

## 4. 討議議事録 (M/D)

### 4.1 基本設計現地調査時

**Minutes of Discussions on the Basic Design Study  
on the Project for Flood Protection and Drainage Improvement  
in the Municipality of Phnom Penh (Phase II)  
in the Kingdom of Cambodia**

In response to a request from the Government of the Kingdom of Cambodia (hereinafter referred to as “Cambodia”), the Government of Japan decided to conduct a Basic Design Study on the Flood Protection and Drainage Improvement in the Municipality of Phnom Penh (Phase II) (hereinafter referred to as “the Project”) and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as “JICA”).

JICA sent to Cambodia the Basic Design Study Team (hereinafter referred to as “the Team”), which is headed by Mr. Kazuhisa ARAI, Team Director of the Information and Communication Technology and Governance Team, Grant Aid Management Department, JICA, and is scheduled to stay in the country from 11<sup>th</sup> of January to 22<sup>nd</sup> of February, 2006.

The Team held discussions with the officials concerned of the Government of Cambodia and conducted a field survey at the study area.

As a result of discussions and field survey, both parties confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Phnom Penh, January 18, 2006.

新井 和久

Kazuhisa Arai  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



Rep. Chhuk Phna ៧៧៥  
Governor  
Municipality of Phnom Penh  
Kingdom of Cambodia

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to provide the Municipality of Phnom Penh with high safety against the flooding from the Mekong River system and to minimize the flood damage by repairing the revetment, and also to minimize the inundation and its damage caused by local rainfall by improving the drainage system.

The Project is a part of the implementation of the “Master Plan of Drainage Improvement and Flood Control in the Municipality of Phnom Penh” which was conducted by JICA, and follows the first implementation ‘the Project for Flood Protection and Drainage Improvement in the Municipality of Phnom Penh’.

### 2. Project sites

The Project site is shown in Annex-1.

### 3. Responsible Organization and Implementing Agency

3-1. The responsible organization is the Municipality of Phnom Penh (hereinafter referred to as “MPP”). The organization chart is shown in Annex-2-a.

3-2. The implementing agency is the Department of Public Works and Transport (hereinafter referred to as “DPWT”). The organization chart is shown in Annex-2-b.

### 4. Items requested by the Government of Cambodia

After discussions with the Team, the components described in Annex-3 were finally requested by the Cambodia side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

### 5. Japan’s Grant Aid Scheme

5-1. The Cambodian side understands the Japan’s Grant Aid Scheme explained by the Team, as described in Annex-4.

5-2. The Cambodian side will take the necessary measures, as described in Annex-5, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

### 6. Schedule of the Study

6-1. The Team will proceed to further study in Cambodia until February 22, 2006.

6-2. JICA will prepare the draft report in English and dispatch a mission to Cambodia in order

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to explain its contents in around August, 2006.

- 6-3. In case that the content of the report is accepted in principle by the Government of Cambodia, JICA will complete the final report and send it to Cambodia by October, 2006.

## 7. Other relevant issues

### 7-1. Environmental and Social Considerations

- 7-1-1. Both sides confirmed that the Project is categorized as Category B in the 'JICA Guidelines for Environmental and Social Considerations', and therefore necessary procedures should be properly taken by both sides.
- 7-1-2. The Cambodian side will conduct Initial Environmental Examination (hereinafter referred to as "IEE") in accordance with the concerning laws and regulations of Cambodia, and report the result to the Team by 15<sup>th</sup> of February, 2006.
- 7-1-3. The Cambodian side will take any necessary actions required by the result of IEE or any other research/survey concerning the environmental and social considerations for the Project. The Japanese side will also properly reflect the results to the Basic Design of the Project.

### 7-2. Scale of the Project

- 7-2-1. The Cambodian side understands that the scale of the Project might have to be diminished from the request, in consideration of cost and effectiveness.
- 7-2-2. In that case, the Cambodian side requested that even if the amount or some items of each component be cut down, all the five areas described in Annex-3 shall be covered, and not eliminate any area wholly from the Project.
- 7-2-3. The Japanese side will assess the request in addition to the result of the field survey analysis, and draw out the basic design of the Project.

