

# 添付資料

実施細則（S/W）

2000年10月9日

実施細則（S/W）にかかる協議議事録

2000年10月9日

インセプション・レポートにかかる水資源気象省との協議議事録

2001年2月5日

インセプション・レポートにかかる JCC との協議議事録

2001年2月9日

インテリム・レポートにかかる JCC との協議議事録

2001年8月13日

プロGRESS・レポート(3)にかかる JCC との協議議事録

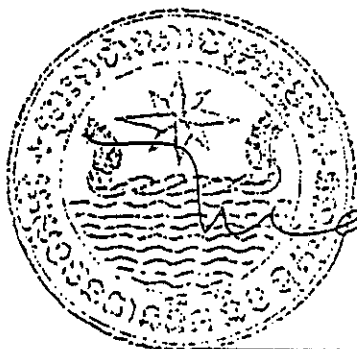
2001年12月20日

ドラフト・ファイナル・レポートにかかる JCC との協議議事録

2002年2月6日

SCOPE OF WORK  
FOR  
THE STUDY  
ON  
THE REHABILITATION AND RECONSTRUCTION  
OF AGRICULTURAL PRODUCTION SYSTEM  
IN  
THE SLAKOU RIVER BASIN,  
THE KINGDOM OF CAMBODIA

AGREED UPON  
BETWEEN  
MINISTRY OF WATER RESOURCES AND METEOROLOGY  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY



H. E. Mr. Y Ky Heang  
Secretary of State,  
Ministry of Water Resources  
and Meteorology,  
Royal Government of Cambodia

PHNOM PENH, 9 OCTOBER, 2000

中野 実

Mr. Minoru Nakano  
Leader,  
Preparatory Study Team,  
Japan International  
Cooperation Agency (JICA)

## 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") has decided to conduct the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes of GOJ, will undertake the Study in close cooperation with the authorities concerned of RGC.

The present document sets forth the scope of work with regard to the Study.

## II. OBJECTIVES OF THE STUDY

The objectives of the Study are;

1. To prepare a master plan for agricultural reconstruction / development in the upper to middle basin of the Slakou river as a model for the reconstruction / development of shallow bunded reservoir irrigation systems in the Kingdom of Cambodia.
2. To carry out feasibility study on the priority projects.
3. To transfer technology to the counterpart personnel through on-the-job training during the course of the Study.

## III. STUDY AREA

The Study shall be conducted on the upper middle basin of Slakou river, under the shallow bunded reservoir formed by three main reservoirs of Tumnap Lok Reservoir, O Saray Reservoir and Kpob Tro Beck Reservoir. The area covers two (2) provinces of Takeo and Kompong Speu, administratively (See ANNEX I).

## IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the study shall cover the following.

Phase-1: Master plan study

1. Review of relevant plans and projects to the Study.
2. Collection and analysis of the following data and information through the field survey;
  - (a) Natural resources,
  - (b) Socio-economic conditions,
  - (c) Institutional systems and activities,
  - (d) Agriculture and agro-economic conditions,
  - (e) Needs of the stakeholders and the social constraints,
  - (f) Distribution and processing,
  - (g) Irrigation and drainage,
  - (h) Rural infrastructure, and

(i) Initial Environmental Examination (IEE).

3. Analysis of collected data and information, and identification of constraints and development potential.

4. Formulation of the master plan including following components;

- (a) Institutional capacity building,
- (b) Land use and cropping,
- (c) Agricultural supporting system,
- (d) Post harvesting and marketing,
- (e) Water resources,
- (f) Irrigation and drainage,
- (g) Operation and maintenance of agricultural facilities,
- (h) Water management,
- (i) Organization of water users' communities,
- (j) Rural infrastructure,
- (k) Estimate of cost and benefits,
- (l) Environmental conservation,
- (m) Evaluation from technical, economical, financial and environmental viewpoints, and
- (n) Selection of priority project(s).

5. Evaluation of the master plan involving the stakeholders.

Phase-2: Feasibility study

Feasibility study shall be conducted on the priority project(s) selected in master plan study;

- 1. Collection and analysis of supplementary data and information,
- 2. Formulation of optimum improvement plan(s) involving the stakeholders into the planning stage.
- 3. Estimate of cost and benefits.
- 4. Environmental impact assessment (EIA) assistance survey, if necessary.
- 5. Evaluation from technical, economical, financial and environmental viewpoints.
- 6. Preparation of the implementation schedule.

V. STUDY SCHEDULE

The Study will be carried out in accordance with the attached tentative schedule (See ANNEX II).

VI. REPORTS

Following Reports shall be prepared in English and submitted to RGC.

- 1. Phase-1: Master plan study
  - (a) Inception Report, Thirty (30) Copies: At the commencement of the Study,

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- (b) Progress Report (1), Thirty (30) Copies: In the middle of the field work,
- (c) Progress Report (2), Thirty (30) Copies: At the end of the field work.

2. Phase-2: Feasibility study

- (a) Interim Report, Thirty (30) Copies: At the commencement,
- (b) Progress Report (3), Thirty (30) Copies: At the end of the field work,
- (c) Draft Final Report, Thirty (30) Copies: In the latter half.

RGC shall, if any, present comments on the Draft Final Report to the Japanese study team (hereinafter referred to as "the Team") within one (1) month after receiving the Draft Final Report.

- (d) Final Report, Fifty (50) Copies: Within two (2) months after receipt of comments on the Draft Final Report.

VII. UNDERTAKING OF RGC

1. To facilitate a smooth conduct of the Study, RGC shall take the following measures;

- (a) To secure the safety of the Team,
- (b) To permit the members of the Team to enter, leave and sojourn in the Kingdom of Cambodia for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,
- (c) To exempt the members of the Team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into and out of the Kingdom of Cambodia for the conduct of the Study,
- (d) To exempt the members of the 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 Team for their services in connection with the implementation of the Study,
- (e) To provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into the Kingdom of Cambodia from Japan in connection with the implementation of the Study,
- (f) To secure permission for entry into private properties or restricted areas for the conduct of the Study,
- (g) To secure permission for the Team to take all data and documents (including photographs and maps) related to the Study out of the Kingdom of Cambodia to Japan, and
- (h) To provide medical services as needed. Its expenses will be chargeable on the members of the Team.

2. RGC shall bear claims, if any arises, against the members of the 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 members of the Team.

3. The Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") shall act as a counterpart agency to the Team, and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

4. MOWRAM shall provide the Team with the following, in cooperation with other organizations concerned, at expenses of RGC;

- (a) Available data and information related to the Study,

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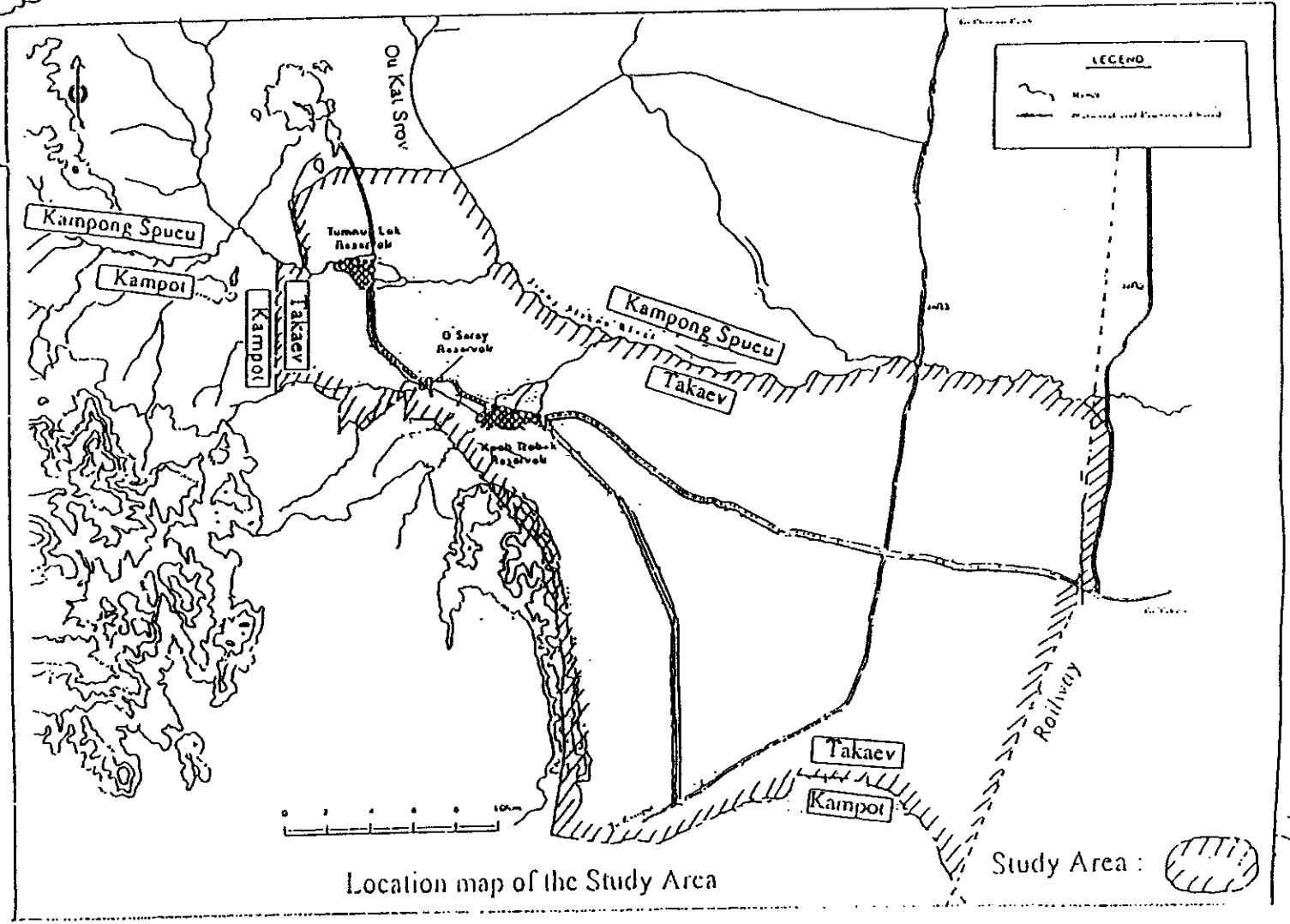
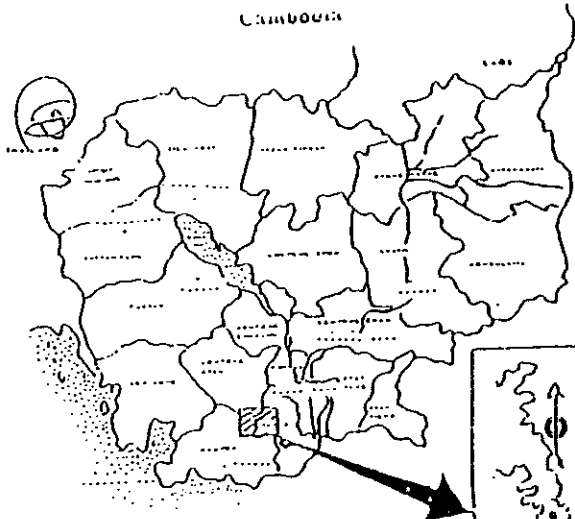
- (b) Counterpart personnel,
- (c) Suitable office space with necessary equipment in Phnom Penh and Takeo, and
- (d) Credentials or identification cards.

