crop Production with Cost of Agricultural Inputs

The Study Team explained the Steering Committee that the average crop yields at the verification plots in Zone-1, -3 and -4 were higher than the target ones. In this connection, the Steering Committee asked the Study Team about balance of benefit accrued from increase of crop production with the cost of agricultural inputs applied. The Study Team replied that the crop budget analyses on rice production in the verification plots, indicated that the anticipated farm income estimated from the results of the verification tests was substantially or slightly higher than the same estimated in the Master Plan, and the farm budget was financially feasible accordingly.

7. Implementation Structure of Experimental Farming Practice Improvement Activities in Pilot Projects

The Steering Committee asked the Study Team about the implementation structure of experimental farming practice improvement activities in the Pilot Projects. The Study Team replied that the experimental farming practice improvement activities were conducted by the cooperative farmers under the guidance of PDA staff supported by the Study Team.

8. Effect of Application of Improved Farming Practice/Ecological SRI

The Pilot Projects showed that the average crop yields of paddy in Zone-1, -3 and -4 were higher than 3.0 ton/ha as the results of application of improved farming practice/ecological SRI. In this regard, the Steering Committee confirmed the Study Team on these high crop yields since the Target Area was mostly covered with sandy soil. The Study Team explained that the soil texture of the Target Area was surely sandy loam or loamy sandy, nevertheless the average crop yields of more than 3.0 ton/ha was attained mainly due to the application of the appropriate improved farming practice/ecological SRI although the test plots in the Pilot Projects were small-scaled.

9. Feedback to Master Plan

The Steering Committee asked the Study Team about how to feed the results of Pilot Project activities back to the Master Plan. The Study Team replied that the Master Plan would be modified based on the relevant findings and lessons learned obtained through the Pilot Project activities. The Study Team further explained that in particular, the lessons learned obtained in PIMD activities in Zone-3 would be carefully examined and reflected on the Master Plan.

Suggestions

1. Need of Follow-up of Hydrological Study

The Steering Committee raised the need of follow-up of the hydrological study, especially preparation of hazard map and establishment of flood forecasting and warning system since these were so important for mitigation of flood damage. The Study Team explained that the seminar would be held for MOWRAM staff on how to use FLO-2D software for preparation of hazard map, so that MOWRAM staff would enable to prepare the hazard map for the entire Target Area. As for the

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establishment of flood forecasting and warning system, it was expected that MOWRAM would search for financial source.

2. Use of Aerial Photo Maps for Easy Understanding of Flood Hazard Map

The Steering Committee suggested the Study Team to use the aerial photo maps for easy understanding of flood hazard map by inhabitants. The Study Team understood this suggestion, and explained that it was easy to overlay the aerial photo maps with the flood hazard map if digital file of the aerial photo maps is available.

3. Zone Basis Development

The Steering Committee suggested the Study Team that the zone basis development should be applied. The Study Team agreed to this suggestion, and mentioned that the Target Area was divided into 4 zones, thus development could be made on the zone basis, especially for Zone-1 and Zone-2.

4. Need of Environmental Consideration and Management for Agricultural Development

The Steering Committee suggested the Study Team that environmental consideration and management were essential for agricultural development especially for the population dense area such as surrounding area of Kampong Spue City. The Study Team fully agreed to this suggestion, and stressed that the basic capacity of environmental management of MOWRAM and MAFF as executing agencies, should be thus strengthened so as to cope with environmental issues properly.

5. Need of Proper Canal System

The Steering Committee suggested the Study Team that the proper canal system consisting of main canal, secondary canal, tertiary canal and watercourse were indispensable for development of irrigated agriculture. The Study Team agreed to this suggestion, and explained that the proper canal system was one of necessary conditions for realization of timely and even water distribution.

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(ANNEX II)

List of Participants

1. Cambodian Side

(1) MOWRAM

(a) H.E. Veng Sakhon	Secretary of State
(b) Mr. Pich Veasna	Deputy Director General of Administrative Affairs
(c) Mr. Chuon Bithol	Deputy Director General of Technical Affairs
(d) Mr. Long Saravuth	Director of Department of Meteorology
(e) Mr. Mao Hak	Director of Department of Hydrology and River Works
(f) Mr. Em Bun Thoeun	Director of Department of Irrigated Agriculture
(g) Mr. Sao Samphors	Deputy Director of Financial Department
(h) Mr. OK Phaly	Deputy Director of Engineering Department
(i) Mr. Khiev Visith	Vice Chief Office of Rural Water Supply Office
(j) Mr. Sarun Sambath	Vice Chief Office of Engineering Department
(k) Mr. Koent Kitineath	Vice Chief Office of Engineering Department
(l) Mr. Chea Sivulha	Officer of Engineering Department
(m) Mr. Hy Rithy	Deputy Director of Kampong Spue PDOWRAM
(n) Mr. Nop Prin	Office Chief of Kampong Spue PDOWRAM