### 7-3. Operation and Maintenance

- 7-3-1. The Cambodian side shall allocate enough budget and qualified staff to properly and effectively operate/maintain the facilities and equipments supplied by the Project.
- 7-3-2. To do this, the Cambodian side additionally requested equipments for maintenance of the drainage. This additional request is also described in Annex-3.
- 7-3-3. The Cambodian side requested a counterpart training in Japan to be carried out as a technical cooperation by JICA. The Cambodian side understands that another official request will be necessary to be submitted by the Cambodian side to the Embassy of Japan and/or the JICA office.

### 7-4. For the Smooth Implementation of the Project

- 7-4-1. The Cambodian side shall ensure prompt tax exemption and customs clearance of the products at the terminal of disembarkation.

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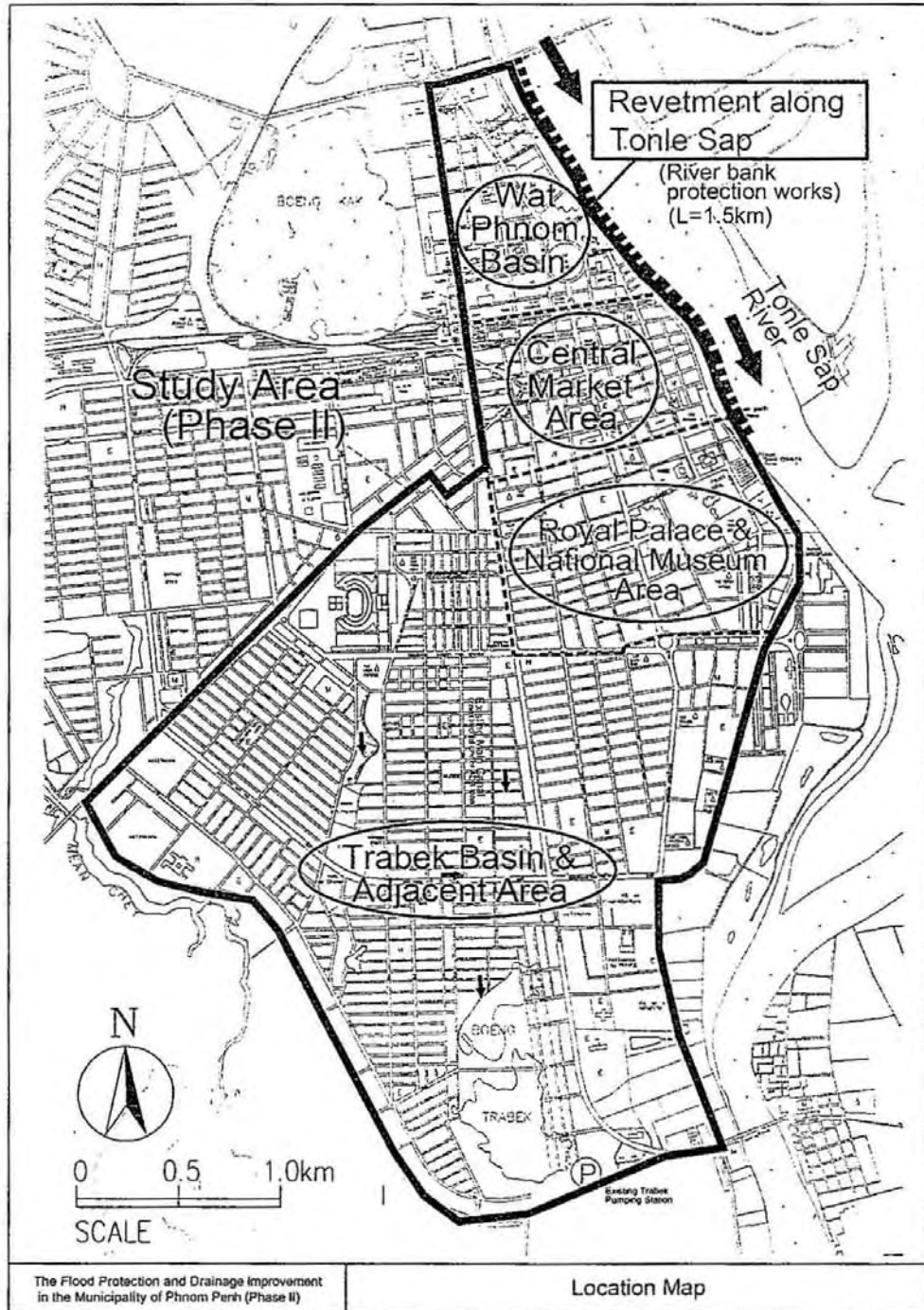
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- 7-4-2. The Cambodian side agrees to secure and clear the land of the Project site before the beginning of the construction.
- 7-4-3. For the objects which must be relocated for the construction of the Project (utility poles, cables and lines buried underground, etc.), the Cambodian side requested to bear the relocation fee by the Japanese side. However, the fee is supposed to be a considerably large amount and bearing it in the Project will possibly lead to the diminishment of the Project scale. Therefore, the Japanese side will prepare the basic design in consideration with the cost, efficiency, and schedule of the construction.
- 7-4-4. DPWT shall make coordination with the organizations concerned, especially with Electricite Du Cambodge, for the smooth implementation of the Project. This includes the minimization of the relocation work mentioned above, and also the usage of electricity during the construction and after the completion of the Project.