VIII. UNDERTAKING OF JICA

- For the implementation of the Study, JICA shall take the following measures;
1. To dispatch, at its own expense, the Team to the Kingdom of Cambodia, and
  2. To pursue technology transfer to the counterpart personnel of RGC in the course of the Study.

IX. CONSULTATION

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



Location map of the Study Area

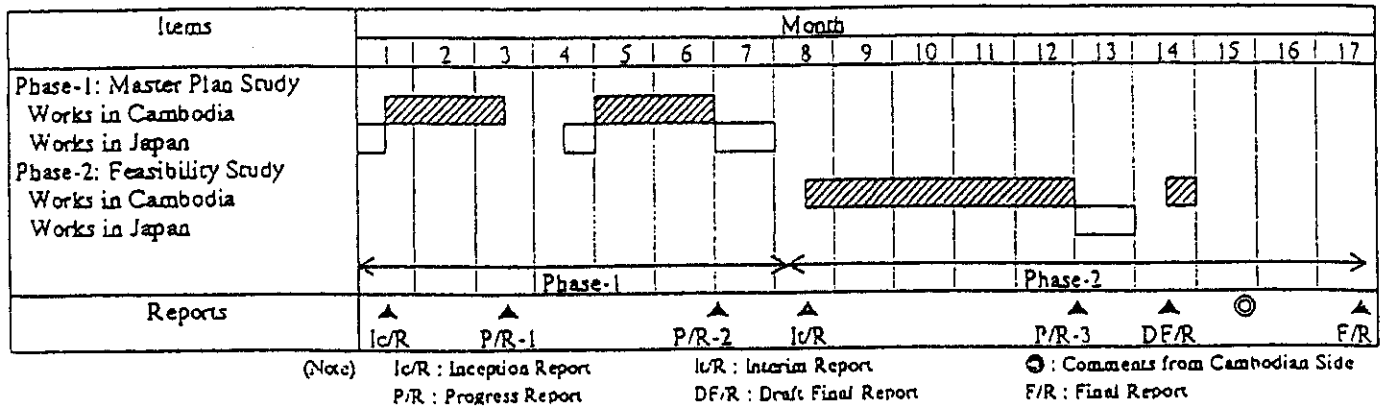
Study Area :



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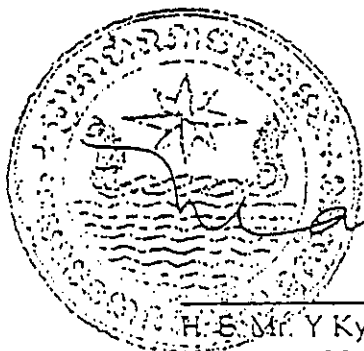
TENTATIVE SCHEDULE





MINUTES OF MEETING  
ON  
SCOPE OF WORK  
FOR  
THE STUDY  
ON  
THE REHABILITATION AND RECONSTRUCTION  
OF AGRICULTURAL PRODUCTION SYSTEM  
IN  
THE SLAKOU RIVER BASIN,  
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*[Handwritten signature]*  
H. E. Mr. Y Ky Heang  
Secretary of State,  
Ministry of Water Resources  
and Meteorology,  
Royal Government of Cambodia

PHNOM PENH, 9 OCTOBER, 2000

*[Handwritten signature]*

Mr. Minoru Nakano  
Leader,  
Preparatory Study Team,  
Japan International  
Cooperation Agency (JICA)

The preparatory study team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA"), and headed by Mr. Minoru NAKANO, visited the Kingdom of Cambodia from 2 October to 14 October, 2000 for the purpose of discussing and exchanging views in relation to the Scope of Work for The Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia (hereinafter referred to as "the Study") with the officials concerned of the Royal Government of Cambodia (hereinafter referred to as "RGC").

As a result of the discussions, RGC and the Team mutually agreed to the Scope of Work for the Study.

The following Minutes have been prepared to confirm the main issues discussed and matters agreed upon by both sides. The list of participants in a series of meetings is attached as ANNEX I.

1. Study Area

Both sides agreed that the Japanese Study Team shall exclude a part of the study area from the Study, wherever security problems arise.

2. Landmine and Unexploded Ordnance (UXO)

Both sides agreed that the area of "Level 1 Survey" and "Verified Mined Areas" shown in ANNEX II are excluded from the Study Area.

Ministry of Water Resources and Meteorology (MOWRAM) is responsible for providing information of landmine and UXO, investigating and disposing of them in the area that the Study Team specifies.

MOWRAM requested that the expenses for the investigation and the disposal would be provided by the Government of Japan.

3. Joint Coordinating Committee

A joint coordinating committee will be established to discuss and set forth study outcomes for coordination in the course of the Study. The members of the committee will include the representatives from following organizations.

- MOWRAM as the Coordinating Body,
- Council for the Development of Cambodia,
- Ministry of Agriculture, Fisheries and Forestry,
- Ministry of Rural Development,
- Ministry of Environment,
- Cambodian National Mekong Committee,
- Organizations that MOWRAM acknowledges to be necessary.

Both sides agreed that the Study should be implemented with a close collaboration between central authorities and local authorities.

4. Counterpart Personnel

Both sides agreed that MOWRAM shall take responsibility for assigning enough number of qualified counterpart personnel prior to the arrival of the Study team.

5. Necessary Equipment and Facilities for the Study

MOWRAM promised to provide the Study Team with desks, chairs and the exclusive use of telephone lines in suitable office space in Phnom Penh and Takeo.

6. Final Report

Both sides agreed that the final report of the Study would be made open and available to the public.

7. Water Balance Study

Both sides agreed that tentative water balance study between available water resources and irrigation water requirements of the study area will be conducted in the course of the study, considering the effect to the existing irrigation areas in the downstream.

8. Interpreters for the Study

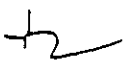
The Cambodian side requested that interpreters for Khmer-English who can conduct the Study with the Study Team should be provided by the Government of Japan.

9. Expenses for Field Surveys

The Cambodian side requested that expenses on counterpart personnel for field trip should be provided by the Government of Japan.

10. Training of Counterpart Personnel

The Cambodian side requested the counterpart training in Japan for an effective technology transfer.



