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付7

021-0100 E0090



KINGDOM OF CAMBODIA
CITY OF PHNOM PENH

PHNOM PENH WATER SUPPLY AUTHORITY

IMPROVEMENT OF SOCIAL AND ECONOMIC
INFRASTRUCTURE

REQUEST FOR DEVELOPMENT STUDY

ON

RE-MASTER PLAN

OF

PHNOM PENH WATER SUPPLY SYSTEM

IN

THE KINGDOM OF CAMBODIA

June, 2003

配付先	国内	派遣	企業	医務
	社協	農圃	銀閣	森林
	社協	農圃	銀閣	無償
一次	／	／	／	／

List of Requests

1. Name of Ministry: Phnom Penh Water Supply Authority (PPWSA)

2. Focal Person of the Request Survey :

Name : H. E. Ek Sonn Chann

Position : General Director of PPWSA

Contact Telephone No. :

Office Tel: 023-724 046, Fax: 023-428 969

Mobile: 011 779 779

3. List of Requests

Cooperation Program	Priority	Component Projects			No. of Grant Aid for General Project
		No. of Technical Cooperation Program	No. of Individual Expert	No. of Development Study	
The Program for Improvement of Urban Sanitation	1			01	

SUMMARY SHEET FOR THE DEVELOPMENT STUDY

SUMMARY SHEET FOR COOPERATION PROGRAM

I. BASIC INFORMATION

1. Classification

- a. new assignment
- b. extension
- c. substitution

2. Priority area

Improvement of social and economic infrastructure

3. Development issues

Reinforcement of Urban Functions

4. Cooperation program

Program for Improvement of Urban Sanitation

II. SUMMARY

1. Present conditions of the concerned sector and existing problems to be tackled (background & justification of the cooperation program)

Phnom Penh is the capital of Cambodia. Over the past decade, the city including sub-urban area has begun growing rapidly with commercial & industrial development, and the population has also been increasing rapidly year by year. Under the circumstances, present water supply situation around the city will be difficult to access stabilized water supply of clean and plentiful water through the existing water supply system, and the service coverage is still the lowest level in the world.

To follow rapid growth of water demand and to expand service coverage, the city is expected to play a strategically important role, serving as a model case for other urban cities.

2. Objectives of the cooperation program

a. Objectives of the cooperation program

The present conditions of the existing water supply system is unable to provide water consumers in sub-urban area with sufficient quantity and quality of water, and so, needs to be improved by expansion, rehabilitation, repair and newly construction etc. of the facilities to make the living environment suitable for the capital of Cambodia.

Therefore, it is required to prepare a long-term water supply development plan (Re-Master Plan), and based on this Re-Master Plan, the Feasibility Study shall be necessary for the implementation of urgent projects to solve the present problems.

b. Component projects to be proposed for the Japanese fiscal year 2004 and reasons why it is proposed to achieve the objectives of the cooperation program.

To establish long-term water supply development plan to strengthen water supply system in the area.

3. Expected outputs

Improve and strengthen water supply system to meet future demand of water

4. Desired project period (month, year)

15 month from JFY2004

5. Target area

Phnom Penh City and Sub-urban area

6. Related cooperation program/ projects with other donors' assistance (if any)

- 1) The Project for Expansion of Phum Prek Water Treatment Plant
(Japan's Grant Aid)

- 2) Cambodia Provincial and Peri-Urban Water Supply and Sanitation - Project (PE-073311-KH) (World Bank)
- 3) The Extension of Phnom Penh Suburb Water Supply System (AFD)

III. Plan of operation (including on-going projects)

Japanese ODA Scheme	Project Title	Operational Year (Japanese Fiscal Year)				
		2003	2004	2005	2006	2007
Grant Aid	The Project for Expansion of Phum Prek Water Treatment Plant					
Development Study	Development of Study on Re-Master Plan of Phnom Penh Water Supply System in Cambodia					
Related Cooperation Program (with other donors including JBIC)	Cambodia Provincial and Peri-Urban Water Supply and Sanitation Project (PE-073311-KH) (WB)					
	The Extension of Phnom Penh Suburb Water Supply System (AFD)					

INQUIRY SHEET FOR THE DEVELOPMENT STUDY

INQUIRY SHEET

- 1) Priority area
Improvement of social and economic infrastructure
- 2) Development issues
Reinforcement of Urban Function
- 3) Cooperation program
Program for Improvement of Urban Sanitation
- 4) Category
 - a. Technical Cooperation Project
 - b. Individual Expert
 - c. Development Study Project
 - d. Grant Aid Project

1. Date of Entry: Day 20 Month 06 Year 2008

2. Applicant: The Government of Cambodia

3. Project Title: Development Study on Re-Master Plan of Phnom Penh Water Supply System in Cambodia.

4. Implementing Agency: Phnom Penh Water Supply Authority

Address: North of Cambodia Railway Station

Contact Person: LONG NARO

Tel. No. 011-666011 Fax. 023-427657

E-Mail. PPWSA@online.com.kh

5. Background of the Project

(Current conditions of the sector, Government's development policy for the sector, issues and problems to be solved, existing development activities in the sector, etc.)

i) Current conditions of the sector

Phnom Penh is the capital of Cambodia. Over the past decade, the city including

sub-urban area has begun growing rapidly with commercial & industrial development, and the population has also been increasing rapidly year by year.

Under the circumstances, present water supply situation around the city will be difficult to access stabilized water supply of clean and plentiful water through the existing water supply system, and the service coverage is still the lowest level in the world.

To follow rapid growth of water demand and to expand service coverage, the city is expected to play a strategically important role, serving as a model case for other urban cities.

ii) Problems to be solved in the Sector

The major problems to be solved within the existing water sector are:

- Rehabilitation of the existing water supply system;
- Upgrading and expansion of water supply network to meet future demand;
- Lack of water;
- Formulation, development and implementation of a water sector policy which accounts for the needs and developments within the sector, and at the same time is compatible with Cambodian's environmental policy.

6. Outline of the Project

(1) Overall Goal

(Development effect expected as a result of achievement of the "Project Purpose" is in several years after the end of the project period)

To study to solve the following matters:

- Rehabilitation of the existing water supply system;
- Upgrading and expansion of water supply network to meet future demand;
- Lack of water;
- Formulation, development and implementation of a water sector policy, which accounts for the needs and developments within the sector, and at the same time is compatible with Cambodian's environmental policy.

(2) Project Purpose

(Objective expected to be achieved by the end of the project period. Elaborate with quantitative indicators if possible)

The present conditions of the existing water supply system is unable to provide water

consumers in sub-urban area with sufficient quantity and quality of water, and so, needs to be improved by expansion, rehabilitation, repair and newly construction etc. of the facilities to make the living environment suitable for the capital of Cambodia. Therefore, it is required to prepare a long-term water supply development plan (Re-Master Plan), and based on this Re-Master Plan, the Feasibility Study shall be necessary for the implementation of urgent projects to solve the present problems.

(3) Outputs

(Objectives to be realized by the "Project Activities" in order to achieve the "Project Purpose")

- Rehabilitation of the existing water supply system;
- Upgrading and expansion of water supply network to meet future demand;
- Lack of water;
- Formulation, development and implementation of a water sector policy, which accounts for the needs and developments within the sector, and at the same time is compatible with Cambodian's environmental policy.

(4) Project Activities

(Specifications intended to produce each "output" of the project by effective use of the "Input")

To prepare a long-term water supply development plan (Re-Master Plan), and based on this Re-Master Plan, the Feasibility Study shall be necessary for the implementation of urgent projects to solve the present problems.

Scope of the Study

1. Basic Study

- 1) Future water demand in study area
- 2) Prospective water sources to meet future water demand
- 3) Deficiencies in the existing water supply system
- 4) Financial, operational and managerial capability of the implementing agency

For this purpose, the following data and information will be collected and evaluated.

- a) Natural conditions
- b) Socio-Economic indicators (GNP, GDP, Income, etc.)
- c) Environmental conditions, especially water resources
- d) Short and long term city development plan and land use
- e) Existing water supply system and related facilities

- f) Water use and water supply conditions
- g) Organization, operation and management of the implementing agency
- h) Relevant ongoing or planned projects
- i) Sectoral water demand, such as irrigation, hydropower, flood control, etc.

2. Formulation of Re-Master Plan

- 1) Formulation of ultimate goals and targets
- 2) Formulation of basic development policies and strategies
- 3) Establishment of planning framework, such as service area and population, water demand, unaccounted for water ratio, etc.
- 4) Evaluation of alternative development scenario and water infrastructure arrangement
- 5) Selection of a most preferable development plan
- 6) Recommendations on improvement of organization, operation and management of water supply system
- 7) Stage-wise development program
- 8) Identification of a priority project
- 9) Initial Environmental Examination

3. Feasibility Study

- 1) Planning framework
- 2) Proposed development plan
- 3) Preliminary design of proposed facilities and works
- 4) Operation, Maintenance and management plan
- 5) Preliminary cost estimate
- 6) Implementation schedule
- 7) Disbursement schedule of the project cost
- 8) Financing plan
- 9) Financial evaluation
- 10) Environmental impact assessment
- 11) Project evaluation

(5) Input from the Recipient Government

(Counterpart personnel (identify the name and position of the Project manager), support staff, office space, running expense, vehicles, equipment, etc.)

Mr. LONG NARO /Position : Deputy General Director

Support Staff: available

Office Space: available

Vehicles: not available

(6) Input from the Japanese Government

(Number and qualification of Japanese experts, training (in Japan and in-country) - courses, seminars and workshops, equipment, etc.)

Anticipated Expert Team

Project Manager

Hydrologist

Hydrogeologist

Environmental Expert

Water Demand Planner

Water Resource Planner

Water Supply System Planner

Water Supply Pipe Network Planner

Quantity Survey & Construction Engineer

M&E Facility Design Engineer

Water Quality Expert

Institutional Expert

Economic & Financial Expert

Cost Estimate Engineer

(7) External Conditions

Ministry of economy and Finance and Phnom Penh Water Supply Authority (PPWSA) will ensure budget allocation and disbursement for the project.

7. Implementation Schedule

15 month from JFY 2004

8. Implementing Agency

Phnom Penh Water Supply Authority

9. Related Activities

(1) Technical cooperation and grant aid provided

(Technical cooperation and grant aid provided by Japan (if any))

The Project for Expansion of Phum Prek Water Treatment Plant

(2) Activities in the sector by the recipient government, other donors and NGOs

- 1) Cambodia Provincial and Peri-Urban Water Supply and Sanitation Project
(PE-073311-KH) (World Bank)
- 2) The Extension of Phnom Penh Suburb Water Supply System (AFD)

10. Beneficiaries

(Population for which positive changes are intended directly and indirectly by implementing the project)

- * Inhabitants living in the project area will receive direct access to safe water supply, especially for the poor people living in the sub-urban of the city of Phnom Penh.