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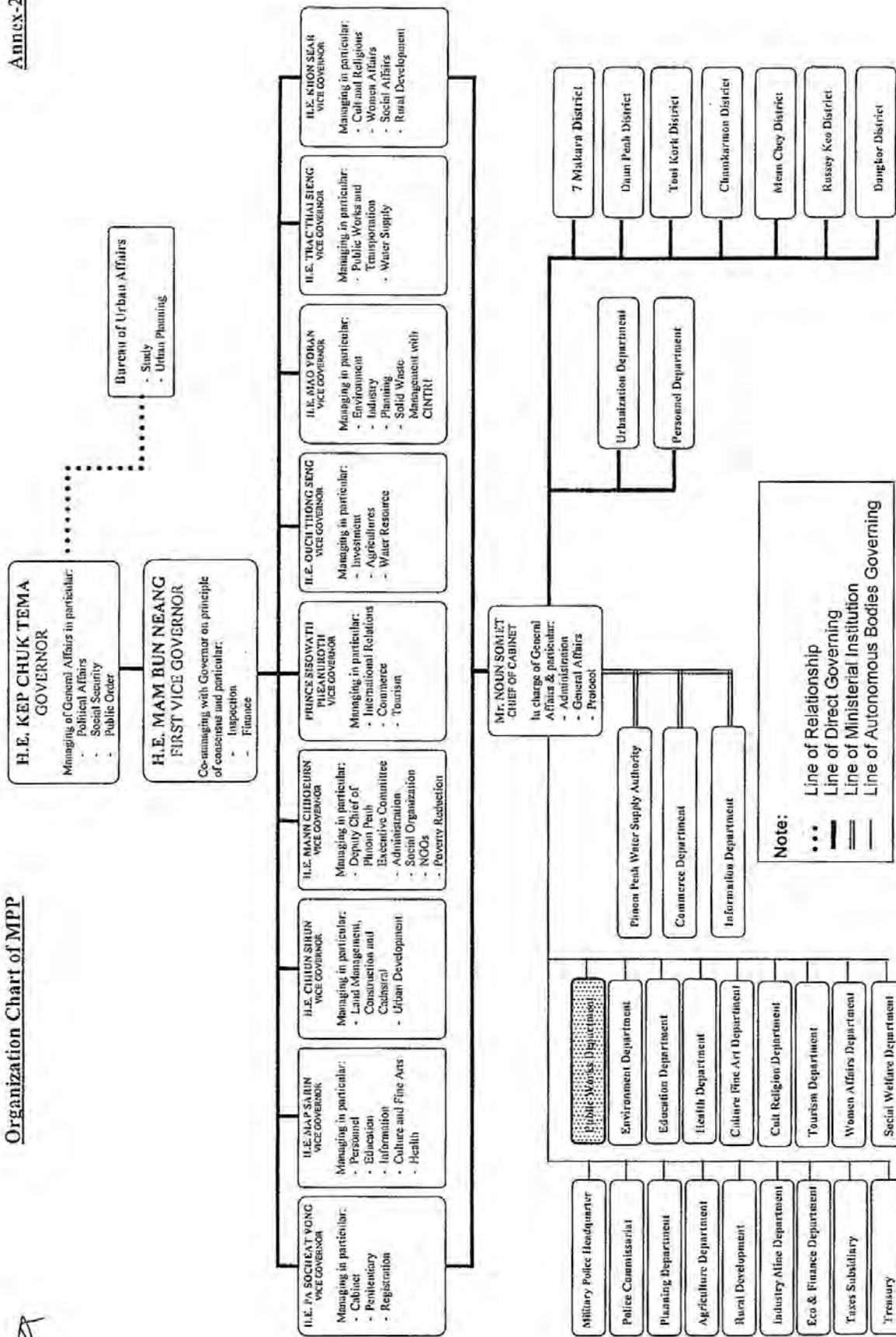
Location of the Project Site