## LIST OF PARTICIPANTS

## [Ministry of Water Resources and Meteorology]

H. E. Mr. Bun Hean	Directorate General of Technical Affairs
Mr. Prum Saroeun	Director, Dept. of Administration and Human Resources
Mr. Te Navuth	Director, Dept. of Hydrology and River Works
Ms. Seth Vannareth	Director, Dept. of Meteorology
Mr. Te Auv Kim	Director, Dept. of Irrigation and Drainage
Mr. Hou Ka	Deputy Director, Dept. of Planning and International Cooperation
Mr. Ngoun Pich	Deputy Director, Dept. of Engineering
Mr. Cheam Sar	Vice Chief, Office of Rural Water Supply, Dept of Water Supply and Sanitation
Mr. Prak Savy	Staff, Dept. of Water Resources Management and Conservation
Mr. Koeut Kittineath	Staff, Dept. of Engineering
Mr. Masao Miyazaki	JICA Expert

## [Preparatory Study Team]

Mr. Minoru Nakano	Leader
Mr. Takashi Kato	Rehabilitation of Irrigation Facilities
Mr. Toshifumi Yanagita	Cultivation / Distribution
Ms. Mikayo Yamazaki	Rural Organization
Mr. Tomoyuki Mase	Study Planning



CMAC Database  
October 2000

Bombing Data  
Received from U.S. Army

ANNEX II 1/5



Trapeang Krathung

Qu Sarey

Trapeang Thum Khang Cheung

Chang Tong

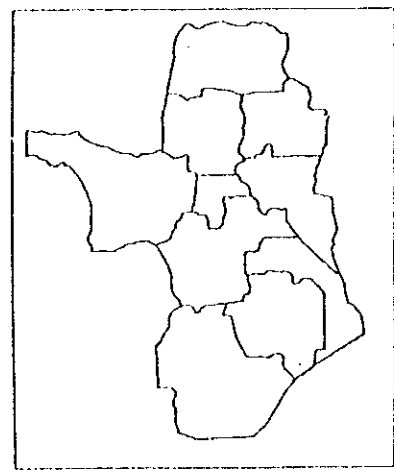
Popel

Oldam Sourya

LEGEND

- District Center
- Commune Centers
- National Roads
- Provincial Roads
- District Boundaries
- Commune Boundaries
- ★ Air Attack Targets (1970-75)
- Level 1 Survey

○ : Study Area



Trapeang Thum Khang Tboung

Ta Phem

Tram Kak

Leay Bdi

Samfaong

Angk Ta Suon

Kus

Srao Ronoung

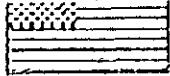
Nhaeng Nhang

Tram Kak

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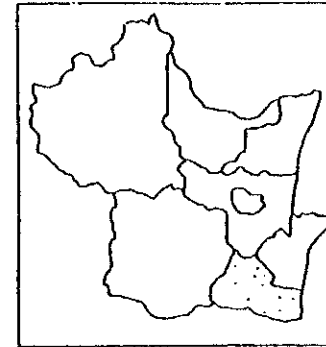
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CMAC Database  
October 2000

Bombing Data  
Received from U.S. Army



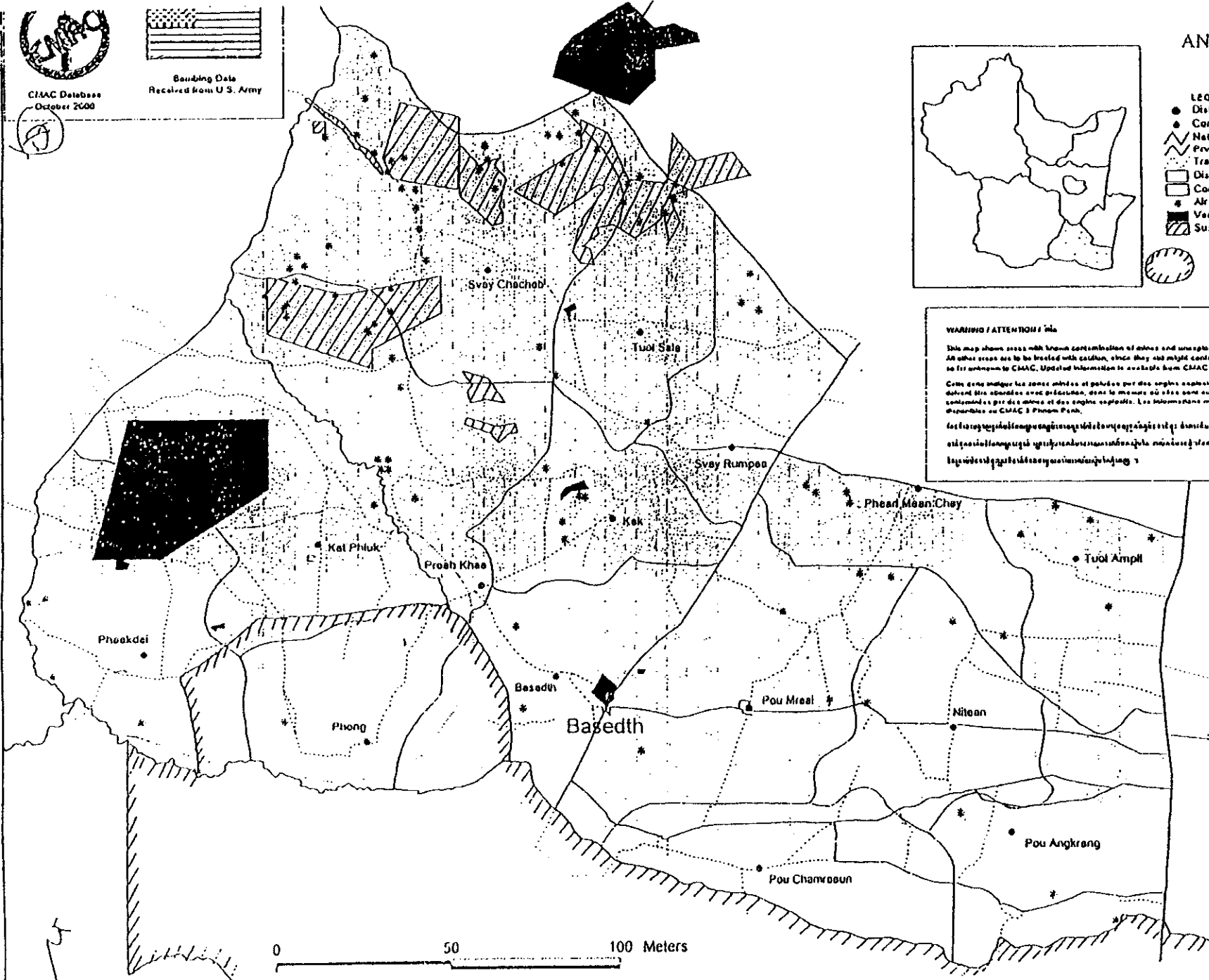
- LEGEND**
- District Center
  - Commune Centers
  - National Road
  - Provincial Roads
  - ⋯ Tracks
  - District Boundaries
  - Commune Boundaries
  - ★ Air Attack Targets (1970-75)
  - Verified Mined Areas
  - ▨ Suspected Mined Areas
  - : Study Area

**WARNING / ATTENTION : info**

This map shows areas with known contamination of mines and unexploded ordnance. All other areas are to be treated with caution, since they may also contain explosive devices to first unknown to CMAC. Updated information is available from CMAC Phnom Penh.

Cette carte indique les zones minées et polluées par des engins explosifs. Toutes autres zones doivent être abordées avec précaution, dans la mesure où elles sont aussi susceptibles d'être contaminées par des mines et des engins explosifs. Les informations mises à jour sont disponibles au CMAC à Phnom Penh.

ផែនការនេះបង្ហាញពីតំបន់ដែលមានការបាញ់គ្រាប់បែក និងគ្រាប់បែកមិនផុតស្រទាប់។ តំបន់ទាំងអស់ផ្សេងទៀតត្រូវតែប្រុងប្រយ័ត្ន ព្រោះវាអាចមានគ្រាប់បែកដែលមិនស្គាល់ដោយ CMAC ភ្នំពេញ។ ព័ត៌មានបន្ថែមអាចទទួលបានពី CMAC ភ្នំពេញ។



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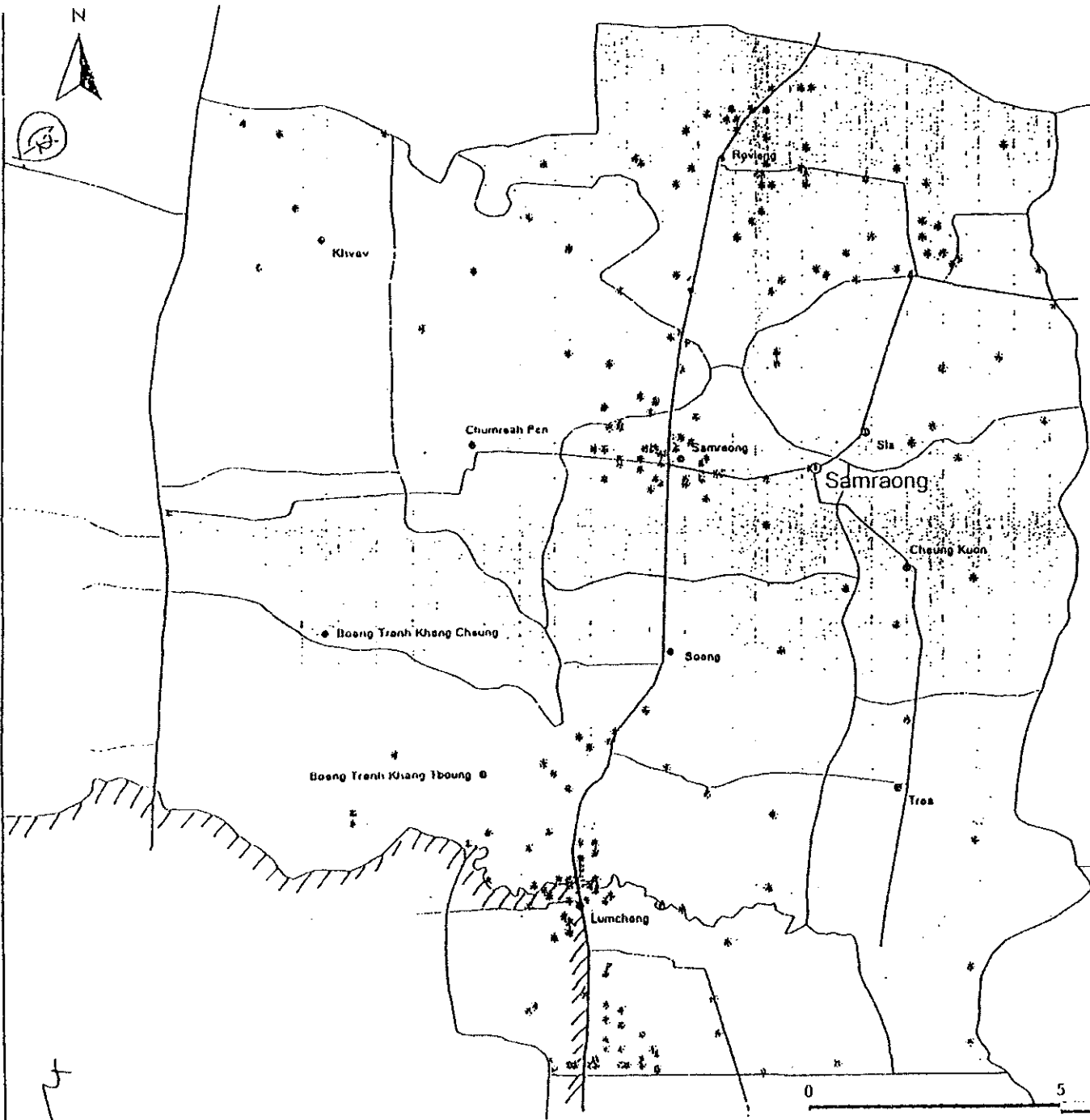
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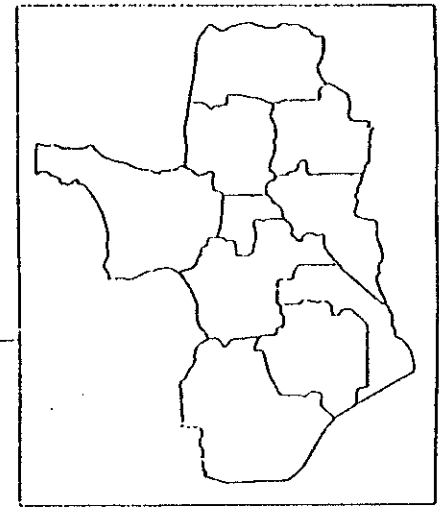
CMAC Database  
October 2000