11. Security Conditions

Security condition is secured for the study team

12. Others

None

APPLICATION OF THE DEVELOPMENT STUDY

APPLICATION FOR JAPANESE TECHNICAL COOPERATION -

DEVELOPMENT STUDY
ON
RE-MASTER PLAN
OF
PHNOM PENH WATER SUPPLY SYSTEM
IN
THE KINGDOM OF CAMBODIA

JUNE, 2003

PHNOM PENH WATER SUPPLY AUTHORITY

APPLICATION FOR THE TECHNICAL COOPERATION (DEVELOPMENT STUDY) OF THE GOVERNMENT OF JAPAN

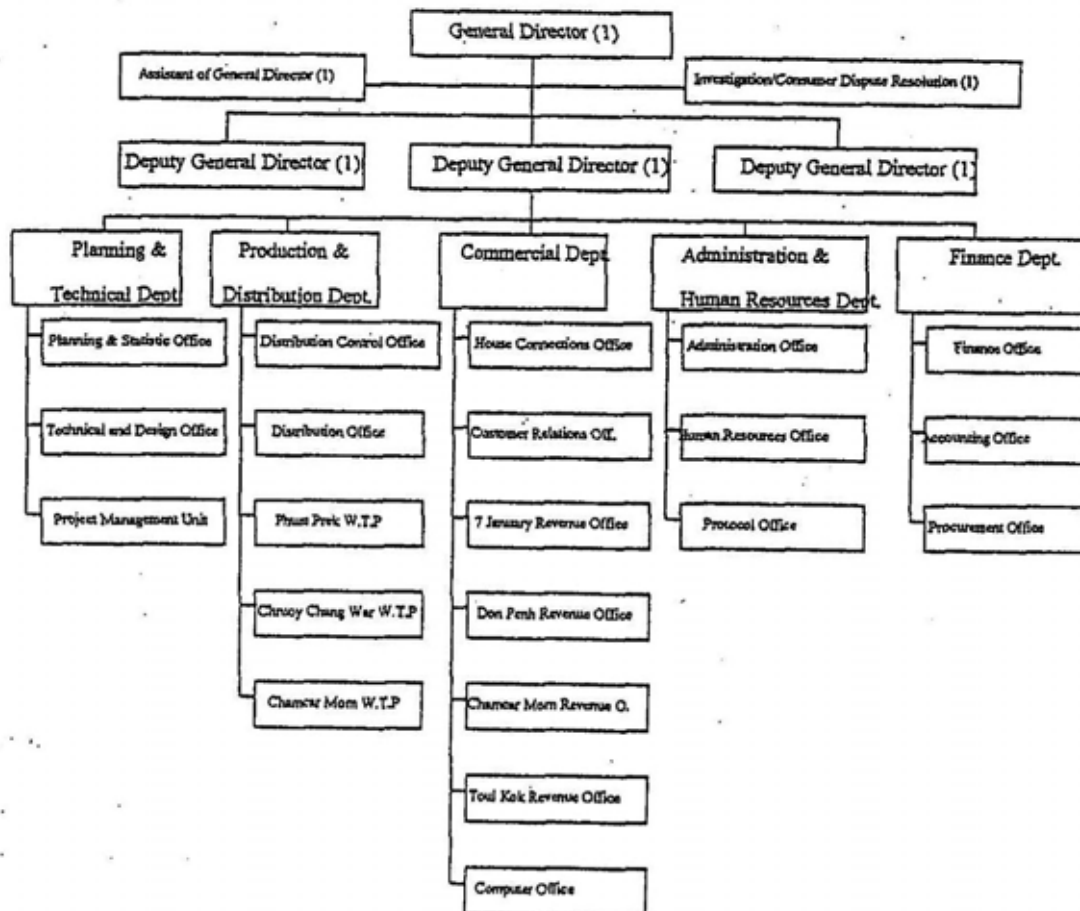
1. PROJECT DIGEST

(a) Project Title : Re-Master Plan Study on Phnom Penh Water Supply System
(Master Plan and Feasibility Study)

(b) Location : The Project is located in Phnom Penh of the Kingdom of Cambodia

(c) Implementing Agency

- i) Responsible Agency : Phnom Penh Water Supply Authority (PPWSA)
- ii) Executing Agency : Phnom Penh Water Supply Authority (PPWSA)
(Organization Chart of PPWSA is shown below)



(d) **Proposed Date of Commencement of the Project :** FY 2004

(e) **Prospective Funding Source :** Due to budget limitation and a lack of technology in some of the key fields, overture is made here to the Government of Japan to take up this study.

2. JUSTIFICATION OF THE PROJECT

(a) Background

i) Present Conditions of the Sector

Phnom Penh is the capital of Cambodia. Over the past decade, the city including sub-urban area has begun growing rapidly with commercial & industrial development, and the population has also been increasing rapidly year by year.

Under the circumstances, present water supply situation around the city will be difficult to access stabilized water supply of clean and plentiful water through the existing water supply system, and the service coverage is still the lowest level in the world.

To follow rapid growth of water demand and to expand service coverage, the city is expected to play a strategically important role, serving as a model case for other urban cities.

ii) Problems to be solved in the Sector

The major problems to be solved within the existing water sector are:

- Rehabilitation of the existing water supply system;
- Upgrading and expansion of water supply network to meet future demand;
- Lack of water;
- Formulation, development and implementation of a water sector policy which accounts for the needs and developments within the sector, and at the same time is compatible with Cambodian's environmental policy.

(b) Project Description

The study will be formulated the Master Plan and the Feasibility Study on the priority project identified in the Master Plan.

i) Project Objectives

The present conditions of the existing water supply system is unable to provide water consumers in sub-urban area with sufficient quantity and quality of water, and so, needs to be improved by expansion, rehabilitation, repair and newly construction etc. of the facilities to make the living environment suitable for the capital of Cambodia.

Therefore, it is required to prepare a long-term water supply development plan (Re-Master Plan), and based on this Re-Master Plan, the Feasibility Study shall be necessary for the implementation of urgent projects to solve the present problems.

ii) Project Area

The project area will cover the entire Phnom Penh City. The existing and proposed water supply facilities of this region including proposed site for new water resources is managed by Phnom Penh Water Supply Authority.

iii) Prospective Beneficiaries

The proposed study will be of particular benefit to the inhabitants of the areas because it will allow the Government or PPWSA to design water supply system that meet their needs in terms of portable water.

iv) Positioning in the National Development Plan

The Royal Government of Cambodia stated the followings on the National Development Plan "Second Five Year Socio-Economic Development Plan (2001-2005)" and "Public Investment Programme (2000-2002)".

"The wider provision of potable water and sanitation facilities in both rural and urban areas is a high priority of the Royal Government during the Plan period, both as a means of tackling one of root causes of poverty and as a means of improving the situation with respect to public health." "The Government will promote wider provision of affordable potable water supply and sanitation, as it contributes broadly to tackling the causes of poverty and improving public health." "The Municipality of Phnom Penh is responsible for sanitation and drainage in the capital, while water supply is the responsibility of the Phnom Penh Water Supply Authority. There is a need for agency coordination and cooperation in respect of urban water supply, and sanitation in general." "Targets for safe water supply in the year 2005 for urban population is 87% and for rural population is 40%."

(c) Other Relevant Projects, if any

Name of Project : The Project for Expansion of Phum Prek Water Treatment Plant

Implementing Agency : Phnom Penh Water Supply Authority (PPWSA)

Project Amount : US\$ 2,437 million

Financial Source : Grant Aid from Japan's ODA

Time Schedule for Implementation : October/ 2001 – March/ 2003

Scope of Works : Expansion of Phum Prek Water Treatment Plant (Capacity from 100,000 m3/ day to 150,000m3/ day)

Name of Project : Cambodia Provincial and Peri-Urban Water Supply and Sanitation Project (PE-073311-KH)

The Construction of Water Elevated Tank

Implementing Agency : Phnom Penh Water Supply Authority (PPWSA)

Project Amount : US\$ 1.5 million

Financial Source : International Development Agency (IDA) of the World Bank

Time Schedule for Implementation : 18 months from the end of year 2003

Scope of Works : Construction of one(1) elevated tank (Capacity: 1,500m3, H=30m)

Name of Project : The Extension of Phnom Penh Suburb Water Supply System

Implementing Agency : Phnom Penh Water Supply Authority (PPWSA)

Project Amount : US\$ 3 million

Financial Source : Grant Aid from AFD (l' Agence Francaise de Development)

Time Schedule for Implementation : Starting from the end of year 2003

Scope of Works : Construction of two(2) elevated tank (Capacity: 1,500m3) and transmission pipeline

- g) Organization, operation and management of the implementing agency
- h) Relevant ongoing or planned projects
- i) Sectoral water demand, such as irrigation, hydropower, flood control, etc.

2. Formulation of Re-Master Plan

- 1) Formulation of ultimate goals and targets
- 2) Formulation of basic development policies and strategies
- 3) Establishment of planning framework, such as service area and population, water demand, unaccounted for water ratio, etc.
- 4) Evaluation of alternative development scenario and water infrastructure arrangement
- 5) Selection of a most preferable development plan
- 6) Recommendations on improvement of organization, operation and management of water supply system
- 7) Stage-wise development program
- 8) Identification of a priority project
- 9) Initial Environmental Examination

3. Feasibility Study

- 1) Planning framework
- 2) Proposed development plan
- 3) Preliminary design of proposed facilities and works
- 4) Operation, Maintenance and management plan
- 5) Preliminary cost estimate
- 6) Implementation schedule
- 7) Disbursement schedule of the project cost
- 8) Financing plan
- 9) Financial evaluation
- 10) Environmental impact assessment
- 11) Project evaluation

(e) Study Schedule

The study will take 15 months to complete. The first part of the study will be completed with the submission of the Interim Report, which will be at the end of the seventh month. The second part will end with the submission of the Final Report. The study team will have to visit Cambodia twice, once during the wet season and the other during the dry season. The major reports will be submitted as indicated below.