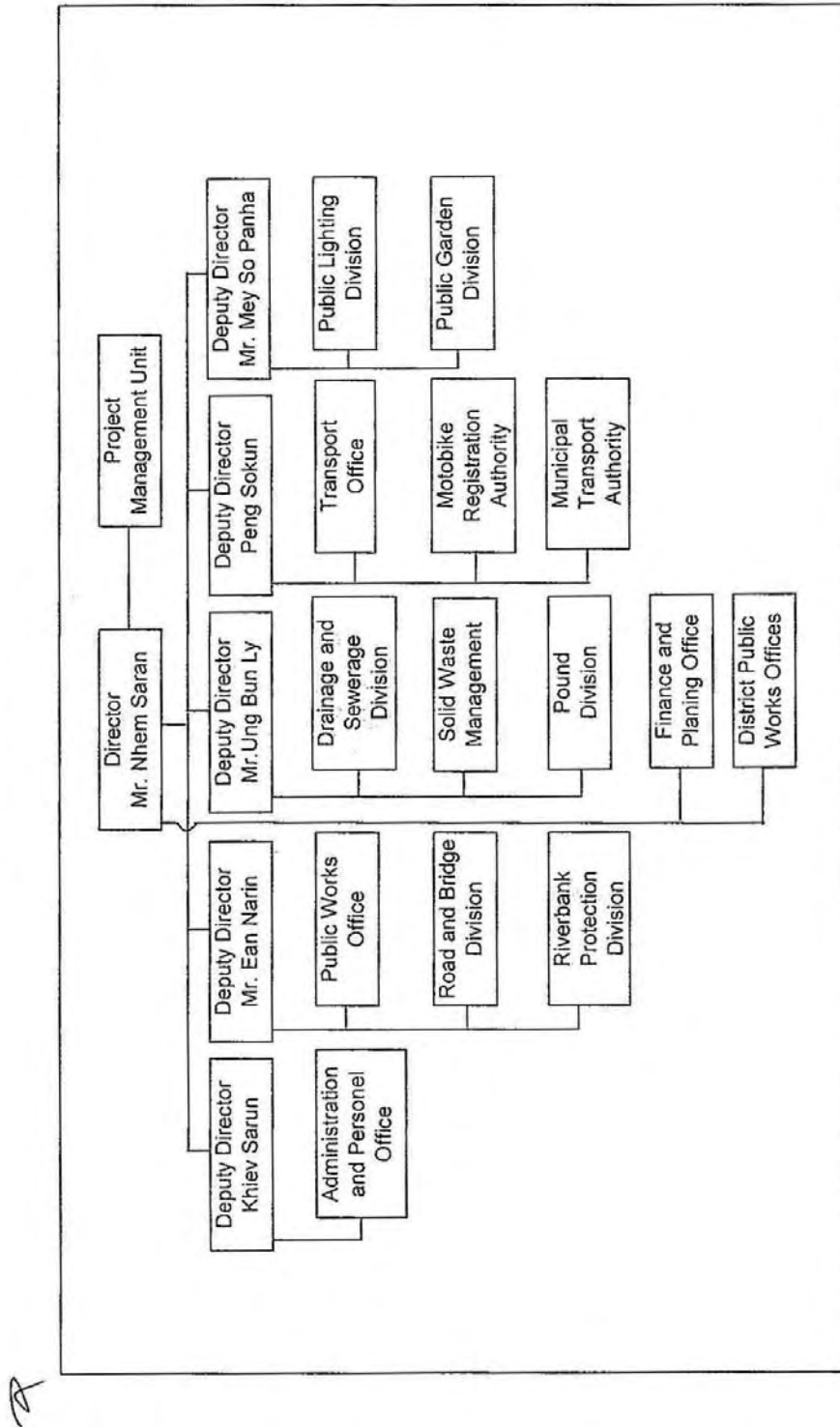
Organization Chart of MPP

Annex-2-a

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Organization Chart of DPWT



## Requested Items

Requested Components	Quantity	Specification
<b>1. Construction of Stone Pitching Type Revetment along the Tonle Sap</b>		
Revetment Work	Length: 1.5km	Grid Pattern Concrete Type
<b>2. Improvement of Central Market Area Drainage System</b>		
Drainage Pipe	Length: 3.4km	North: 640m of $\phi$ 800mm (Monivong Road) 350m of $\phi$ 1,000mm (Rd.110) 860m of $\phi$ 1,500mm (Rd.108) Center: 250m of $\phi$ 1,500mm (Rd.148) South: 600m of $\phi$ 1,000mm (Norodom Road) 700m of $\phi$ 1,500mm (Rd.154)
Drainage Pumping Station	2 stations	North: capacity 2,500 m <sup>3</sup> /h Center: capacity 5,000 m <sup>3</sup> /h
Underground Reservoir	3 locations	North: capacity 4,500 m <sup>3</sup> /h Center: capacity 3,000 m <sup>3</sup> /h South: capacity 4,500 m <sup>3</sup> /h
<b>3. Improvement of Royal Palace and National Museum Area Drainage System</b>		