(2) MAFF

(a) H.E.Mr. It Nody	Under Secretary of State
(b) Mr. Hean Vanhan	Deputy Director of Agronomy and Agricultural Land Improvement
(c) Ms. Pheng Sophada	Vice Chief Officer of BIA Office
(d) Mr. Am Phirum	Vice Chief Officer of Growing Area Office
(e) Mr. Ouk Vanua	Deputy Director of Kandal PDA
(f) Mr. Kim Savoeun	Chief of Agricultural Extension Officer of Kandal PDA
(g) Mr. Chou Sarem	Vice Chief Officer of Kampong Spue PDA
(h) Mr. Svay Sarun	Office Chief of District Agriculture of Kampong Spue PDA
(i) Mr. Tieng Hylyna	Agronomy Officer of Kampong Spue PDA
(j) Mr. Ping Tinh	Agronomy Officer of Kampong Spue PDA
(k) Ms. Chea Dany	Agronomy Officer of Kampong Spue PDA
(l) Mr. Choek Sim	Agronomy Officer of Kampong Spue PDA
(m) Mr. Bin Rong	Agronomy Officer of Kampong Spue PDA
(n) Mr. Sath Sim	Agronomy Officer of Kampong Spue PDA

(3) MOE

(a) H.E.Mr. Tan Vutha	Secretary of State
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(4) CNMC

(a) H.E.Mr. Pich Dany

Deputy Secretary General

(5) MEF

(a) Mr. You Phirum

Deputy Director of Department of International
Cooperation

2. ADB/CARA

(a) Mr. Alain Goffeau

Project Implementation Specialist Cambodia Resident
Mission

3. Japanese Site

(1) Embassy of Japan

(a) Mr. Kenichi Kobayashi

Second Secretary, Embassy of Japan

(2) JICA Cambodia Office

(a) Mr. Hikoyuki Ukai

Deputy Resident Representative, JICA Cambodia Office

(b) Ms. Tomoko Tanaka

Assistant Resident Representative, JICA Cambodia
Office

(3) JICA Experts

(a) Mr. Nobuhiro Moriyama

JICA Advisor, MOWRAM

(4) Technical Service Center

(a) Mr. Shigemitsu Tsukamoto

Chief Advisor of TSC, MOWRAM

(5) JICA Study Team

(a) Mr. Hitoshi Shimazaki

Leader

(b) Mr. Takashi Shiraki

Staff

(c) Mr. Toshikatu Imai

Staff

(d) Mr. Makoto Yokota

Staff

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Attachment-8
Minutes of Meeting on
Draft Final Report

MINUTES OF MEETING
ON
DRAFT FINAL REPORT
FOR
THE STUDY
ON
COMPREHENSIVE AGRICULTURAL DEVELOPMENT
OF
PREK THNOT RIVER BASIN
IN
THE KINGDOM OF CAMBODIA

In accordance with the Scope of Work for the Study on Comprehensive Agricultural Development of Prek Thnot River Basin in the Kingdom of Cambodia (hereinafter referred to as "the Study"), signed between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on April 11, 2005, the Study Team submitted thirty (30) copies of the Draft Final Report to MOWRAM prior to the Steering Committee Meeting. The Draft Final Report consists of 7 volumes; Summary, Master Plan, Feasibility Study for Priority/Urgent Projects, Pilot Projects, Hydrological Study and Environmental Management Basic Capacity Strengthening, Appendixes for Master Plan and Appendixes for Feasibility Study for Priority/Urgent Projects. The Draft Final Report shows the results of the Study conducted from July 2005 to February 2008.

In connection with the Draft Final Report, the Steering Committee Meeting was held on May 28, 2008 at the conference room of MOWRAM. In the meeting, the Study Team explained the contents of the Draft Final Report. This was followed by brisk discussions on the contents of the Draft Final Report among the Participants. As the result of the discussions, the contents of the Draft Final Report were accepted by the Steering Committee. The main issues discussed and suggested in the meeting and the list of Participants are given in ANNEX 1 and ANNEX 2 respectively, which are attached hereto.

May 28, 2008



H.E. Veng SAKHON
Secretary of State
Ministry of Water Resources and
Meteorology,
The Kingdom of Cambodia

Mr. Hitoshi SHIMAZAKI
Leader
The Study Team

Main Issues Discussed and Suggested in the Meeting

1. Potential Area of Irrigation Development

There was a question on the potential area of irrigation development in the Target Area. The JICA Study Team answered that the irrigable area commanded by the Prek Thnot River was estimated at 16,700 ha as the result of the water balance study.

2. Need of Hydrological Model for the Prek Thnot River

The Steering Committee raised the need of hydrological model for the Prek Thnot River. The JICA Study Team replied that the hydrological model for the Prek Thnot River was already established in the hydrological study by use of the presently available data, which was mentioned in Volume V: Hydrological Study and Environmental Management Basic Capacity Strengthening, but it should be updated based on the latest available data as required.

3. Development Scenario

The Steering Committee asked the Study Team about the contents of development scenario. The Study Team explained that the development scenario was prepared targeting a medium term of the year 2015. The Study Team further explained that "decentralization" was selected as the focus point of the short term from 2006 to 2010 and in the medium term covering 10 years from 2006 to 2015, a focus was put on "privatization", and then comprehensive agricultural development was planned under these focus points, of which details are mentioned in Volume II: Master Plan.