- g) Organization, operation and management of the implementing agency
- h) Relevant ongoing or planned projects
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2. Formulation of Re-Master Plan

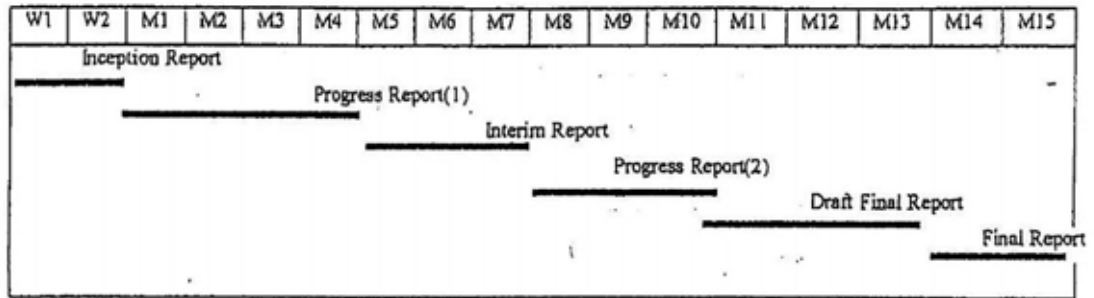
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Anticipated Expert Team

Project Manager

Hydrologist

Hydrogeologist

Environmental Expert

Water Demand Planner

Water Resource Planner

Water Supply System Planner

Water Supply Pipe Network Planner

Quantity Survey & Construction Engineer

M&E Facility Design Engineer

Water Quality Expert

Institutional Expert

Economic & Financial Expert

Cost Estimate Engineer

(f) Expected Major Output of the Study

The reports expected from the study are: Inception Report, Progress Report (1), Interim Report, Progress Report (2), Draft Final Report, Final Report. The major output of the Study will be prepared in English and submitted to the implementing agency.

(g) Request of the Study to Other Donor Agencies, if any

No request has been made to other donors. Japan is the only country that has been approached.

4. FACILITIES AND INFORMATION FOR THE STUDY TEAM, ETC.

(a) Assignment of counterpart personnel of the implementing agency for the Study (number, academic background, etc.)

Phnom Penh Water Supply Authority (PPWSA) has indicated that it will assign counterparts as requested by the Japanese Study Team. In addition the Municipality of Phnom Penh and Ministry of Industry, Mines and Energy (MIME) will make available counterparts if requested by the Study Team.

(b) Available data, information, documents, maps, etc. related to the Study

PPWSA will provide the Study Team with all available data, information, documents, maps, etc. related to the Study.

5. GLOBAL ISSUES (ENVIRONMENT, WOMEN IN DEVELOPMENT, POVERTY, ETC.)

(a) Environmental components (such as pollution control, water supply, sewage, forestry, environmental management) of the Project, if any

The environmental component is one of the most important components on the Study.

Therefore, the Study Team will consider and reflect on the matter of environmental adaptation and environmental protection under the process of the Study.

(b) Women as main beneficiaries or not

Women in particular will be beneficiaries of the provision of clean and plentiful water. As women are overwhelmingly the main house-workers in Cambodia, they are acutely aware of the difficulties associated with the present problems in the water supply system. Any improvement in the water supply system will automatically make their work easier.

(c) Poverty reduction components of the Project, if any

At the moment, a substantial portion of the population purchases their drinking water from private sources. This is either in the form of bottled drinking water or from privately owned and operated wells or boreholes. The outcome envisaged from the Study is works that provide for water supply system, which is economical, clean and plentiful.

6. UNDERTAKINGS OF THE GOVERNMENT OF CAMBODIA

In order to facilitate the smooth and efficient conduct of the Study, the Royal Government of Cambodia shall take necessary measures:

- (1) to secure the safety of the Study Team,
- (2) to permit the members of the Study Team to enter, leave and sojourn in Cambodia in connection with their assignment therein, and take the necessary measures to exempt them from or pay on their behalf alien registration requirements and consular fees,
- (3) to take necessary measures to exempt the Study Team from or pay on their behalf taxes, duties and any other charges on equipment, machinery and other materials brought into and out of Cambodia for the conduct of the Study,
- (4) to take necessary measures to exempt the Study Team from or pay on their behalf income tax and charges of any kind imposed on or in connection with any emoluments, or allowances paid to the members of the Study Team for their services in connection with the implementation of the Study,
- (5) to provide necessary facilities to the Study Team for remittance as well as utilization of the funds introduced in Cambodia from Japan in connection with the implementation of the Study,
- (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study,
- (7) to secure permission for the Study Team to take all data, documents and necessary materials related to the Study out of Cambodia to Japan, and
- (8) to provide medical services as needed. Its expenses will be chargeable to members of the Study Team.

7. CLAIMS AGAINST THE JAPANESE STUDY TEAM

The Royal Government of Cambodia shall bear claims, if any arise against member(s) 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 will full misconduct on the part of the member of the Study Team.

8. COUNTERPART AGENCY/COORDINATING BODY

PPWSA shall act as a counterpart agency to the Japanese Study Team and also as a co-ordinating body in relation with other governmental and non-governmental organization concerned for the smooth implementation of the Study.

The Royal Government of Cambodia assured that the matters referred in this form will be ensured for a smooth conduct of the Development Study by the Japanese Study Team.



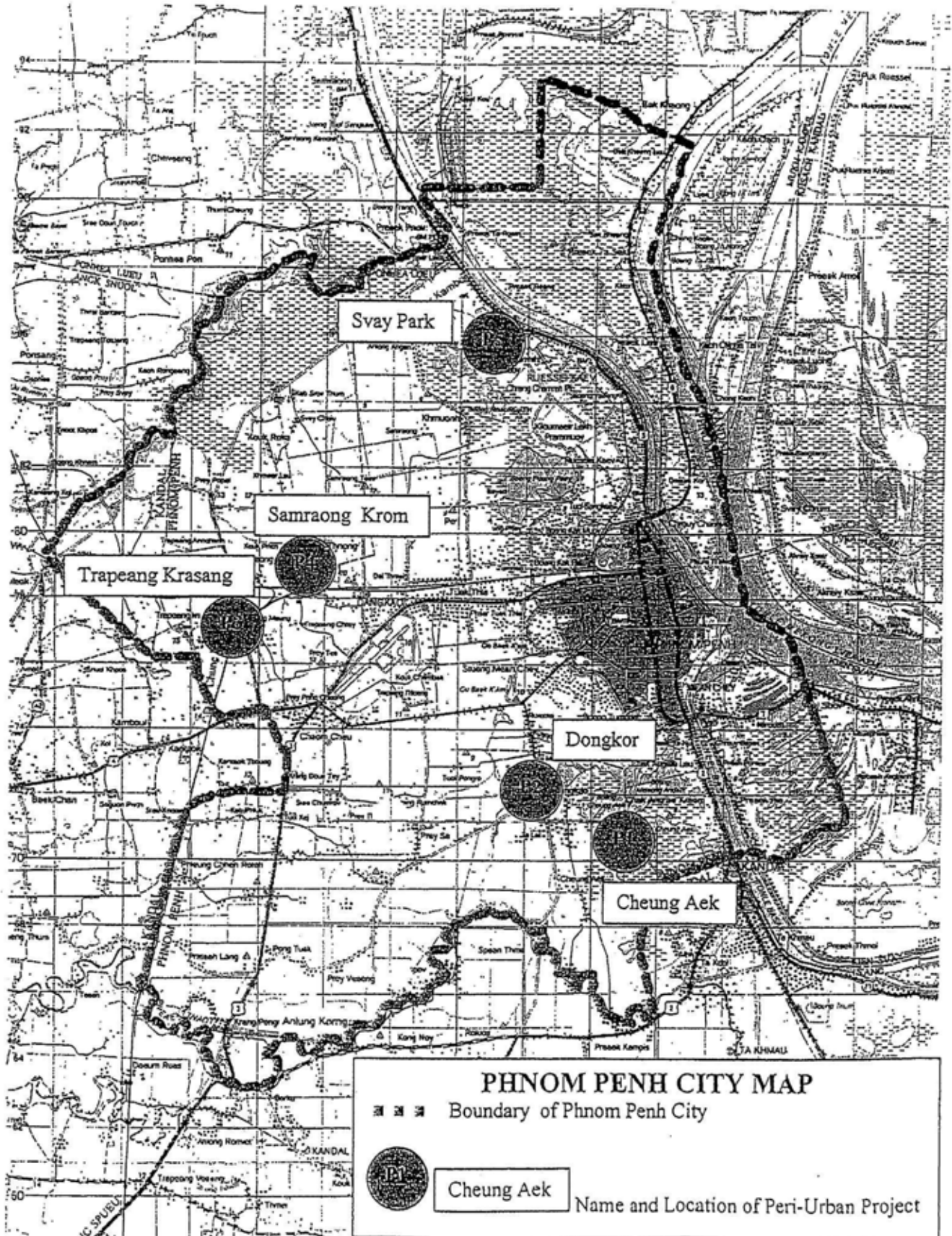
Signed

Chan Sak
H.E. EK SONN CHAN

Title: General Director of PPWSA

On behalf of the Royal Government of Cambodia

Date : 20 June 2003



付2

SCOPE OF WORK
FOR
THE STUDY
ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
IN
THE KINGDOM OF CAMBODIA
AGREED UPON BETWEEN
MINISTRY OF INDUSTRY, MINES AND ENERGY,
PHNOM PENH WATER SUPPLY AUTHORITY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY



H.E. Pherk Sovanrith
Secretary of State,
Ministry of Industry, Mines and
Energy



H.E. Ek Sonn Chan
General Director,
Phnom Penh Water Supply Authority

Phnom Penh, 29 July 2004

Mr. Adachi Itsu
Team Leader,
Preparatory Study Team,
Japan International Cooperation Agency

I. INTRODUCTION

In response to the official request of the Royal Government of the Kingdom of Cambodia (hereinafter referred to as "the Royal Government of Cambodia"), the Government of Japan decided to conduct the Study on the Master Plan of Greater Phnom Penh Water Supply (Phase 2) in the Kingdom of Cambodia (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations enforced in Japan.

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

The present document sets forth the Scope of Work with regard to the Study and will be valid after notification of approval by JICA Headquarters through JICA Cambodia office to the Cambodian side.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. To formulate a master plan up to Year 2020 for an efficient and sustainable water supply system of Greater Phnom Penh (Municipality of Phnom Penh, Takhmau city and urban area bordering Municipality of Phnom Penh in Kandal province), and to conduct a feasibility study on priority project(s).
2. To pursue technology transfer to counterpart personnel in the course of the Study

III. STUDY AREA

The Study will cover the Greater Phnom Penh (Municipality of Phnom Penh, Takhmau city and urban area bordering Municipality of Phnom Penh in Kandal province) in the attached sheet of Appendix 1.