Drainage Box Culvert	Length: 0.7km	North: 300m of Box Culvert (Rd. 184) South: 400m of Box Culvert (Rd. 204)
Drainage Pumping Station	2 stations	North: capacity 5,500 m <sup>3</sup> /h South: capacity 2,500 m <sup>3</sup> /h
Underground Reservoir	2 locations	North: capacity 7,400 m <sup>3</sup> /h South: capacity 1,100 m <sup>3</sup> /h
<b>4. Improvement of Road Drainage System and Road Rehabilitation in Trabek Basin and Adjacent Area</b>		
Drainage Pipe	Length: 19km	-
Rehabilitation / Road Pavement	Area: 200ha	Asphalt Pavement
<b>5. Improvement of Wat Phnom Basin Drainage System</b>		
Drainage Pipe	Length: 9.05km	Including road rehabilitation 900m of $\phi$ 1,500mm (Rd.47) 200m of $\phi$ 1,500mm (Rd.90) 100m of $\phi$ 1,000mm 500m of $\phi$ 800mm (Rd.79) 300m of $\phi$ 600mm (Rd.86)
Drainage Pumping Station	1 station	capacity 2,500 m <sup>3</sup> /h
Underground Reservoir	1 location	capacity 6,000 m <sup>3</sup> /h
<b>6. Implementation of Maintenance Equipment</b>		
Maintenance Equipment	1 set	Functions: vacuum truck, water jet, water tank