4. Need of Warning System

The Steering Committee explained the need of warning system of gate opening of Roleang Chrey Regulator since some inhabitants have troubles due to rapid flow caused by gate opening. The JICA Study Team said that this matter was closely related to the proper gate operation, so that it should be clearly mentioned in the O&M manual for the Roleang Chrey Regulator.

5. Implementation of Master Plan

There was a question about the financial arrangement for implementation of Master Plan since many projects/studies were proposed in it. The Study Team replied that Master Plan was formulated in due consideration of donor coordination, thus explanation of Master Plan at working group was one of alternatives to obtain the donors' assistance to its implementation.

6. Need of Soft Copy for Final Report

The Steering Committee requested the JICA Study Team to provide the soft copy as well as the hard copy of final report since the Master Plan should be timely updated based on the change of

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circumstances. The Study Team replied that this request would be carried to the JICA Headquarters.

7. Compensation of Resettlement by Implementation of Projects

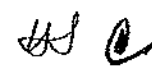
The Steering Committee asked the Study Team about the compensation of resettlement caused by implementation of projects. The Study Team replied that the resettlement caused by implementation of projects would be small since rehabilitation works were prevailing although compensation cost was already included in the project cost.

8. Time of Present Land Use

The Steering Committee asked the Study Team about time of present land use map since the land use in the Target Area especially along Route No.4, has been drastically changed during recent years. The Study Team replied that the land use map was prepared using the aerial photos shot in 2004 and based on field investigation in 2005. The Steering Committee requested the JICA Study Team to mention the time on the map. The JICA Study Team agreed to this request.

9. Need of Update of Master Plan

The Steering Committee requested the Study Team to mention the need of update of Master Plan since the Cambodian economic situation including land use has been rapidly changed. The Study Team agreed to this request and replied that the "Need of Timely Update of Master Plan" should be mentioned in "Conclusion and Recommendations" of Volume II: Master Plan.



(ANNEX II)

List of Participants

1. Cambodian Side

(1) MOWRAM

- | | |
|------------------------|---|
| (a) H.E. Veng Sakhon | Secretary of State |
| (b) Mr. Pich Veasna | Deputy Director General of Administrative Affairs |
| (c) Mr. Chuon Bithol | Deputy Director General of Technical Affairs |
| (d) Mr. Chea Bunrith | Director of Department of Administration |
| (e) Mr. Sao Samphors | Deputy Director of Financial Department |
| (f) Mr. Lim Theng | Deputy Director of Engineering Department |
| (g) Mr. Yin Savuth | Deputy Director |
| (h) Mr. Ken Borian | Chief of Information Observation Office |
| (i) Mr. Khiev Visith | Vice Chief of Rural Water Supply Office |
| (j) Mr. Ea Piseth | Director of Kampong Speu PDOWRAM |
| (k) Mr. Chun Peng Long | Director of Kandal PDOWRAM |
| (l) Mr. Cheng Saroeun | Contract Engineer/NWISP |

(2) MAFF

- | | |
|----------------------|---|
| (a) Mr. Op Pich | Vice Chief Officer |
| (b) Mr. Som Lun | Officer of Agronomy and Agricultural Land Improvement |
| (c) Mr. Pich Rom Rea | Officer of Agronomy Department |
| (d) Mr. Tim Thon | Officer |
| (e) Mr. Kim Savoeun | Chief of Agricultural Extension Office of Kandal PDA |

(3) CNMC

- | | |
|--------------------|-----------------|
| (a) Mr. Ou Sophana | Deputy Director |
|--------------------|-----------------|

(4) MEF

- | | |
|---------------------|--|
| (a) Mr. Yous Phirum | Deputy Director of Department of International Cooperation |
|---------------------|--|

2. Japanese Side

(1) Embassy of Japan

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|---------------------------|------------------------------------|
| (a) Mr. Kenichi Kobayashi | Second Secretary, Embassy of Japan |
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(2) JICA Cambodia Office

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| (a) Mr. Kazuhiro Yoneda | Resident Representative, JICA Cambodia Office |
| (b) Ms. Tomoko Tanaka | Assistant Resident Representative, JICA Cambodia Office |

He

- (3) JICA Experts
 - (a) Mr. Nobuhiro Moriyama JICA Advisor, MOWRAM
 - (b) Mr. Akihiko Ihara JICA Advisor, MOWRAM
- (4) Technical Service Center
 - (a) Mr. Shigemitsu Tsukamoto Chief Advisor of TSC, MOWRAM
- (5) JICA Study Team for Basin-Wide Basic Irrigation and Drainage Master Plan Study
 - (a) Mr. Masayuki Kodama Leader
- (6) JICA Study Team
 - (a) Mr. Hitoshi Shimazaki Leader
 - (b) Mr. Takashi Shiraki Staff
 - (c) Mr. Toshikatu Imai Staff

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