IV. STUDY ORGANIZATION

Phnom Penh Water Supply Authority (hereinafter referred to as "PPWSA") shall act as a counterpart agency to the Japanese Study Team (hereinafter referred to as "the 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.

V. SCOPE OF THE STUDY

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

Phase 1: Basic Study

1. Review of the Master Plan formulated in 1993
2. Collection and analysis of the existing data and information related to the study
3. Field reconnaissance and survey on existing water supply facilities and water sources
4. Water quality analysis
5. Survey on area development plan, land utilization and socio-economic conditions
6. Survey on natural conditions, environment, sewage and drainage conditions
7. Survey on public perception
8. Survey on laws, policies and administration system related to water supply
9. Institutional and management capacity assessment of the study organization
10. Review and analysis of the on-going plans and projects related to the Study
11. Evaluation of present water supply conditions and identification of problems

Phase 2: Master Plan

1. Water demand forecast, formulation of planning framework and establishment of basic development policies, goals and strategies
2. Comparative study on technical alternatives of water supply schemes
3. Schematic lay-out plan of the facilities
4. Initial environmental examination (IEE)
5. Proposal for management policies
6. Proposal for strengthening institutional capacity
7. Plan for human resources development
8. Preliminary cost estimation
9. Phasing implementation plan
10. Recommendations of necessary measures for sewerage and drainage to be taken in short term
11. Evaluation of the revised master plan and selection of priority projects

Phase 3: Feasibility Study

1. Supplemental data collection and analysis
2. Preliminary design of the facilities
3. Operation, maintenance, management and human resources development plan
4. Construction and procurement plan

5. Cost estimation and financial analysis
6. Formulation of financial plan
7. Environmental impact assessment (EIA)
8. Project evaluation
9. Formulation of implementation schedule

VI. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the tentative schedule shown in the attached sheet of Appendix 2. The schedule is tentative and subject to modification if such necessity should arise during the course of the Study and mutually agreed by both parties.

VII. REPORTS

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

1. Inception Report:

Twenty (20) copies at the commencement of the Study.

2. Progress Report:

Twenty (20) copies at the end of Phase 1.

3. Interim Report

Twenty (20) copies at the end of Phase 2.

4. Draft Final Report

Twenty (20) copies at the end of the Study

Cambodian side shall submit their comments within one (1) month after the receipt of the Draft Final Report

5. Final Report

Thirty (40) copies within one (1) month after the receipt of the comments on the Draft Final Report

VIII. UNDERTAKINGS OF THE ROYAL GOVERNMENT OF CAMBODIA

1. The Royal Government of Cambodia shall accord privileges, exemptions and other benefits to the Study Team in accordance with the Agreement on technical cooperation between the Government of Japan and the Royal Government of Cambodia signed on 17 June, 2003.

2. The Royal Government of Cambodia 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 team.

3. PPWSA shall be the executing agency and coordinating body in relations with other governmental and non-governmental organizations for smooth implementation of the Study.

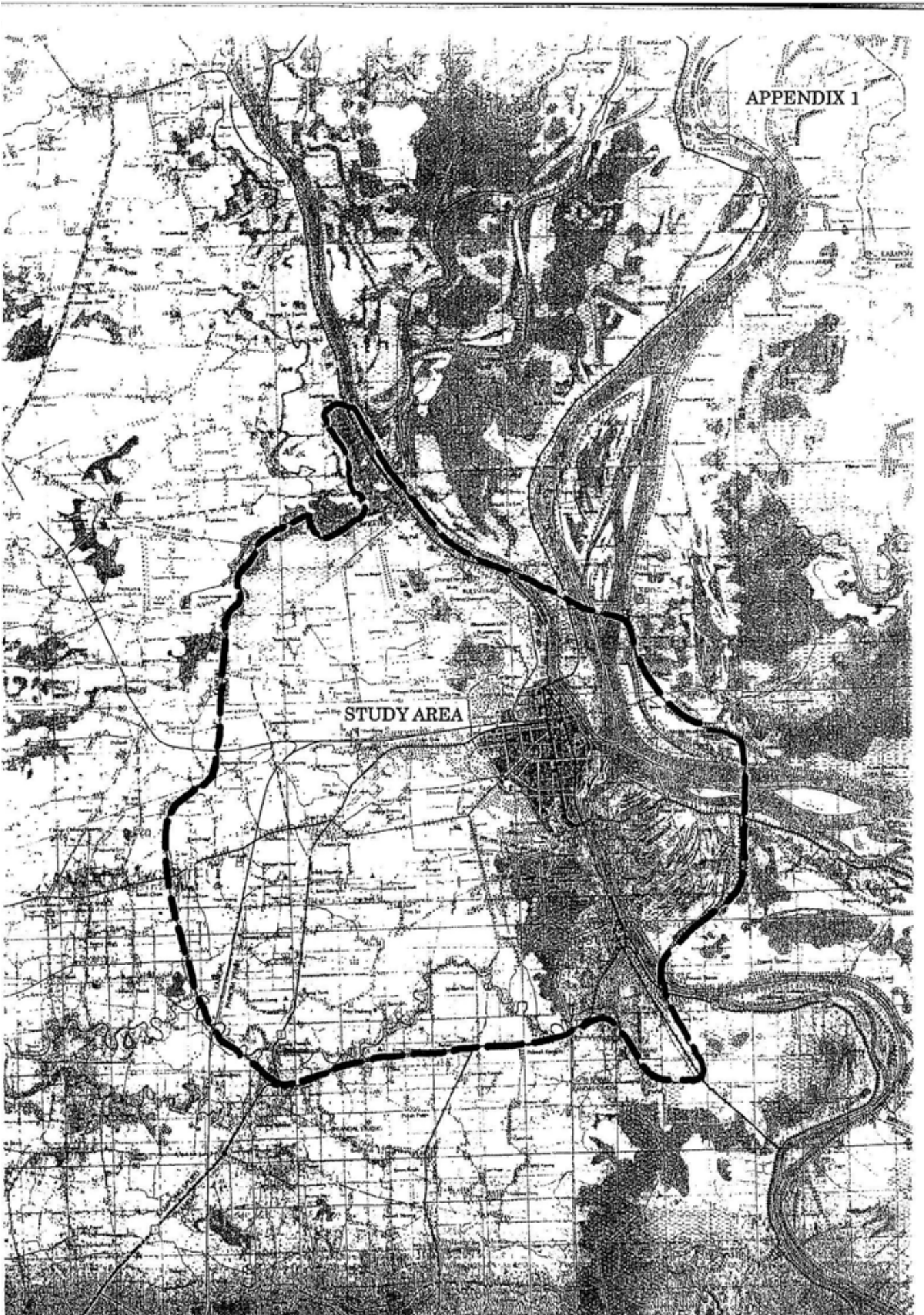
4. PPWSA shall at its own expense, provide the Study Team with the following, in cooperation with other organizations concerned :

- (1) Available data (including maps and photographs) and information related to the Study;
- (2) Counterpart personnel;
- (3) Suitable office space with necessary equipment; and
- (4) Credentials or identification cards.

IX. CONSULTATION

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

APPENDIX 1



STUDY AREA

MINUTES OF MEETING
ON
SCOPE OF WORK
FOR
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
IN
THE KINGDOM OF CAMBODIA
AGREED UPON BETWEEN
MINISTRY OF INDUSTRY, MINES AND ENERGY,
PHNOM PENH WATER SUPPLY AUTHORITY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Phnom Penh, 29 July 2004



H. E. Phouk Sovanrith
Secretary of State,
Ministry of Industry, Mines and
Energy



H. E. Ele Sann Chan
General Director,
Phnom Penh Water Supply Authority

Mr. Adachi Itsu

Mr. Adachi Itsu
Team Leader,
Preparatory Study Team,
Japan International Cooperation Agency

In response to the official request of the Royal Government of the Kingdom of Cambodia (hereinafter referred to as "the Royal Government of Cambodia"), the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Study Team, headed by Mr. Itsu Adachi (hereinafter referred to as "the Team"), to Cambodia from July 22 to August 6, 2004 to discuss the Scope of Work (hereinafter referred to as "S/W") for the Study on the Master Plan of Greater Phnom Penh Water Supply Phase 2 (hereinafter referred to as "the Study").

During its stay in Cambodia, the Team carried out field surveys in the study area, and held a series of discussion with the officials of the Ministry of Industry, Mines and Energy (hereinafter referred to as "MIME"), Phnom Penh Water Supply Authority (hereinafter referred to as "PPWSA") and other authorities concerned of the Royal Government of Cambodia. The list of those who attended these meetings is shown in the Appendix.

The Minutes of Meetings have been prepared for the better understanding of the S/W agreed upon between PPWSA, MIME and the Team on July 29, 2004. The main items that were discussed and agreed by both sides are as follows.

I. TITLE OF THE STUDY

Both Cambodian side and the Team agreed that the title of the study would be "The Study on the Master Plan of Greater Phnom Penh Water Supply (Phase 2)" as described in the S/W.

II. TARGET YEAR

Both sides agreed that the target year of the Master Plan designed to be 2020.

III. COORDINATION MECHANISM OF THE STUDY

1. Both sides agreed that PPWSA would bring up the matters for discussion at the Coordination Committee for Water Supply and Sanitation Development in respect of important matters that may arise in connection with the Study.
2. Both sides agreed that the Steering Committee would not be established in this study. PPWSA will report the progress and result of the Study to the Board of Director of PPWSA and MIME. PPWSA will organize meetings with other governmental and non-governmental organizations concerned if necessary arises.

IV. COORDINATION WITH THE MUNICIPALITY OF PHNOM PENH

Both sides agreed that PPWSA would be responsible for the coordination with the Department of Rural Development, Department of Public Works and Transport, Department of Land Management, Urban Planning, Construction and Land Mapping of the Municipality of Phnom Penh and local authorities.

V. SEMINARS

Both sides agreed that seminars concerned the formulation of master plan would be held in the Study. The details of seminars will be discussed among the PPWSA, the Study Team and experts of the Technical Cooperation Project on "Capacity Building for Water Supply System" after commencement of the Study.