Japan's Grant Aid

The Grant Aid Scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

**(1) Grant Aid Procedures**

- 1) Japan's Grant Aid Scheme is executed through the following procedures:
  - Application (Request made by a recipient country)
  - Study (Basic Design Study conducted by JICA)
  - Appraisal & Approval (Appraisal by the Government of Japan and Approval by the Cabinet of Japan)
  - Determination of Implementation (The Notes exchanged between the Governments of Japan and the recipient country)
  - Implementation (Implementation of the Project)
- 2) Firstly, the application or a request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Japan's Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

**(2) Basic Design Study**

- 1) Contents of the Study
- The aim of the Basic Design Study conducted by JICA on a requested project (hereinafter referred to

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as “the Project”) is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Basic Design Study are as follows:

- i) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project’s implementation,
- ii) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economical point of view,
- iii) Confirmation of items agreed on by both parties concerning the basic concept of the Project,
- iv) Preparation of a basic design of the Project,
- v) Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid Project. The Basic Design of the Project is confirmed considering the guidelines of Japan’s Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

## 2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Basic Design Study is (are) recommended by JICA to the recipient country to also work in the Project’s implementation after the Exchange of Notes, in order to maintain technical consistency.

## (3) Japan's Grant Aid Scheme

### 1) Exchange of Notes (E/N)

Japan’s Grant Aid is extended in accordance with the Notes exchanged by two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

- 2) “The period of the Grant Aid” means the one Japanese fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However in case of delays in delivery, installation or construction due to unforeseen

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factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

- 3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, constructing, and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

- 4) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

- 5) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the followings:

- i) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the Project.
- ii) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
- iii) To secure buildings prior to the procurement in case the installation of the equipment.
- iv) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
- v) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- vi) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

6) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

8) Banking Arrangement (B/A)

i) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

ii) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay (A/P) issued by the Government of the recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

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Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site after completion of the construction		●
4	To construct the parking lot during construction	●	
5	To construct roads		
	1) Within the site	●	
	2) Outside the site		●
6	To construct buildings	●	
7	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. The distributing line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site		●
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site	●	
	4) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	5) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
8	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
9	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan the recipient	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
10	To accord Japanese nationals whose service may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
11	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
12	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
13	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

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## 4.2 基本設計概要書説明調査時

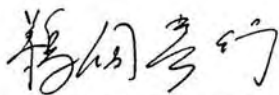
**Minutes of Discussions on the Basic Design Study  
on the Project for Flood Protection and Drainage Improvement  
in the Municipality of Phnom Penh (Phase II)  
(Explanation of Draft Final Report)**

From January to February 2006, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Flood Protection and Drainage Improvement in the Municipality of Phnom Penh (Phase II) (hereinafter referred to as "the Project") to the Kingdom of Cambodia (hereinafter referred to as "Cambodia"), and through discussions, field survey, and technical examination of the results in Japan, JICA prepared a draft final report of the study.

In order to explain and to consult with concerned officials of the Government of Cambodia on the components of the draft final report, JICA sent to Cambodia the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Hikoyuki UKAI, Deputy Resident Representative, JICA Cambodia Office from October 8 to 13, 2006.

As a result of discussions, both sides confirmed the main items described on the attached sheet.

Phnom Penh, October 12, 2006



Hikoyuki Ukai  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



Rep. Chuk Tema  
Governor  
Municipality of Phnom Penh  
Kingdom of Cambodia



## ATTACHMENT

### 1. Components of the Draft Final Report

The Cambodian side has agreed and accepted in principle the components of the draft final report explained by the Team.

### 2. Japan's Grant Aid Scheme

The Cambodian side understands the Japan's Grant Aid scheme and the necessary undertakings to be taken by the Government of Cambodia as explained by the Team and described in Annex-4 and Annex-5 of the Minutes of Discussions signed by both sides on January 18, 2006.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Cambodia by the end of November, 2006.