Bombing Data  
Received from U.S. Army

ANNEX II 3/5



- LEGEND**
- ⊙ District Center
  - Commune Centers
  - National Roads
  - - - Provincial Roads
  - ▭ District Boundaries
  - ▭ Commune Boundaries
  - \* Air Attack Targets (1970-75)
  - ⊞ Level 1 Survey
  - ⊞ : Study Area

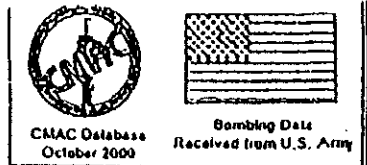


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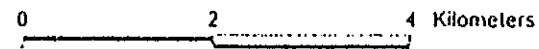
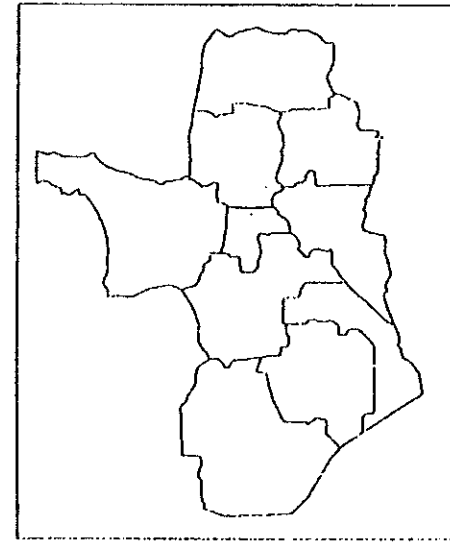
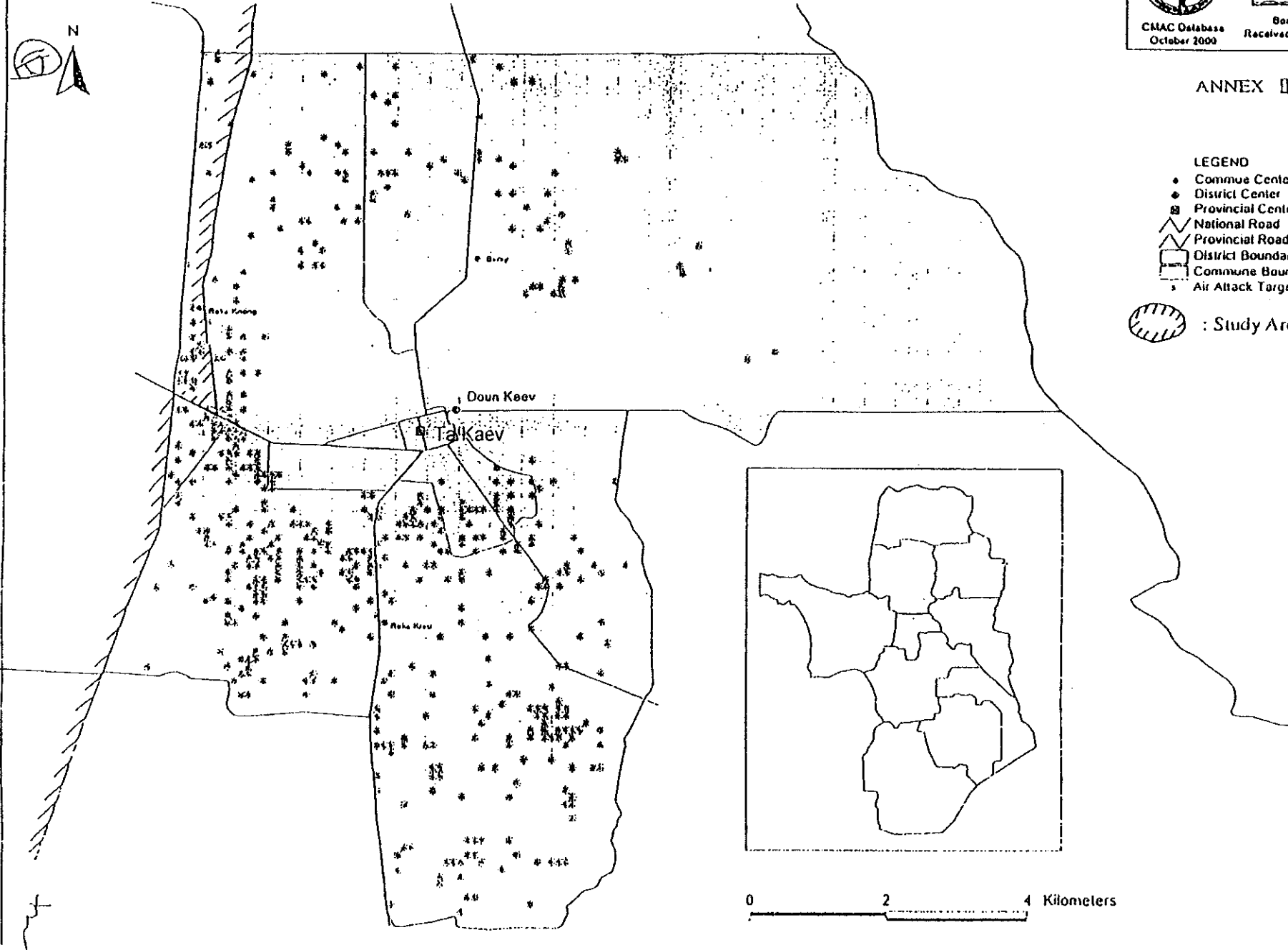
6/9

# Map of Mine/UXO in Doun Kaev District (Takeo Province)



ANNEX II 4/5

- LEGEND**
- Commune Centers
  - ◐ District Center
  - ◑ Provincial Center
  - ▣ National Road
  - ▤ Provincial Roads
  - ▭ District Boundaries
  - ▮ Commune Boundaries
  - ✱ Air Attack Targets (1970-75)
- ◌ : Study Area