VI. UNDERTAKING OF ROYAL GOVERNMENT OF CAMBODIA

1. As to 4. (1) of the Scope of Work, the Team requested Cambodian side to take necessary procedures to permit the Study Team to take available data (including maps and photographs) and information related to the Study. Cambodian sides notified that they would provide convenience to the Study Team as far as possible according to laws and regulations of Cambodia.
2. As to 4. (2) of the Scope of Work, the Team requested Cambodian side that counterpart personnel of the Study should be selected before the commencement of the Study for ensuring better cooperation, to which Cambodian side agreed.
3. As to 4. (3), Cambodian side agreed that office space with equipment such as desks, chairs, bookshelves, air-conditions, telephone lines and electricity would be provided in Phnom Penh for the use of the Study Team.
4. As to 4. (3), Cambodian side requested the Team to provide transportation and necessary equipment for the Japanese Study Team at JICA's own expense. The Team promised to convey this request to JICA H.Q. for the positive consideration.

VII. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

Both sides agreed that Cambodian side would hold the stake holder meeting in the Study. The Japanese Study Team will give advice to the Cambodian side when it is necessary.

VIII. REPORTS

Both sides agreed the result of the Study would be open to the public in order to achieve maximum use of the Study results.

List of Attendants**(Cambodian side)***Phnom Penh Water Supply Authority*

H.E. Ek Sonn Chan	General Director
Mr. Long Naro	Deputy Director
Mr. Samreth Sovitia	Director of Planning and Technical Department

Ministry of Industry, Mines and Energy

H.E. Suy Sem	Minister
H.E. Phork Sovanrith	Secretary of State
Mr. Peng Navuth	Director, Department of Potable Water Supply

Ministry of Rural Development

Mr. Mao Saray	Director, Department of Rural Water Supply
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Department of Planning, Municipality of Phnom Penh

Ms. Mom Sandap	Director
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Department of Public Works and Transport, Municipality of Phnom Penh

Mr. Nhem Saran	Director
Mr. Moeung Sophan	Head of Public Work Office

Department of Land Management, Urban Planning, Construction and Land Mapping, Municipality of Phnom Penh

Mr. Chhay Rithisen	Vice-Director
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Department of Rural Development, Municipality of Phnom Penh

Mr. Chin Rotha	Chief of Office
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(Japanese Side)

Preparatory Study Team

Mr.Adachi Itsu	Leader
Ms.Yamamoto Keiko	Water Supply Planning
Mr.Kiyama Satoshi	Water Supply Technology
Mr.Ono Tomohiro	Cooperation Planning
Mr.Fukuda Fumio	Water Supply Facility and Management
Mr.Naito Akira	Environmental and Social Considerations
Ms.Nishimura Nobuko	Study Planning/Project Evaluation

JICA Cambodia Office

Mr.Chikaraishi Juro	Resident Representative
Mr.Mitsugi Hiroto	Deputy Resident Representative
Ms.Tamagake Mitsue	Program Assistant

Embassy of Japan in Cambodia

Mr.Sakuda Yoshihiro	Second Secretary
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付属资料-3 主要面谈者リスト

カンボジア側

(1) Phnom Penh Water Supply Authority (PPWSA)

H.E..Ek Sonn Chan	General Director
Mr. Long Naro	Deputy General Director
Mr.Samreth Sovitia	Director of Planning and Technical Department
Mr. Chou Phalla	Vice-Manager, Project Management Unit (PMU)

(2) Ministry of Industry, Mines and Energy (MIME)

H.E..Sui Sem	Minister
H.E. Phork Sovanrith	Secretary of State
Mr. Peng Navuth	Director, Department of Potable Water Supply

(3) Ministry of Rural Development (MORD)

Mr. Mao Saray	Director , Department of Rural Water Supply
---------------	---

(4) Ministry of Environment (MOE)

Mr. Ngoun Kong	Deputy Director, Department of Environmental Impact Assessment
Mr. Leang Mengleap	Chief of Project review office Department of Environmental Impact Assessment

(5) Ministry of Commerce (MOC)

Mr. Prak Nork	Director, Export Promotion Department
Mr. Sochivin Hang	National Project Manager ITC Trade Promotion Project

(6) Council for Department of Cambodia (CDC)

Mr. Om Tara	Director of NGO, Cordination Department
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(7) Municipality of Phnom Penh (MPP)

Ms. Mom Sandap	Director, Planning Department of PhnomPenh Municipality
Mr. Nhem Saran	Director, Department of Public Works and Transportation
Mr. Moeung Sophan	Head of Public Works Office
Mr.Chhay Rithisen	Vice Director, Department of Land Management, Construction and Land Mapping of Phnom Penh
Mr. Chin Rotha	Chief of Office, Department Of Rural Development

(8) ADB Cambodian Resident Mission

Mr. Anthony J. Jude	Deputy Head/ Senior Portfolio management Specialist
Mr. Sophea MAR	Social Sector Office

(9) World Bank

Mr. Steven Navon Schonberg	Rural Sector Coordinator for Cambodia and Lao P.D.R.
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(10) AFD およびパリ市

Mr. Yannick Balerin
Mr. Bertrand Boisselet
Mr. Eric Huybrechts

Charge de Projets, AFD
AFD
Directeur de projet, Conseiller aupres du Gouverneur de
Phnom Penh

日本側

(1) 日本大使館

作田 吉弘

二等書記官

(2) JICAカンボジア事務所

カ石 寿郎
三次 啓都
小野 智弘

所長
次長

(3) JICA専門家

大川 晴美

Jica Expert on Aid Coordination & Management,
CDC,

付属資料－4 質問票及び回答

QUESTIONNAIRE
FOR
THE STUDY ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
(Prepared by JICA Preparatory Study Team)

July 2004

To Phnom Penh Water Supply Authority (PPWSA)

The preparatory study team shall be furnished with general and specific information on the requested study in order to clarify the contents of the study and to decide the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions, and provide available data and information requested herein:

0. Water supply development program

1.1. By World Bank (Cambodia-Provincial and Peri-Urban Water and Sanitation Project)

- (1) Progress and present status of the project
- (2) Location of project sites in peri-urban area of Phnom Penh
- (3) Time schedule for construction

Answer: 収集資料 No.B-4 の通り。

1.2. By other donors

- (1) If any other donor's project is implemented or planned to be implemented in peri-urban area of Phnom Penh, please describe the contents of the cooperation in detail.

Answer: 収集資料 No.B-2 の通り。

1.3. By PPWSA

- (1) If PPWSA has any plan to expand water supply system, please describe the contents of the plan in detail.

Answer: 収集資料 No.B-1、B-2、B-3 の通り。

2. Study area and Water supply development plan

- (1) Please describe the planned water supply area which shall be covered by PPWSA in the future in Phnom Penh and urban area in Kandal subject to the Study.

- (2) Please describe the promising water source and the planned water supply system to be developed for newly expanding water supply area in your plan.
- (3) Forecast of projection of population and water demand, and the served population and served ratio of water supply planned by PPWSA up to the year of 2020.

Answer: 収集資料 No.B-10～12 を参照。

3. Related data and information

3.1. Sewerage System

- (1) Which body is responsible for development and management of sewerage system of Phnom Penh and urban area in Kandal?
- (2) If PPWSA is concerned to development and management of sewerage system of Phnom Penh in a part, please describe the contents of your works.
- (3) We understand that PPWSA is collecting sewerage charge in water tariff collection. Please describe the collection system of sewerage charge and water tariff.

Answer: プノンペン市については DPWT から資料入手。カンダール州については資料未入手。

3.2. City Planning of Phnom Penh and urban area of Kandal

- (1) Which body is responsible for city planning of Phnom Penh and urban area of Kandal?
- (2) The existing land use map of Phnom Penh and urban area of Kandal and an area by land use
- (3) The future land use plan or zoning plan of Phnom Penh and urban area of Kandal
- (4) On-going and future land development plan for industrial and/or residential estate construction

Answer: プノンペン市については市当局から資料入手。カンダール州については資料未入手。

3.3. Topographic map and geological data

- (1) What kind of topographic map with contour line of the study area is available for the Study?
- (2) Is there any aerial photograph of the study area available for the Study?
- (3) The existing boring data of subsoil at the existing water treatment plants and at the place near the rivers where new water treatment plant is proposed.

Answer: 資料未入手。部分的にはフランスコンサルタントから航空写真を入手。

3.4. Local Consultants and water industrial companies

(1) List of local consultant and survey company capable for conducting the study under supervision of JICA full-scale study team

- a. Engineering services including hydraulic calculation
- b. Topographic survey
- c. Soil investigation (boring test with laboratory test)
- d. Environmental survey and study
- e. Social survey

(2) List of local water industrial companies producing water supply materials.

Answer: 資料入手済み。コンサルタント3社にインタビュー調査実施。

4. Water supply project

4.1 PPWSA

(1) If PPWSA has ever received the complaint or petition, especially for the environment and social consideration, from the users concerning Water supply project, please describe the contents of them in detail.

Answer : N/A

5. Study area and Water supply development plan

(1) Please describe the foreseeable area where will be flooded or inundated for newly expanding water supply area in your plan. If the flood map is available, please provide it.

Answer: DPWT で入手するよう、努力する。調査団が DPWT と面談する際に、PPWSA からも同席したい。

6. Related data and information

6.1 Sewerage System

(1) Are there any existing sewerage treatment systems in Phnom Penh, urban area and Kandal?

If yes, please describe the treatment method and the location in each area.

Answer: N/A

(2) If any other donor's project(s) is(are) implemented or planned to be implemented in Phnom Penh, peri-urban area of Phnom Penh or Kandal, please describe the contents of the cooperation in detail.

Answer: N/A

6.2. Soil or muddy soil generated by construction

- (1) Is the disposal point secured for the soil or muddy soil generated by the construction of new water treatment plant and water supply pipeline?

Answer: 投棄場所は確保されている。

6.3. Road crossing and railway crossing work

- (1) Are there any points where the new water supply pipeline will have to cross the heavy traffic road(s) or the railway?

- (2) If PPWSA has the experience of the construction work mentioned above (1), please describe the construction method, the time of construction and the location in detail.

Answer to (1), (2) : 実際に工事した際の図面を提示する。

- (3) Is the data available for the traffic census for newly expanding water supply area in your plan?