### 4. Other Relevant Issues

- 4-1 The Cambodian side understands the schedule of the Project after the Exchange of Notes (E/N).
- 4-2 The Cambodian side understands that restoration of the revetment beside the Chakto Mukh National Theater may cause a negative impact to the downstream bank. The Cambodian side shall be responsible for the improvement of the downstream revetment, and take any necessary measures if any problem occurs to the adjacent area of the revetment restored by Japan's Grant Aid.
- 4-2.1 The Cambodian side shall allocate enough budget and qualified staff to properly and effectively operate/maintain the facilities and equipments supplied by the Project. To secure this, the Cambodian side agrees to actually implement ten (10) percent of the water rate guaranteed as necessary financial resource for the maintenance of the sewage and drainage facilities.
- 4-3 The Cambodian side agrees to undertake the procedures described below in accordance with the schedule of the Project;
- Distribution of electricity line to the substation facilities:  
before the start of the construction of pumping stations.
  - Approval of electricity usage at the pumping stations, installation of electrical power meters: before the start of the construction of the Project.

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- Approval of water supply to the pumping stations, installation of water meters:  
before the start of the construction of the Project.
- Organizing meetings to explain about the construction works to the local residents:  
before the start of the construction of each area.
- Approval of construction inside the premises of the Chakto Mukh National Theater:  
before the start of the construction of the Project.
- Approval to use the school ground of Trabek High School for a temporary space to place the soil from the construction works:  
before the start of the construction of the Project.
- Securement of land-waste disposal site (Approval to use the Stoeung Meanchey land-waste disposal site): before the start of the construction of the Project.
- Tax exemption and customs clearance: at the disembarkation of the products.

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## 5. 現地ステークホルダー協議録

実施日：2006年1月13日（金）

場所：プノンペン市役所 2階会議室

出席者：

氏名（敬称略）	役職	所属
Trac Thai Sieng	Deputy Governor	International Relation Office of MPP
Nak Tannavuth	Chief	International Relation Office of MPP
Ve Cheng	Deputy Director	Department of Water Resource, Hydrology and Meteorology of MPP
Sun Heng	Representative	Khan 7 Makara
Chum Sam Oeun	Deputy Director	Department of Commerce
Keo Sipha	Representative	Department of Economy and Finance
Sin Boramey	Deputy Director	Department of Land Management, Urban Planning, Construction and Cadastre of MPP
Som Sambath	Vice Chief	Geographic Office
Sen Bote	Chief	Sangkat Boeng Trabek
Kim Seuth	Chief	EIA of DOE
Mey Sary	Representative	Sangkat Phsar Thmey II
Hin Poch	Deputy Director	Department of Agriculture, Forestry and Fishery of MPP
Hok Kim Eang	Vice Chief	BAU
Sao Kosal	Representative	Sangkat Phsar Kandal I
Sok Raty	Representative	Sangkat Phsar Chaas
Sam Sokhon	Representative	Sangkat Phsar Thmey III
Eang Pon	Representative	Sangkat Srah Chaak
Nuon Hat	Representative	Sangkat Chaktomuk
Sum Rithy	Deputy Governor	Khan Toul Kork
Mom Sandap	Director	Department of Plan of MPP
Kim Vathanak Thida	Deputy Chief	Cabinet of MPP
Sor Phara	Vice Chief	BAU
Chou Kimtry	Representative	DPWT
Top Sovannarith	Representative	DPWT
Meng Chan Vibol	Representative	JICA
Roeung Phalline	Representative	Sangkat Chey Chumneah
Nouv Kim Sour	Representative	Sangkat Phsar Kandal II
Phuong Sam Eng	Representative	Sangkat Phsar Thmey I
Moeung Sophan	Representative	DPWT