A-15

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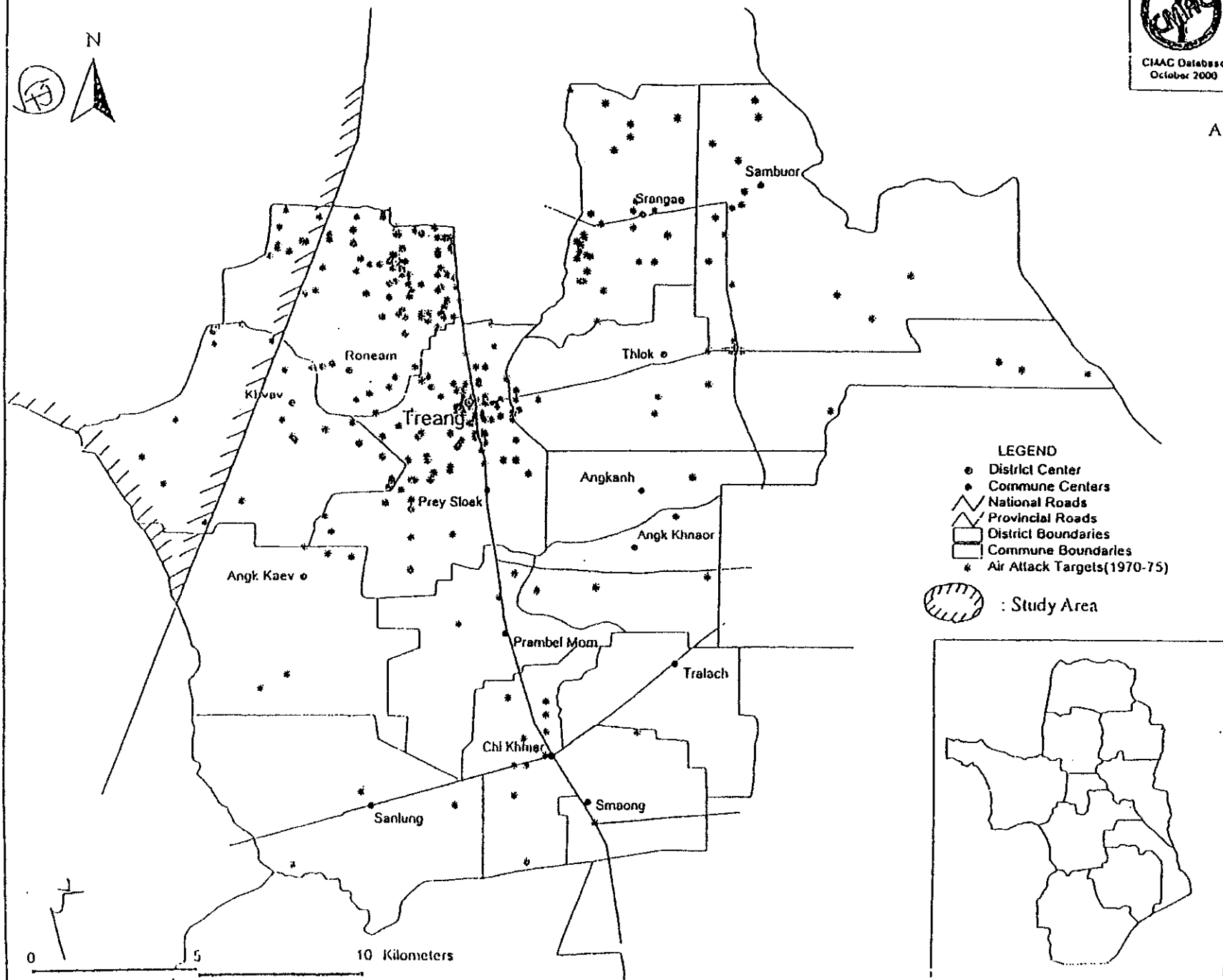
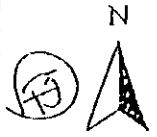




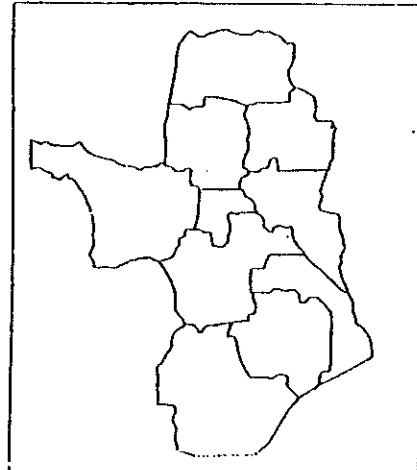
CIAAC Database  
October 2000

Bombing Data  
Received from U.S. Army

ANNEX II 5/5



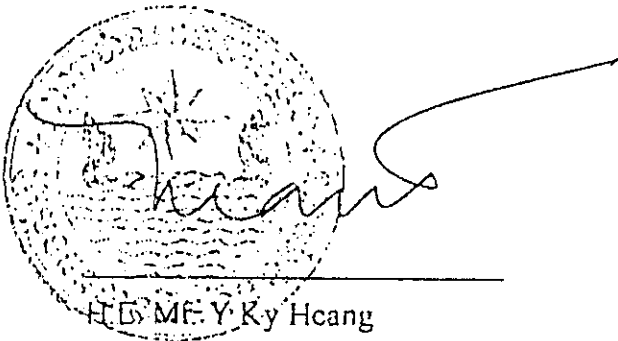
- LEGEND**
- District Center
  - Commune Centers
  - National Roads
  - - - Provincial Roads
  - District Boundaries
  - Commune Boundaries
  - \* Air Attack Targets(1970-75)
  - ▨ : Study Area



A-16

6/6

MINUTES OF MEETING  
ON  
THE INCEPTION REPORT  
FOR  
THE STUDY ON THE REHABILITATION AND RECONSTRUCTION OF  
AGRICULTURAL PRODUCTION SYSTEM IN THE SLAKOU RIVER BASIN,  
THE KINGDOM OF CAMBODIA



H.E. ME Y Ky Hcang  
Secretary of State,  
Ministry of Water Resources  
and Meteorology,  
Royal Government of Cambodia

Phnom Penh, February 05, 2001

Foshikazu HIGASHIKAWA  
Leader,  
Study Team  
Japan International Cooperation  
Agency

Witnessed by

Mr. Tomoyuki MASE  
Advisory Team  
Japan International Cooperation  
Agency

In accordance with the Scope of Work for "the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia" (hereinafter referred to as "the Study"), the Government of Japan dispatched through Japan International Cooperation Agency (hereinafter referred to as "JICA") the Study Team headed by Mr. Toshikazu HIGASHIKAWA, and the Advisory Team headed by Mr. Tomoyuki MASE for conducting the Study to the Kingdom of Cambodia.

The meeting on the Inception Report was held between the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM"), and the JICA Study Team (hereinafter referred to as "the Team") on February 01, 2001. The meeting was chaired by Mr. Chuon BITHOL, Deputy Director General of Technical Affairs, MOWRAM. The attendants of the meeting are listed in ANNEX-I. After the presentation by the Team on contents of the Inception Report to the attendants at the meeting, various discussions were made between MOWRAM and the Team, and the Inception Report was accepted by MOWRAM. The both sides agreed to proceed to the next stage of the Study in accordance with the approaches and the plan of operation mentioned in the Inception Report. The major points agreed upon between the both sides are as follows :

- (1) MOWRAM has organized a Joint Coordinating Committee (hereinafter referred to as "the JCC") in accordance with the Minutes of Meeting agreed on October 09, 2000. The members are listed in ANNEX-II.
- (2) MOWRAM will organize a Working Group as soon as possible functioning as the counterpart team consisting of counterpart personnel best for the Study who can communicate in English in accordance with the assignment schedule.
- (3) The Team and the Working Group will have a meeting at Takeo every two weeks on Monday.
- (4) MOWRAM will provide the Team with suitable and safe office spaces with necessary number of desks, chairs, electricity, and exclusive use of telephone lines for the Team at Takeo and at Phnom Penh by February 16, 2001.
- (5) The Study will not aim at watershed management and river training of the Slakou River and its tributaries including the sedimentation countermeasures, but a preliminary sedimentation analysis for the reservoirs may be required when the

utilization of reservoirs is planned in the Master Plan.

- (6) Counterpart personnel will accompany the Team member (s) when he or they visit some newly surveyed areas.
- (7) MOWRAM requested donation of the water level gauges and staff gauges to be installed by the Team. If the donation is approved by JICA, MOWRAM will maintain such equipment after completion of the Study.

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JICA  
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## List of Attendants

## MOWRAM

Mr. Chuon Bithol	Deputy Director General of Technical Affairs
Mr. Pich Veasna	Director of Planning and International Cooperation Department
Mr. Mey Ly Huoth	Director of Engineering Department
Mr. Te Auv Kim	Director of Irrigated Agriculture Department
Mr. Te Navuth	Director of Hydrology and River Works Department
Mr. Chomg Seng Im	Director of Finance Department
Mr. Theng Tara	Director of Water Resources Management and Conservation Department
Mr. Prum Sarocun	Director of Administration and Human Resources Department
Mr. Vin Bun Pou	Chief of ASEAN Affairs Office, Planning and International Cooperation Department
Mr. Cheam Sar	Vice Chief of Urban Water Supply Office, Water Supply and Sanitation Department
Mr. Chhuy Hy Karona	Staff of Engineering Department
Mr. Kocut Kittineath	Staff of Engineering Department
Mr. Masao Miyazaki	JICA Expert, MOWRAM

JICA Advisory Team

Mr. Tomoyuki Mase	Project Coordinator, Agricultural Development Study Division, Agriculture, Forestry and Fisheries Development Study Department, JICA Headquarters
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## JICA Study Team

Mr. Toshikazu Higashikawa	Leader
Mr. Nobuo Sambe	Agri-Production Infrastructure (1)
Mr. Hiroyoshi Matsuura	Water Utilization / Hydrology
Mr. Shinichi Yano	Water Users' Community
Mr. Hisashi Ishikawa	Agriculture / Pedology
Mr. Makoto Yokota	Coordinator

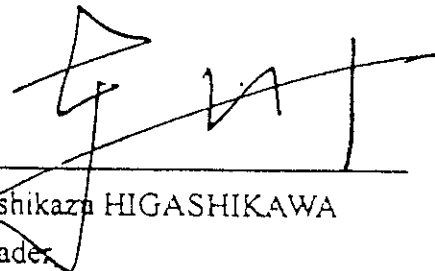
MINUTES OF MEETING  
OF  
THE 1ST JOINT COORDINATING COMMITTEE  
FOR  
THE STUDY ON THE REHABILITATION AND RECONSTRUCTION  
OF AGRICULTURAL PRODUCTION SYSTEM  
IN THE SLAKOU RIVER BASIN,  
THE KINGDOM OF CAMBODIA

Phnom Penh, February 09, 2001



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H.E. Mr. Bun Hean  
Director General of Technical Affairs,  
Ministry of Water Resources  
and Meteorology



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Toshikazu HIGASHIKAWA  
Leader  
Study Team  
Japan International Cooperation  
Agency

In accordance with the Scope of Work and the Minutes of Meeting for "the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia" (hereinafter referred to as "the Study") agreed on October 09, 2000, the Ministry of Water Resources and Meteorology (hereinafter referred to as "MOWRAM") has organized a Joint Coordinating Committee for the Study (hereinafter referred to as "the JCC"). The first meeting between the JCC and the JICA Study Team was held on February 09, 2001 at MOWRAM.