Answer: Data はある。探して提示する。(未入手)

QUESTIONNAIRE
FOR
THE STUDY ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
(Prepared by JICA Preparatory Study Team)

July 2004

To Ministry of Industry, Mines and Energy (MIME)

The preparatory study team shall be furnished with general and specific information on the requested study in order to clarify the contents of the study and to decide the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions, and provide available data and information requested herein:

Answer: 収集資料 B-16 の回答書のとおり。

1. Water Supply and Sanitation Law and variation on water supply company

- (1) Time schedule for enactment of “Water Supply and Sanitation Law”

- (2) Time schedule for establishment of WSAC after enactment of “Water Supply and Sanitation Law”
- (3) Time schedule for transferring PPWSA to a body under license of WSAC, and its procedure for transferring
- (4) Time schedule for transferring water supply works of Takmau to PPWSA, and its procedure for transferring
- (5) Please describe policy on management system of PPWSA to be applied as a business company and private sector participation in water supply works after enactment of “Water Supply and Sanitation Law”

2. Study area and planned water supply system

- (3) Please describe the planned water supply area which shall be covered by PPWSA in the future in Phnom Penh and urban area in Kandal subject to the Study.
- (4) Please describe the promising water source and the planned water supply system to be developed for newly expanding water supply area in your plan.
- (5) Forecast of projection of population and water demand, and the served population and served ratio of water supply planned by PPWSA in Phnom Penh and urban area in Kandal up to the year of 2020.

3. Existing water supply facilities of urban area in Kandal

3.1. General information

- (1) Which body is responsible for water supply works of urban area of Kandal at present?
- (2) Principle water supply indices of urban area in Kandal
 - Population
 - Number of the served population and the served ratio of water supply
 - Number of water supply connection and number of the water meter installed
 - Water source and capacity of water production
 - Average daily water production
 - Ratio of effective water
 - Average water consumption per person per day
 - Water tariff

3.2. Existing water supply facilities

- (1) The latest inventory of water supply facilities such as wells, intakes, water treatment plants, reservoir tanks and pumping stations with location map and principal drawings showing general layout plan.

- (2) The latest map and inventory of water distribution network (pipe length by kind of pipe and diameter)

3.3. Unaccounted for water

- (1) A ratio of unaccounted of water at present and contents of unaccounted for water (e.g. water leakage, water loss by meter defect, official use, illegal connection)
- (2) Target for reduction of unaccounted for water planned in the next 5 years and up to the year of 2020

4. Study area and planned water supply system

- (1) Are there any appropriate areas where the sewer or the drainage water will be able to be impounded and discharged in peri-urban area of Phnom Penh and in Kandal subject to the Study?

Answer:

周辺は大きな沼沢があり、排水は自然浄化されている。実際にこの問題は、付近の住民からも問題視されている。水質検査を行っているが、水質は良好であり、井戸、水道から水を手しにくい住民は沼沢からの水を直接、利用している。

QUESTIONNAIRE
FOR
THE STUDY ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
(Prepared by JICA Preparatory Study Team)

July 2004

To Municipality of Phnom Penh, Department of Public Works and Transportation

The preparatory study team shall be furnished with general and specific information on the requested study in order to clarify the contents of the study and to decide the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions, and provide available data and information requested herein:

1. City Planning

- (5) Which body is responsible for city planning of Phnom Penh Municipality and urban area of Kandal?
- (6) The existing land use map of Phnom Penh Municipality and an area by land use

- (7) The future land use plan or zoning plan of Phnom Penh Municipality
- (8) On-going and future land development plan for industrial and/or residential estate construction

Answer: 収集資料 No.B-7 回答書の通り。

2. Sewerage and drainage system

- (1) Which body is responsible for development and management of sewerage and drainage system of Phnom Penh Municipality and urban area of Kandal?
- (2) General description of the existing sewerage and drainage system and inventory of those facilities.
- (3) Map of the existing sewerage and drainage system showing main sewer and drainage network and discharging points to the river
- (4) On-going and future development projects for sewerage and drainage system development.

Answer: 収集資料 No.B-7 回答書の通り。

3. Organization of Department of Public Works and Transportation

- (1) The latest organization
- (2) Number of staffs in each bureau and section

Answer: 収集資料 No.B-7 回答書の通り。

4. Sewerage and drainage system

- (1) We understand that the existing sewerage and drainage system of Phnom Penh Municipality is combined system. Please clarify the capacity of the existing drainage pumping stations. And also please clarify if the capacity complies with the increased sewerage and drainage volume for newly expanding water supply or not.

Answer: 収集資料 No.B-7 回答書の通り。

QUESTIONNAIRE
FOR
THE STUDY ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
(Prepared by JICA Preparatory Study Team)

July 2004

To Municipality of Phnom Penh, Department of Regional Development (PDRD)

The preparatory study team shall be furnished with general and specific information on the requested study in order to clarify the contents of the study and to decide the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions, and provide available data and information requested herein:

1. Water supply development program

1.1 By World Bank (Cambodia-Provincial and Peri-Urban Water and Sanitation Project)

- (1) Progress and present status of the project
- (2) Location of project sites in peri-urban area of Phnom Penh
- (3) Time schedule for construction

Answer: N/A

1.2 By other donors

- (1) If any other donor's project is implemented or planned to be implemented in peri-urban area of Phnom Penh, please describe the contents of the cooperation in detail.

Answer: N/A

1.3 By PDRD

- (1) If PDRD has any plan to develop water supply facilities in peri-urban area of Phnom Penh, please describe the contents of the plan in detail.

Answer: N/A

2 Planned Water supply area to be covered by PPWSA

- (1) Please describe the planned water supply area which shall be covered by PPWSA in the future in peri-urban area of Phnom Penh.

Answer: N/A

3 Existing water supply facilities in peri-urban area of Phnom Penh

- (1) Please list up inventory of wells and number of served population
- (2) Location map of the above wells

Answer: 収集資料 No.B-8 を参照。

QUESTIONNAIRE
FOR
THE STUDY ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
(Prepared by JICA Preparatory Study Team)

July 2004

To Ministry of Environment (MOE)

The preparatory study team shall be furnished with general and specific information on the requested study in order to clarify the contents of the study and to decide the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions, and provide available data and information requested herein:

1. Environment protection area

- (1) Are there any areas where the environment protection must be considered in Phnom Penh, peri-urban area of Phnom Penh and in Kandal subject to the Study?

Answer: DEPT of Natural protection and conservation の管轄なので、情報はそこで入手されたい。

2. Related data and information

- (1) If MOE has the list of local consultants who will conduct the environment and social consideration survey under the contract with MOE, please deliver it

Answer: N/A

3. Organization of MOE

- (1) The latest organization
(2) Number of staffs in each bureau and section

Answer: Administration Dept.で入手されたい。

4. Laws and Decree related to the Environment in Cambodia

- (1) Please confirm the List attached.

Answer: 提示したリストの通りとの回答があった。

5. Approval for Water Supply Project

- (1) Is Water Supply Project required for EIA Process for Royal Government or CDC Approval?

Answer: 給水事業は、官民間わず、すべて IEIA または EIA の手続きが必要である。

6. Comparison between Cambodian Law and JICA/JBIC Guideline

(1) Have you ever compare the concept of JICA/JBIC Guideline for EIA with Cambodian Laws ?

Answer: やっていない。カンボジアの環境社会配慮の法令は未整備なので、本件プロジェクトの推進に当っては、JICA ノガイドラインに沿って行うことは問題ない。

QUESTIONNAIRE
FOR
THE STUDY ON
THE MASTER PLAN OF GREATER PHNOM PENH WATER SUPPLY (PHASE 2)
(Prepared by JICA Preparatory Study Team)

July 2004

To Ministry of Commerce(MOC)

The preparatory study team shall be furnished with general and specific information on the requested study in order to clarify the contents of the study and to decide the scope of cooperation.

Please answer in detail as much as possible in writing to the following questions, and provide available data and information requested herein:

1. Development program of commercial establishment

1.1 By MOC

(2) If MOC has any plan to develop the commercial establishment in Phnom Penh, peri-urban area of Phnom Penh and in Kandal, please describe the contents of the plan in detail.

(3) In the case of above, how does MOE coordinate the water supply and drainage program with the competent authorities?

Please describe the coordination system in detail.

1.2 By others

(1) If other developers have any plans to develop the commercial establishment in the same area above, please describe the contents of the plan in detail.

(2) In case of above, how does MOE supervise or instruct the plan?

Answer: We would like to request you to contact Legal department of MOC, who is in

charge of investment project and company registration. The information on the objectives and the locations of the registered companies are available there.

2 Existing commercial establishments in the Study area

(1) Please list up the names of establishment and number of stores

(2) Location map of the above establishment

Answer:

We would like to request you to contact Legal department of MOC, who is in charge of investment project and company registration. The information on the objectives and the locations of the registered companies are available there.

3 Urban Development Plan

(1) If the urban development plan prepared by MOC is available, please describe the contents of the plan in detail.

Answer:

Ref to your study area map, MOC would like to inform that under the “ Regional development of Phnom Penh Sihanoukville Growth Corridor “ study which conducted by JICA and Ministry of Commerce ,an airport –based special promotion zone was considered to be established in Greater Phnom Penh. Thus , there were 7 potential areas nearby the airport was identified for the study.

付属資料－5 収集資料リスト（■収集資料/□専門家作成資料）

主管部長	文書管理課長	主管課長	情報管理課長	技術情報長	図書館受入日

地域	東南アジア	プロジェクトID	プロジェクトID	調査団番号	調査の種類又は指導科目	担当部課	地球環境部 第三グループ
国名	カンボジア	配属機関名	プロジェクトID	調査団番号	現地調査期間又は派遣期間	担当者氏名	西村暢子
					16年7月22日～16年8月7日		
					開発調査(事前調査)		
					プノンペン市上水道整備計画(7 エ-1、2)事前調査		
					調査の種類又は指導科目		

番号	資料の名称	形態	収集資料	専門家 作成資料	JICA 作成資料	フィスト	発行機関	取扱区分	図書館記入欄
A	法令・基準・統計		*						
A-1	Water Supply and Sanitation Law of the Kingdom of Cambodia, Unofficial Translation, 2004	図書	*				MIME	JR・CR()・SC	
A-2	National Policy on Water Supply and Sanitation	図書	*				The Coordination Committee for Development of Water Supply and Sanitation Sector	JR・CR()・SC	
A-3	Draft, Proposed Cambodian National Drinking Water Quality of Cambodia, Statistic Year Book 2003	図書	*				MIME and concerned ministries with support from WHO	JR・CR()・SC	
A-4	Kingdom of Cambodia, Statistic Year Book 2003	図書	*				National Institute of Statistics	JR・CR()・SC	
A-5	カンボジア経済・経済協力力の概要	図書	*				在カンボジア日本大使館	JR・CR()・SC	
A-6	Law on Water resources management of the Kingdom of Cambodia (Draft) 5 March 2002	図書	*				Ministry of Water Resources and Meteorology	JR・CR()・SC	
A-7	National Water Resources Policy for Kingdom of Cambodia	図書	*				Ministry of Water Resources and Meteorology	JR・CR()・SC	