The meeting was chaired by H.E. Mr. Bun HEAN, Director General of Technical Affairs, MOWRAM. The attendants of the meeting are listed in ANNEX-I. After the Team briefed the contents of the Inception Report and the Minutes of Meeting agreed on February 05, 2001 to the attendants at the meeting, various discussions were made between the JCC and the Team. Finally, the contents of the Inception Report and the Minutes of Meeting agreed on February 05, 2001 were approved by the JCC. The both sides confirmed to proceed to the next stage of the Study in accordance with the approaches and the plan of operation mentioned in the Inception Report, and the Minutes of Meeting agreed on February 05, 2001. The major points agreed upon between the both sides are as follows :

- (1) MOWRAM will make arrangement for the following assignment of counterpart personnel (nine in total):
  - One (1) Team Leader of the Working Group from Takeo Office, DWRAM, MOWRAM
  - One (1) Hydrologist from Central Office of MOWRAM
  - One (1) Water Users' Community Expert from Central Office of MOWRAM
  - One (1) Irrigation Engineer from Central Office of MOWRAM
  - Two (2) Irrigation Engineers from Takeo Office, DWRAM, MOWRAM
  - One (1) Agronomist from Takeo Office of MAFF
  - One (1) Agro-Economist from Central Office of MAFF
  - One (1) Environment Expert from Takeo Office of MOE
- (2) The counterpart persons will start to work with members of the Study Team at Takeo on February 12, 2001.
- (3) MOWRAM will request the Governor of Takeo to make necessary arrangement for safety of the Study Team and its sub-contract workers in the Study Area, while the Study Team will also request the Governor of Takeo to do so.

**List of Attendants**

**Joint Coordinating Committee for  
the Study on the Rehabilitation and Reconstruction of  
Agricultural Production System in the Slakou River Basin**

H.E. Mr. Bun Hean	Director General of Technical Affairs, Ministry of Water Resources and Meteorology (MOWRAM), as the Chair Person.
Ms. Heng Sokun	Director of Management and Coordinator of Bilateral Japanese Grant Aid and Asia and the Pacific, Councils for the Development of Cambodia (CDC).
Mr. Ma Sovanna	Civil Work & Procurement Assistance of Planning-Accounting Office, Department of Agronomy and Soil Management, Ministry of Agriculture, Forestry and Fisheries (MAFF).
Mr. Ou Sophanna	Program Officer in Charge of Agriculture Section, Cambodia National Mekong Committee (CNMC).

**MOWRAM**

Mr. Yin Savuth	Engineer of Hydraulic, MOWRAM
Mr. Masao Miyazaki	JICA Expert, MOWRAM

**JICA Study Team for  
the Study on the Rehabilitation and Reconstruction of  
Agricultural Production System in the Slakou River Basin**

Mr. Toshikazu Higashikawa	Leader of the JICA Study Team
Mr. Makoto Yokota	Coordinator



ANNEX-II

**Members of the Joint Coordinating Committee  
for the Study on the Rehabilitation and Reconstruction of  
Agricultural Production System in the Slakou River Basin,  
The Kingdom of Cambodia**

H.E. Mr. Bun Hean	Director General of Technical Affairs, Ministry of Water Resources and Meteorology (MOWRAM), as the chair person.
Ms. Heng Sokun	Director of Management and Coordinator of Bilateral Japanese Grant Aid and Asia and the Pacific, National Election Committee (NEC).
Mr. Nhon Pechnimeth	Chief of Small Scale Irrigation Office, Ministry of Rural Development (MRD).
Mr. Ma Sovanna	Irrigation Engineer of Planning /Accounting Office, Department of Agronomy and Soil Management, Ministry of Agriculture, Forestry and Fisheries (MAFF).
Mr. Pech Dun	Director of Project Department, Cambodia National Mekong Committee (CNMC).

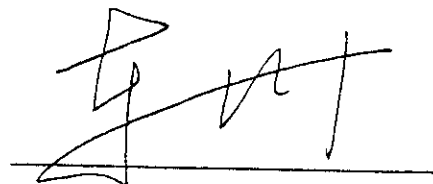
MINUTES OF MEETING  
OF  
THE 5TH JOINT COORDINATING COMMITTEE  
FOR  
THE STUDY ON THE REHABILITATION AND RECONSTRUCTION  
OF AGRICULTURAL PRODUCTION SYSTEM  
IN THE SLAKOU RIVER BASIN,  
THE KINGDOM OF CAMBODIA

Phnom Penh, August 13, 2001



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H.E. Mr. Bun Hean  
Director General of Technical Affairs,  
Ministry of Water Resources  
and Meteorology



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Toshikazu HIGASHIKAWA  
Leader,  
Study Team  
Japan International Cooperation  
Agency

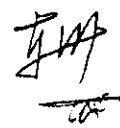
In accordance with the Scope of Work for "the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia" (hereinafter referred to as "the Study") agreed on October 09, 2000, the Study Team had a meeting on the Interim Report with "the Joint Coordinating Committee for the Study" (hereinafter referred to as "the JCC") organized by "the Ministry of Water Resources and Meteorology" (hereinafter referred to as "MOWRAM") at MOWRAM on August 13, 2001.

The meeting was chaired by H.E. Mr. Bun HEAN, Director General of Technical Affairs, MOWRAM. The participants of the meeting are listed in ANNEX-I. The chairman asked the Study Team to brief the Interim Report. Team Leader of the Study Team explained that the Study Team had a meeting on the Interim Report with JICA Advisory Committee in Tokyo on July 26, 2001, and reported the following results of the meeting:

- 1) The master plan proposed in the Interim Report was generally accepted by the JICA Advisory Committee, except for dependability of irrigation water applied to the Upper Slakou River Irrigation Reconstruction Plan. The Study Team proposed 50 % dependability, but the JICA Advisory Committee recommended that 80 % dependability should be applied to the Study instead of the 50 % dependability.
- 2) For expansion of irrigation area, water saving irrigation method shown in "FAO Irrigation and Drainage Paper No.33" can be applied under 80 % dependability.
- 3) The 50 % dependability used in the Interim Report should be modified to 80 % dependability after the feasibility study by application of 80 % dependability is finished, and the modification should be shown in draft final report and final report.
- 4) In addition to the above, the JICA Advisory Committee advised that the Study Team should make clear i) constraints in organizing Farmers Water Users Community and training of farmers for operation and maintenance of irrigation facilities, and ii) process for solving those constraints in the report.

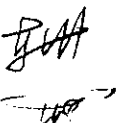
Hydrologist of the Study Team briefed the water saving irrigation method to the participants. The Team Leader explained i) the priority projects for feasibility study during Phase II Third Field Work and ii) a general schedule of Phase II Third Field Work. He said that the Study Team would commence the feasibility study from now on and asked the JCC for assignment of counterpart personnel.

After the explanation and reporting, the chairman asked the participants to give



questions and comments. Some opinions, questions and answers were exchanged. Finally, the results of meeting with JICA Advisory Committee, the priority projects for feasibility study and assignment of counterpart personnel were accepted by the JCC. The summary of discussion were as follows:

- 1) The Study Team will report to the MOWRAM a newly proposed irrigation area for mutual understanding of the Study immediately after a water balance study is finished.
- 2) The Study Team will have a meeting with the JCC about the draft feasibility study in the beginning of December, 2001.
- 3) The MOWRAM requested that an irrigation area be as large as possible.
- 4) The procedure of estimation of water requirements should be clarified in the report.
- 5) A 1:10,000 topographic map with one meter contour interval covering about 6,800 ha will be prepared by the Study Team for the feasibility study.
- 6) The MOWRAM already made an arrangement for investigation of landmine and unexploded ordnance in the Study Area for safety of geotechnical boring to be conducted by the Study Team.
- 7) Drainage capacity of road crossing structure should be technically adequate.



## List of Attendants (1/2)

**Joint Coordinating Committee for  
the Study on the Rehabilitation and Reconstruction of  
Agricultural Production System in the Slakou River Basin**

H.E. Mr. Bun Hean	Director General of Technical Affairs, Ministry of Water Resources and Meteorology (MOWRAM), as the Chair Person.
Mr. Pich Dun	Director of Projects Department, Cambodia National Mekong Committee (CNMC)
Mr. Nuon Pichuimith	Chief of Small Irrigation Office of Department of Rural Water Supply, Ministry of Rural Development (MRD)
Mr. Dim Kimhon	Staff of Department of Bilateral Aid, Councils for the Development of Cambodia (CDC).