番号	資料の名称	形態	収集資料	専門家作成資料	JICA作成資料	邦文	発行機関	取扱区分	図書館記入欄
B	報告書・技術資料								
B-1	Phnom Penh Water Distribution System Extension and Improvements, Pochentong Area, Simplified Feasibility Study, April 2001	図書	*				SAFEGE, PPWSA financed by World Bank	JR・CR()・SC	
B-2	Phnom Penh Water Distribution System Extension and Improvements, Russey Keo and Mean Chey Areas, Feasibility Study & Preliminary Design, Volume 1: Interim Report, May 2001	図書	*				SAFEGE, PPWSA financed by AFD	JR・CR()・SC	
B-3	Phnom Penh Water Distribution System Extension and Improvements, Russey Keo and Mean Chey Areas, Feasibility Study & Preliminary Design, Volume 2: Final Preliminary Design Report, May 2001	図書	*				SAFEGE, PPWSA financed by AFD	JR・CR()・SC	
B-4	Project Appraisal Document, Provincial and Peri-Urban Water and Sanitation Project, March 31, 2003	図書	*				World Bank	JR・CR()・SC	
B-5	Coordinating Committee for Development of Water Supply and Sanitation Sector *セミナーでの世銀プロジェクトの紹介原稿	図書	*				Department of Potable Water Supply, MIME	JR・CR()・SC	
B-6	Water Supply and Sanitation Project in small towns, Identification mission (15-19 March 2004), Aide-Memoire	図書	*				AFD	JR・CR()・SC	
B-7	Answer to Questionnaire (Sewerage and Drainage System in Phnom Penh City) *DPWT の質問の回答書	図書	*				DPWT of Phnom Penh Municipality	JR・CR()・SC	
B-8	プリ・アーバン地域の PDRD の井戸のリスト	図書	*				DRD of Phnom Penh Municipality	JR・CR()・SC	
B-9	プリ・アーバン地域の MRD の井戸のリスト (作成中のインベントリの一部)	図書	*				MRD	JR・CR()・SC	
B-10	Proposed Human Resources Development Programme in Phnom Penh Water Supply Authority, Main Report, June 28, 2004	図書		*			JICA, PPWSA	JR・CR()・SC	
B-11	Proposed Human Resources Development Programme in Phnom Penh Water Supply Authority, Volume 2: Data, June 28, 2004	図書		*			JICA, PPWSA	JR・CR()・SC	

番号	資料の名称	形態	収集資料	専門家作成資料	JICA作成資料	発注	発行機関	取扱区分	図書館記入欄
B-12	Needs Survey on Capacity Building for Provincial Waterworks in Cambodia	図書		*			JICA, PPWSA	JR・CR()・SC	
B-13	タクマオ市浄水場水質分析表	図書	*				タクマオ浄水場、MIME	JR・CR()・SC	
B-14	カンボジア地方都市水道調査報告書(抜粋)、2001年7月、国際協力事業団専門家、森田裕之	図書		*			JICA	JR・CR()・SC	
B-15	水道事業人材育成プロジェクト、活動報告、Phase I (2003年10月～2004年3月)	図書		*			JICA	JR・CR()・SC	
B-16	MIME の質問の回答書	図書		*			JICA	JR・CR()・SC	
B-17	PHNOM PENH 10 YEARS OF RECONSTRUCTION *プランのコンサルタントが作成した過去10年のプノンペン市の変遷資料	図書	*				Assistance a la Maitrise D'ouvrage en Gestion et Developpment Urbain au Cambodge, BAU of PPM	JR・CR()・SC	
B-18	カンボジア王国水道事業人材育成プロジェクト 実施協議報告書 (2003年10月)	図書			*		JICA	JR・CR()・SC	
B-19	First Revision Population Projections for Cambodia 1998-2020	図書	*				National Institute of Statistics, Ministry of Planning	JR・CR()・SC	
B-20	PROGRAMME D' ASSISTANCE A LA MAITRISE D'OUVRAGE EN GESTION ET DEVELOPPEMENT DES VILLES DU CAMBODGE MAI 2004	図書	*				AMBASSADE DE FRANCE AU CAMBODGE, SERVICE DE COOPERATION ET D'ACTION CULTURELLE	JR・CR()・SC	
B-21	Phnom Penh 2020 (City Development Plan Seminar 30 June 2004)	複写	*				Municipalite de Phnom Penh Bureau des Affaires Urbaines	JR・CR()・SC	
B-22	Application Form For Japan's Grant Aid Detail Design Study and Implementation of Water Supply System for Takhmao Town(Kandal Province)	複写	*				Department of Potable Water Supply Ministry of Industry, Mines and Energy, Cambodia	JR・CR()・SC	
B-23	Water Supply for the Poor	複写					PPWSA	JR・CR()・SC	

番号	資料の名称	形態	収集資料	専門家作成資料	JICA作成資料	邦文	発行機関	取扱区分	図書館記入欄
C	地図・図面								
C-1	目標年次2020年のプノンペン大都市計画(案)	図面	*				Assistance a la Maitrise D'ouvrage en Gestion et Développement Urbain au Cambodge, BAU of PPM	Ⓧ・CR()・SC	
C-2	目標年次2015年のプノンペン市土地利用(案)	図面	*				Department of Land Management, Urbanization, Construction and Cadastre Department of PPM	Ⓧ・CR()・SC	
C-3	Program for Expansion of Water Supply System in Phnom Penh 2004-2007	図面 /CD	*				PPWSA	Ⓧ・CR()・SC	
C-4	送配水管網図 (Network pipe)	CD	*				PPWSA	Ⓧ・CR()・SC	
C-5	既存排水流域図	図面	*				DPWT of PPM	Ⓧ・CR()・SC	
D	社会配慮環境関連資料								
D-1	Cambodia Provincial and Peri-Urban Water Supply and Sanitation Project, Initial Environmental Impact Assessment Report for Phnom Penh WS Component, February 2003 (Draft)	図書	*				PPWSA financed by World Bank	Ⓧ・CR()・SC	
D-2	Cambodia Provincial and Peri-Urban Water Supply and Sanitation Project, Preliminary Instructions Report, Contract for Consulting Service, Environmental Assessment, August 1, 2002	図書	*				MIME and PPWSA financed by World Bank	Ⓧ・CR()・SC	
D-3	Guideline for Non-Government Organization, March 2004	図書	*				JICA	Ⓧ・CR()・SC	
D-4	List of NGO for Area Development Sector and Social Development Sector	図書	*				NGO Coordination Department, CDC	Ⓧ・CR()・SC	
D-5	Strategic Plan (2001-2003), Ministry of Environment	図書	*				Ministry of Environment	Ⓧ・CR()・SC	
D-6	Protected areas system in Cambodia	図書	*				Ministry of Environment	Ⓧ・CR()・SC	

付属資料－6 打合せ議事録

日時：2004年8月3日（火）9時～10時15分

訪問先：環境省

面会者：Mr. Ty Sotheavun : Chief of Laboratory for research of environmental quality
Department of Pollution Control

Mr. Ngoun Kong : Deputy Director, Department of Environmental Impact Assessment

Mr. Leang Mengleap : Chief of Project review Office

参加者：福田、内藤、

Mr.Chou Phalla : Vice Manager, Project Management Unit(PMU),PPWSA

記録者：内藤

- ・ 環境省の研究所にて分析可能な項目を、パラメーターを提示して確認するとともに、項目ごとの分析価格表を入手した。
- ・ 面談した環境影響評価審議局（以下、審議局）に質問事項が届いておらず、面談の席で質問事項を提示した。質問事項に対しては次のような回答があった。
 1. **Environmental protection area** について
この質問については、当局で扱っておらず、自然保全・保護局で情報入手して欲しいとの回答があった。
 2. **Related data and information** について
この質問については、PPWASAにて既に情報入手済であったので、回答は請求しなかった。
 3. **Organization of MOE** について
最近,MOEは若干の組織変更を行った。組織図は、担当部門で入手して欲しいとのことであったが、担当の **Administration Department**(総務局)は生憎、事務所移転作業中のため、入手できなかった。後日、入手することにした。なお、当初、面談予定であった **Mr. Tia Chup**（審議局局長）はすでに異動し、後任は、**Ms.Chou Sophang** とのことであったが、この日は不在であった。
 4. **Laws and Decrees related to the Environment in Cambodia** について
「カ」国の環境関連法のリストを提示し、記載漏れの法令等がないか、確認した。
 5. **Approval for Water Supply Project** について
「カ」国の環境影響評価対象事業リストでは、**Water Supply** は工業セクターに分類されており、規模も **10,000人(user)**と規定されている。この事業は、飲料水製造業であり、水道事業は評価対象にはならないのではないかと質問したところ、民間事業も公共事業も同じ分類に入るので、評価対象である、との回答があった。
 6. **Comparison between Cambodian Laws and JICA/JBIC Guideline** について
審議局で「カ」国環境関連法制度と **JICA/JBIC** の環境社会配慮ガイドラインの比較をしたことがあるかどうか、確認したが、ないとの回答であった。面談した審議局担当

は、JICA ガイドラインを持っていなかったもので、コピーを渡しておいた。

関連質問として、プノンペン市上水道整備計画（フェーズ2）調査を実施する場合、「カ」国の環境関連法制度および環境影響評価ガイドラインに従うか、JICA にガイドラインに従うか、確認した。審議局は、現在の「カ」国の法制度は、完全ではなく、ガイドラインのセクター別細則も未完成であるので、不足部分や、不明な部分は JICA ガイドラインを援用することに異存はない、との回答があった。

日時：2004年8月3日（火）10時30分～11時15分

訪問先：商業省

面会者：Mr. Prak Nork : Director, Export Promotion Department

Mr. Sochivin Hank : National Project Manager, ITC Trade Promotion Project
- CMB /61/87

参加者：福田、内藤、

Mr.Chou Phalla : Vice Manager, Project Management Unit(PMU),PPWSA

記録者：内藤

- ・ 相手方に送付しておいた質問表に対する回答を要請したが、質問表が届いておらず、面談の席で直接手交した。回答については、Export Promotion Department で回答できない事項もあるため、後日、回答書を作成してもらうことにした。
- ・ PIA（プノンペン工業地区）について、現状での進捗状況を確認したところ、成長回廊の中で、7地区が選定され、そのうちのひとつにPIAが選ばれた。現状では、どの地区に優先度が与えられて推進されるか、はまだ決まっていないということであった。成長回廊の Target Year は2015年である。
- ・ フランスのコンサルタントが行っているプノンペン市の都市計画には、PIAが記載されていないが、この事実は認識しているか、確認したが、成長回廊の開発計画しか知らないということであった。
- ・ 大規模商業施設の開発について、商業省は営業のライセンスを発行する（所管部門は Department of Legal Affairs）だけで、開発行為の認可は CDC が行うということであった。

日時：2004年8月3日（火）14時～14時30分

訪問先：Department of Rural Development

面会者：Mr. Chin Rotha, Chief Officer

参加者：福田、内藤、

Mr.Chou Phalla : Vice Manager, Project Management Unit(PMU),PPWSA

記録者：内藤

- ・ 7月27日に面談した折に要請した既設井戸の配置図及び地区名リストを受領するために面

談した。入手した資料は、JICA がペリアーバンで作成した地図に、マーカーペンで概略位置を示しただけのものであり、具体的な場所は不明とのことであった。

- 2001 年に掘削した井戸のうち、すでに水が出なくなったものも数箇所出ているとのことであったが、詳細な場所と理由は不明であった。
- 本年度の新規井戸掘削予定については、計画はしたものの、JICA のペリアーバンの井戸掘削事業が進行していることと、PPWASA の配管延伸工事も計画地域にまで進んで来ているため、中断した。

日時：2004 年 8 月 5 日（木）14 時～14 時 40 分

訪問先：Ministry of Industry, Mines and Energy

面会者：Mr. Penn Navuth, Director, Department of Potable Water Supply

参加者：山本団長、福田、内藤

記録者：内藤

- 提出済みの質問状の回答を回収した。
- 本格調査での調査対象地域について、主要幹線道路のプノンペン市およびカンダール州境界近辺の地域について協議した。国道 4 号線の Kambol について、Mr. Navuth より、Kambol を Angk Snoul に変更したいとの要望が出たため、調整した。同氏は、Angk Snoul は Kambol よりさらにカンダール州側に入った地域であるが、大規模開発が予定されており、将来的にはタクマウ市より大きな町になると予測されていることを理由として挙げた。国道 3 号線の Kampong Tual については、調査団から Krang Pongro に変更したと提案した。理由として、Kampong Tual はプノンペン市境界からかなりカンダール州に入ったところであり、道路沿線も人家はほとんどないこと、Krang Pongro がプノンペン市境界付近であるが、ここに至るまでも沿線には人家はまばらであることを理由として挙げた。
- 調整の結果、変更は了解された。

付属資料一 7 事業事前評価表(開発調査)

事業事前評価表 (開発調査)

作成日：平成 16 年 8 月 3 日

担当グループ：カンボジア事務所

1. 案件名
カンボジア国プノンペン市上水道整備計画調査 (フェーズ 2)
2. 協力概要
<p>(1) 事業の目的</p> <p>1) プノンペン首都圏 (プノンペン市およびタクマウ市、カンダール州内のプノンペン市に隣接する都市部) を対象とした上水道マスタープランが策定され、優先プロジェクトのフィージビリティスタディが実施される。</p> <p>2) 調査を通じて上水道の計画手法に関する技術移転を行う。</p> <p>(2) 調査期間 2004 年 11 月～2006 年 1 月</p> <p>(3) 総調査費用 約 2.4 億円</p> <p>(4) 協力相手先機関 プノンペン市水道公社、鉱工業エネルギー省</p> <p>(5) 計画の対象 (対象分野、対象規模等)</p> <p>対象地域：カンボジア国プノンペン首都圏 (プノンペン市およびタクマウ市、カンダール州内のプノンペン市に隣接する都市部)</p> <p>対象面積：プノンペン市 373.73km² およびカンダール州都市部</p> <p>対象人口：約 130 万人</p> <p>対象分野：上水道</p>
3. 協力の必要性・位置付け
<p>(1) 現状及び問題点</p> <p>プノンペン市の上水道は 1993 年に JICA が復興開発支援の一環として作成したマスタープランに基づき整備され、中心市街 4 区 (Don Penh, 7th January, Chamcar Morn, Tuol Kork) については概ね配水管網拡張されている。</p> <p>一方、プノンペン市の経済発展に伴い、郊外 3 区 (Russey Keo, Mean Chey, Dang Kor) やプノンペン近隣のカンダール州まで都市化および産業の発展が進んでおり、水需要が急速に増加している。現在も、PPWSA は幹線道路沿道を中心に管網の拡張工事を行っているが、2007 年には需要が供給に追いつかなくなると予想されており、将来的な需要に基づき施設拡張を行うための長期計画の策定が課題となっている。</p> <p>(2) 相手国政府国家政策上の位置づけ</p> <p>第二次国家社会経済開発計画では、都市人口における安全な水の供給率を 48% (2000 年) から 87% (2005 年) に上げることを目標としている。また、長期的には 2015 年までに上水道サービスの供給人口をカンボジア全人口の 60% とすることを目標としている。</p> <p>(3) 他国機関の関連事業との整合性</p> <p>他国機関は、次のとおり施設整備に対して協力を行っている。将来的な水需要予測および上水道整備計画の策定について、日本側に要請がなされた。マスタープランの作成にあたっては、他ドナーにより実施されているプノンペン市およびタクマウ市での施設拡張支援との整合性を十分に図ることとする。</p>

- ・世界銀行
プノンペン市5村での上水道施設拡張支援、配水パイプの供与を実施している。その他、PPWSA は世界銀行に対してチュルイチャンワール浄水場拡張にかかる要請を行っている。
- ・AFD、ADB
タクマウ市への上水道施設拡張支援を行っている。

(4) 我が国援助政策との関連、JICA 国別事業実施計画上の位置づけ
外務省対カンボジア国国別援助計画では開発上の主要課題の一つ「社会経済開発のための基盤整備」の内容に整合しており、また、カンボジア国に対する JICA 国別事業実施計画の重点課題分野「経済・社会インフラの整備」とも整合している。

4. 協力の枠組み

- (1) 調査項目
- ・基礎調査（1993 年に策定されたマスタープランのレビュー、既存情報の収集・分析、住民意識調査等）
 - ・マスタープランの策定（水需要量予測に基づく上水道拡張整備基本方針の設定）
 - ・フィージビリティスタディの実施（優先プロジェクトの概略設計）
- (2) アウトプット（成果）
- ・プノンペン首都圏の上水道マスタープランの中で、実施可能で具体的な施設拡張計画が提案される。
 - ・PPWSA の経営および組織体制の改善案の提言がなされる。
 - ・上水道の計画手法がカンボジア側に技術移転される。
- (3) インプット（投入）：以下の投入による調査の実施
- (a) コンサルタント（分野／人数／想定 M/M）

分野	人数	M/M
総括／上水道計画	1	8.0
浄水場施設計画／運転維持管理／水質分析	1	11.0
送配水施設計画／運転維持管理	1	5.0
組織制度／人材育成	1	3.5
水道企業体・事業経営	1	2.0
水利地質／地下水開発	1	4.0
都市計画	1	3.0
社会配慮／環境影響評価	1	6.5
財務計画／経済評価	1	3.0
積算／施工計画	1	2.5

計 59.5

- (b) その他 研修員受入れ
C/P 研修

5. 協力終了後に達成が期待される目標

- (1) 提案計画の活用目標
- ・策定された計画に基づき上水道施設整備が行われる。
 - ・提言に基づき組織・経営体制の強化策が実行される。
- (2) 活用による達成目標
- ・プノンペン首都圏（プノンペン市およびタクマウ市、カンダール州内のプノンペン市に隣接する都市部）の給水率が增加する。
- ・PPWSA の組織および経営体制が提言に基づき強化されることにより、プノンペン首都圏

<p>の水道供給体制が強化される。</p>
<p>6. 外部要因</p> <p>(1) 協力相手国内の事情</p> <ul style="list-style-type: none"> ・独立採算による経営体制が制度上担保される ・水道政策上でプノンペン市水道公社（PPWSA）の組織体制に大幅な変更が無い <p>(2) 関連プロジェクトの遅れ</p> <p>特になし</p>
<p>7. 貧困・ジェンダー・環境等への配慮（注）</p> <ul style="list-style-type: none"> ・プノンペン市郊外では、地方開発省、住民、NGO 等により井戸建設が行われている。住民意識調査を行い、住民の上水道施設への接続に対する意向を確認する。また、ステークホルダーミーティングを開催し、住民や地方開発省、NGO に施設拡張計画について説明を行う。 ・プノンペン市における既存の給水区域居住者のうち 15%の住民は各戸給水に接続していない。非接続者のうち貧困層にターゲットを絞り、生活用水の入手方法および収入を調査した上で、貧困層がアクセス可能な水道料金設定または助成金システムについて提案を行う。 ・プノンペン市では下水を湿地帯に流し、ラグーン方式にて下水処理を行っている。上水道施設の拡張により下水の増加が予想されるが、全体排水量に占める上水道の割合は限られていることから現状の処理方法で対応可能と想定される。一方で、現状では湿地帯を保護するための対策が十分にとられていないため、本格調査の中で下水対策に係る提言を行う。
<p>8. 過去の類似案件からの教訓の活用（注）</p> <ul style="list-style-type: none"> ・1993年に実施したプノンペン市上水道整備計画調査（フェーズ1）では、作成したマスタープランに基づき各ドナーの協力による計画的な施設整備が実現された。フェーズ2においても提案計画の活用および計画的な施設整備のためには、各ドナーとの協調による計画策定が重要となる。そのため、本格調査の各段階で各ドナーを集めて計画策定状況の報告および意見交換を行うこととする。
<p>9. 今後の評価計画</p> <p>(1) 事後評価に用いる指標</p> <p>(a) 活用の進捗度</p> <ul style="list-style-type: none"> ・水需要予測に基づく上水道施設の整備状況 ・マスタープランで提案をおこなった組織・経営体制にかかる改善策の活用実績 <p>(b) 活用による達成目標の指標</p> <ul style="list-style-type: none"> ・対象地域における安全な水の供給率 ・組織・経営体制に関する各種指標 <p>収支バランス、1,000 給水栓あたりの職員数、料金回収率</p> <p>(2) 上記（a）および（b）を評価する方法および時期</p> <ul style="list-style-type: none"> ・調査終了後 5 年後、10 年後の評価 ・目標年次である 2020 年 <p>(注) 調査にあたっての配慮事項</p>