## MOWRAM

Mr. Pich Veasna	Director of Planning and International Cooperation Department, MOWRAM
Mr. Theng Tara	Director of Water Resources Management and Conservation Department, MOWRAM
Mr. Te Navuth	Director of Hydrology and River Works Department, MOWRAM
Mr. Te Auv Kim	Director of Irrigated Agriculture Department, MOWRAM
Mr. Mey Ly Huoth	Director of Engineering Department, MOWRAM
Mr. Prum Saroeun	Director of Administration and Human Resources Department, MOWRAM
Mr. Cheam Sar, MSe	Vice Chief of Urban Water Supply Office Department of Water Supply and Sanitation, MOWRAM
Mr. Sam Oeurn Soknara	Department of Meteorology
Mr. Yin Savuth	Hydraulic Engineer, Department of Hydrology, MOWRAM
Mr. Chhuy Hy Karona	Irrigation Engineer, Department of Engineering, MOWRAM
Mr. Men Mlob Bonn	Hydrologist, Department of Irrigation, MOWRAM

*[Handwritten signature]*  
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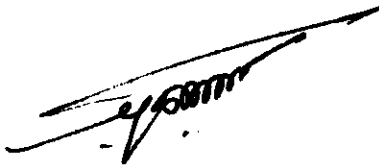
## List of Attendants (2/2)

### JICA Study Team for the Study on the Rehabilitation and Reconstruction of Agriculture Production System in the Slakou River Basin

Mr. Toshikazu Higashikawa	Team Leader
Mr. Nobuo Sambe	Agricultural Production Infrastructure (1)
Mr. Hiroyoshi Matsuura	Water Utilization / Hydrology
Mr. Seiji Itaya	Rural Society / Participatory Approach
Mr. Makoto Yokota	Coordinator

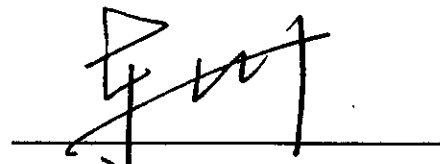
**MINUTES OF MEETING  
OF  
THE 7TH JOINT COORDINATING COMMITTEE  
FOR  
THE STUDY ON THE REHABILITATION AND RECONSTRUCTION  
OF AGRICULTURAL PRODUCTION SYSTEM  
IN THE SLAKOU RIVER BASIN,  
THE KINGDOM OF CAMBODIA**

Phnom Penh, December 20, 2001



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H.E. Mr. Bun Hean  
Director General of Technical Affairs,  
Ministry of Water Resources  
and Meteorology



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Toshikazu HIGASHIKAWA  
Leader,  
Study Team  
Japan International Cooperation  
Agency

In accordance with the Scope of Work for “the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia” (hereinafter referred to as “the Study”) agreed on October 09, 2000, the Study Team had a meeting on the Progress Report (3) with “the Joint Coordinating Committee for the Study” (hereinafter referred to as “the JCC”) organized by “the Ministry of Water Resources and Meteorology” (hereinafter referred to as “MOWRAM”) at MOWRAM on December 20, 2001.

The meeting was chaired by H.E. Mr. Bun HEAN, Director General of Technical Affairs, MOWRAM. The participants of the meeting are listed in ANNEX-I.

The chairman declared an opening of the 7th meeting with the JCC. The chairman firstly reviewed the history of the Study starting the S/W signed on October 09, 2000, and explained significance of the Progress Report (3). He asked the Study Team to brief the Progress Report (3).

Firstly, the Team Leader of the Study Team expressed his sincere thanks to all the participants as well as counterpart persons on behalf of the Study Team, and secondly explained the objectives of the meeting. Thirdly, he explained the following difference between the Draft and the Report:

- 1) Inclusion of the 6th minutes of meeting held on December 4, 2001
- 2) Inclusion of the results of 10-time PRA workshop
- 3) Inclusion of “conclusions and recommendations”

Fourthly, he briefed the above 2) and 3). Fifthly, he explained the general schedule of the Study :

- 1) The Study Team is leaving for Japan on December 23, 2001.
- 2) The Study Team will have a meeting with JICA Advisory Committee on the Draft Final Report in Tokyo on January 18, 2002.
- 3) The Study Team will send the Draft Final Report to MOWRAM around January 22, 2002.
- 4) The Study Team will come to Phnom Penh on February 4 (Mon), 2002.
- 5) The Study Team will submit to MOWRAM i) Summary of the Draft Final Report in Khmer and ii) the Planning Guideline (Draft) in Khmer on February 5 (Tue), 2002.
- 6) The Study Team will have a meeting with MOWRAM on February 5 (Tue), 2002.
- 7) The Study Team will have the 8th meeting with JCC on February 6 (Wed), 2002.
- 8) The Study Team will leave for Japan on February 12 (Tue), 2002.



- 9) The Study Team will send the following outputs of the Study to MOWRAM around the end of March 2002.
- Final Report including Main Report, Appendices and Drawings
  - Summary of the Final Report in Khmer
  - Planning Guideline for Rehabilitation and Reconstruction of Irrigation Systems in the Kingdom of Cambodia

The chairman said to the participants whether or not they had questions and comments on the Report and others. The opinions, questions, and answers were exchanged, and the summary of discussion was as follows:

**Summary of Discussion:**

- Q: In some irrigation schemes, serious floods in recent years have damaged function of the irrigation facilities, and lots of costs had and have to be spent for repair works. In this Study, was such flood influence duly considered?
- A: The Study Area is not affected either by the Mekong/ the Bassak Rivers or the Preak Thnot River. The irrigation facilities were designed taking into account design floods of certain return periods. Therefore, the proposed irrigation and drainage facilities have sufficient capacity and strength against the design floods. As for spillways, the Study Team adopted overflow-type spillways that avoid the flood damage caused by operational failure.
- Q: Will the Study Team prepare the (Draft) Final Report in Khmer?
- A: No. Summary of the Draft Final Report will be prepared in Khmer and submitted by the next JCC Meeting.
- Q: The Study Team proposed two kinds of ponds, namely, group pond and individual pond. Please explain details.
- A: In order to cover the whole Study Area, the Study Team proposed three development plans. They are USP, SRP and PDP. As for PDP, the Study Team prepared model ponds operated by group farmers and individual farmers, but for both types of ponds, the Study Team proposed Farmer Water User Group for O & M. For other plans (USP, SRP), too, the Study Team proposed FWUC and/or FWUG aiming for sustainable development.
- Q: Was the area on the downstream of Tumnup Lok Reservoir included in the proposed irrigation area?

A: Yes, the Study Team included two intake facilities for the existing paddy field of 15 ha.

Q: Didn't the Study Team propose a bridge over the spillway of Kpob Trobek Reservoir for securing transport during the rainy season?

A: No. Taking into account economic viability, shallow overflow depth of the design flood (0.80m) and short flood period, the Study Team did not propose the bridge.

Q: Organization chart of MOWRAM should be modified to the newest. Provincial Department (DWRAM) should be situated below Directorate Generals (Technical Affairs, Administration)

A: The Study Team will revise it as MOWRAM suggested.

Q: Did the Study Team conduct reservoir operation simulation in the water balance study?

A: Yes. Details will be included in Appendix-B of the (Draft) Final Report.

Q: Will the Study Team provide MOWRAM with digital files of Khmer version of the (Draft) Final Report (Summary) and the Planning Guideline? MOWRAM thinks that the guideline should be properly revised and modified by MOWRAM continuously from now on, and the digital files would be useful for MOWRAM.

A: The Study Team will convey MOWRAM's request to JICA Head Office.

Finally, the Study results described in the Progress Report (3) were accepted.

**List of Attendants (1/2)**

**Joint Coordinating Committee for  
the Study on the Rehabilitation and Reconstruction of  
Agricultural Production System in the Slakou River Basin**

- H.E. Mr. Bun Hean                      Director General of Technical Affairs,  
Ministry of Water Resources and Meteorology (MOWRAM),  
as the Chair Person.
- Ms. Heng Sokun                         Director of Management and Coordinator of Bilateral  
Japanese Grant Aid and Asia and the Pacific,  
Councils for the Development of Cambodia (CDC).
- Mr. Ou Sophanna                        Program Officer in Charge of Agriculture Section,  
Cambodia National Mekong Committee (CNMC).

**MOWRAM**

- Mr. Theng Tara                         Director of Water Resources Management and Conservation  
Department, MOWRAM
- Mr. Auv Kim                             Director, Irrigation and Drainage Department, MOWRAM
- Mr. Chea Chhunkeat                    Deputy Director, Administration and Human Resources  
Department, MOWRAM
- Mr. Long Saravuth                     Deputy Director, Hydrology and River Works Department
- Mr. Phu Phalkun                        Engineer, Engineering Department, MOWRAM
- Mr. El Lyne                             Engineer, Water Supply and Sanitation Department, MOWRAM
- Mr. Men Mlob Bonn                    Hydrologist, Irrigation and Drainage Department, MOWRAM
- Mr. Chhuy Hy Karona                   Irrigation Engineer, Engineering Department, MOWRAM
- Mr. Yin Savuth                         Hydraulic Engineer, Hydrology and River Works Department,  
MOWRAM

**MAFF**

- Mr. Rany Vireak                        Agro-economist, Department of Agronomy and Agricultural Land  
Improvement, MAFF

## **List of Attendants (2/2)**

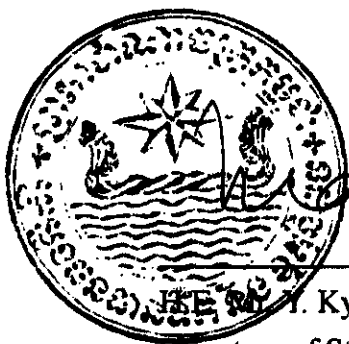
### **JICA Study Team for the Study on the Rehabilitation and Reconstruction of Agriculture Production System in the Slakou River Basin**

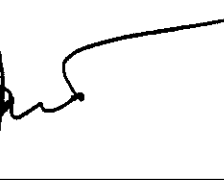
Mr. Toshikazu Higashikawa	Team Leader
Mr. Nobuo Sambe	Agri-Production Infrastructure (1)
Mr. Hajime Kamo	Agri-Production Infrastructure (2)
Mr. Shinichi Yano	Farmer Water User Community
Mr. Hisashi Ishikawa	Agriculture / Pedology
Mr. Seiji Itaya	Rural Society / Participatory Approach
Mr. Yutaka Niikawa	Design / Cost Estimation

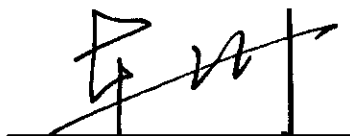


**MINUTES OF MEETING  
OF  
THE 8TH JOINT COORDINATING COMMITTEE  
FOR  
THE STUDY ON THE REHABILITATION AND RECONSTRUCTION  
OF AGRICULTURAL PRODUCTION SYSTEM  
IN THE SLAKOU RIVER BASIN,  
THE KINGDOM OF CAMBODIA**

Phnom Penh, February 6, 2002



  
\_\_\_\_\_  
**Y. Ky Heang**  
Secretary of State,  
Ministry of Water Resources  
and Meteorology  
Royal Government of Cambodia

  
\_\_\_\_\_

**Toshikazu HIGASHIKAWA**  
Leader,  
Study Team  
Japan International Cooperation  
Agency

In accordance with the Scope of Work for "the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin, the Kingdom of Cambodia" (hereinafter referred to as "the Study") agreed on October 09, 2000, the Study Team had a meeting on the Draft Final Report with "the Joint Coordinating Committee for the Study" (hereinafter referred to as "the JCC") organized by "the Ministry of Water Resources and Meteorology" (hereinafter referred to as "MOWRAM") at MOWRAM on February 6, 2002.

The meeting was chaired by H.E. Mr. Bun Hean, Director General of Technical Affairs, MOWRAM. The participants of the meeting are listed in ANNEX-I.

The chairman declared an opening of the 8th meeting with the JCC. He asked the Team Leader of the Study Team to brief the Draft Final Report.

Firstly, the Team Leader said that this is the last meeting with JCC, and on behalf of the Study Team he expressed his sincere thanks to all the participants as well as counterpart persons for their kind cooperation extended to the Study. Secondly, he reported the results of meeting with JICA Advisory Committee that the Report was accepted by the Advisory Committee. Thirdly, he briefed the Draft Final Report as follows:

- 1) The Report consists of three volumes, i.e. Volume I ; Main Report, Volume II ; Appendices, and Volume III ; Drawings.
- 2) The Main Report consists of four parts, i.e. Part I: General Information and Background, Part II ; Master Plan, Part III ; Alternative Study on the Irrigation Area of USP, and Part IV ; Feasibility Study.
- 3) The Report includes all the study results carried out by the Study Team and Counterpart persons in accordance with the Plan of Operation stated in the Inception Report.
- 4) In addition to the above Report, the Study Team submitted the following to MOWRAM on February 5, 2002 :
  - i) Summary of Draft Final Report in Khmer
  - ii) Planning Guideline for Rehabilitation and Reconstruction of Irrigation Systems (Draft)

Fourthly, he confirmed the general schedule of the Study Team as follows :

- 1) The minutes of the meeting will be signed on February 7, 2002.
- 2) The workshop on how to estimate water requirements and river water resources will be held at 8:00 am on February 11, 2002, in response to MOWRAM's

request raised in the last workshop held on December 21, 2001.

- 3) The Study Team will leave for Japan on February 12 (Tue), 2002.
- 4) MOWRAM will send comments on the Draft Final Report, if any, by the end of February, 2002.
- 5) The Study Team will send the following outputs of the Study to MOWRAM by the end of March 2002.
  - Final Report including Main Report, Appendices and Drawings
  - Summary of the Final Report in Khmer
  - Planning Guideline for Rehabilitation and Reconstruction of Irrigation Systems in English
  - Planning Guideline for Rehabilitation and Reconstruction of Irrigation Systems in Khmer

The chairman said to the participants whether or not they had questions and comments on the Report and others. The opinions, questions, and answers were exchanged, and the summary of discussion was as follows:

**Summary of Discussion:**

**Q: What should people in the neglected Koh Kaek canal area do for improvement of farm income and living standard ?**

**A: The Study Team has proposed SRP and PDP for them in the report. A part of the Koh Kaek canal can be used as pond by use of existing canal.**

**Q: Can FWUC of USP undertake the credit service ? The present FWUCs do not provide any credit service because credit service is not included in Circular No.1.**

**A: The Study Team has proposed credit service only to the limited poor families of FWUC member, namely the socially weak. The Study Team thinks it will not be necessary to modify the Circular No.1 because the proposed credit service is very small part of the FWUC's activities. The Study Team has proposed that the Board of FWUC should approve or reject the credit service as internal subject of FWUC.**

**Q: Is fund for the credit service available ?**

**A: During a few years after the commencement of FWUC's activities, it will be very difficult for the FWUC to undertake the credit service due to lack of fund. After a few years, it will be possible, because the FWUC will have fund raised by i) storage and selling of ISF paddy and ii) marketing assistance.**

**Q: Did the Study Team study groundwater potential ?**

**A: No. The study on the groundwater potential is out of the S/W. But, the Study Team reviewed another JICA study report on groundwater development in southern Cambodia, 1996-1999. According to the study report, two groundwater tests were conducted in the Study Area, and it was reported that available discharge is 0.017 to 1.7 lit/sec. Utilization of groundwater seems less economical than utilization of surface water, such as river water and rainfall.**

**Q: As for design of rock spillways of reservoirs, how is the stability of anchor rocks on the downstream secured ?**

**A: The Study Team has proposed appropriate size of rocks for stability. Furthermore, the Study Team has proposed usage of sheet piles against scouring of the anchor rocks of spillways.**

**Q: As for design of Kpob Trobek spillway, why is not a bridge provided on the Kpob Trobek spillway crest for traffic?**

**A: The Study Team has not proposed a bridge on the spillway crest in due consideration of frequency and duration of flood that will disturb the traffic on the crest and the economic reason of the bridge construction cost.**

**Q: How is the JICA's answer to MOWRAM's request of computer digital files of Planing Guideline for Rehabilitation and Reconstruction for Irrigation Systems in Khmer and English versions.**

**A: JICA has accepted MOWRAM's request on the following conditions, and the Study Team will submit the computer digital files to MOWRAM on February 11, 2002:**

- 1) MOWRAM can modify the Planning Guideline as it wishes, but MOWRAM should be responsible for all the contents of the modified Planning Guideline.**
- 2) When MOWRAM modifies the Planning Guideline, MOWRAM should state in the modified version that the original version of the Planning Guideline was prepared by JICA in 2002 under the Study on the Rehabilitation and Reconstruction of Agricultural Production System in the Slakou River Basin.**

**Finally, MOWRAM has accepted the Draft Final Report, and strongly requested JICA to undertake the implementation of USP (3,500 ha) as a model project for mitigation of poverty in rural area of Cambodia. JICA Study Team will convey such request to JICA headquarters in Tokyo.**



## List of Attendants (1/2)

**Joint Coordinating Committee for  
the Study on the Rehabilitation and Reconstruction of  
Agricultural Production System in the Slakou River Basin**

H.E. Mr. Bun Hean	Director General of Technical Affairs, Ministry of Water Resources and Meteorology (MOWRAM), as the Chair Person.
Mr. Pich Dun	Director of Project Department, Cambodia National Mekong Committee (CNMC).
Mr. Ma Sovanna	Assistant of Planning-Accounting Office, Department of Agronomy and Agricultural Land Improvement (DAALI), Ministry of Agriculture, Forestry and Fisheries (MAFF)
Mr. Chum Samnang	Cambodia Rehabilitation and Development Board, Councils for the Development of Cambodia (CDC).
Mr. Dim Kimhon	Cambodia Rehabilitation and Development Board, Councils for the Development of Cambodia (CDC).

**MOWRAM**

H.E. Mr. Nei Lorn	General Inspector.
Mr. Pich Veasna	Director of Planning and International Cooperation Department.
Mr. Te Navuth	Director of Hydrology and River Work Department.
Mr. Pang Peng	Deputy Director of Water Supply and Sanitation Department.
Mr. Long Vuth	Deputy Director of Finance Department.
Mr. Chea Chhunkeat	Deputy Director of Administration and Human Resources Department.
Mr. Chuon Bithol	Deputy Director General of Technical Affairs.
Mr. Men Mlob Bonn	Irrigation and Drainage Department.
Mr. Chhuy Hy Karona	Engineering Department.
Mr. Am Norin	Water Resources Management and Conservation Department.
Mr. Masao Miyazaki	JICA Expert.

**JICA Cambodia Office**

Mr. Koizumi Yukihiro	Assistant Resident Representative.
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**List of Attendants (2/2)**

**JICA Study Team for  
the Study on the Rehabilitation and Reconstruction of  
Agriculture Production System in the Slakou River Basin**

Mr. Toshikazu Higashikawa Team Leader  
Mr. Nobuo Sambe Agri-Production Infrastructure (1)  
Mr. Hiroyoshi Matsuura Water Utilization / Hydrology