討議内容：

1. プロジェクトの概要説明（目的、調査範囲、要請内容等）を行い、出席者の理解を得た。
2. プロジェクトの中で日本に要請しているコンポーネントについて、対象範囲が広いとため、整備する地域の優先順位付けを行い、各コンポーネント（箇所）の改修費用を概算した上で、無償資金協力として妥当な内容を提案するという基本方針をカンボジア側に説明を行い、理解を得た。
3. 上記2の場合、要請している全てのコンポーネントを実施できないことが予想されるが、その場合、カンボジア側が考える各コンポーネント（箇所）の優先順位について、調査団よりカンボジア側に尋ねた。その結果、各地区で要請されている施設等の延長や規模を減らしても要請地区5箇所（トンレサップ川護岸、中央マーケット付近、王宮/国立博物館付近、トラベック地区、ワットプノン地区）はすべてプロジェクトに取り込んでほしい、という要望がカンボジア側の方針として示された。

## 6. 事業事前計画表（基本設計時）

<b>1. 案件名</b>
カンボジア王国 プノンペン市洪水防御・排水改善計画（フェーズⅡ）
<b>2. 要請の背景（協力の必要性・位置付け）</b>
(1) プノンペン市では、フランス植民地時代から 1960 年代にかけて整備・維持されてきた洪水防御・排水施設が、1970 年代からの 20 年に及ぶ内戦時に、維持管理が殆どなされず放置されたため、その機能が著しく低下している。この結果、堤防は毎年越水の危険にさらされる上、降雨のたびに浸水被害が市内各所で頻発している。一方、国内の治安回復に伴う急激なプノンペン市の人口増加により、洪水・浸水による災害規模の増大が懸念されており、早急な改善対策が必要な状況である。
(2) 本プロジェクトは、カ国政府が第 2 期 5 ヶ年社会経済開発計画（2001-2005）および公共投資プログラム（2004-2006）の中で謳っている「災害の予防と管理」の理念に基づき、プノンペン市に対してトンレサップ川および周辺河川による洪水に対する高い安全性をもたらす洪水被害を最小限に押さえること、ならびにプノンペン市内の浸水を最小限にし被害軽減することを目標としている。
(3) 本プロジェクトは JICA が実施したプノンペン市および周辺地域の総合的な治水・排水対策マスタープラン（1998～99 年）において提案された 8 つのコンポーネントから構成される事業実施計画に基づき要請されている。
<b>3. プロジェクト全体計画概要</b>
(1) プロジェクト全体計画の目標  プノンペン市において、洪水に対する治水安全度が向上し、浸水災害による被害が軽減される。  洪水防御による裨益対象は、地域住民 46 万人、12 万世帯、商業施設 8 千軒、公共施設 100 軒 排水改善による裨益対象は、地域住民 12 万人、4 万世帯、商業施設 3 千軒、公共施設 50 軒（いずれも 2010 年時点）
(2) プロジェクト全体計画の成果  <u>洪水防御施設および排水施設が整備される。</u>
(3) プロジェクト全体計画の主要活動  (a) プロジェクト運営のための人員を配置し、計画通りに予算執行する。 (b) <u>施設を整備する。</u> (c) 上記施設を使用して活動を実施する。
(4) 投入（インプット）  (a) <u>日本側（＝本案件）：無償資金協力 26.68 億円</u> (b) 相手国側：施設の運営・維持管理に関わる人員と経費
(5) 実施体制  (a) 実施機関：プノンペン市公共事業運輸局 (b) 主管官庁：プノンペン市

#### 4. 無償資金協力案件の内容

(1) サイト

カンボジア国プノンペン市

(2) 概要

プノンペン市内において、排水管路、ポンプ場、地下貯留槽、護岸の建設

(3) 相手国側負担事項

(a) 建設用地の確保

(b) 送電線の引き込み工事

(4) 概算事業費

概算事業費 26.68 億円（無償資金協力 26.64 億円、カンボジア国側負担 0.04 億円）

(5) 工期

(a) 詳細設計期間：7.5 ヶ月

(b) 入札・工事期間：30 ヶ月

(6) 貧困、ジェンダー、環境および社会面の配慮

(a) 初期環境調査(粉塵の発生、大気汚染、悪臭、騒音、振動、植生への影響、社会経済および文化遺産への影響等)の実施により、プロジェクトの実施による影響を検討した結果、適切な対策を講じるならば環境に及ぼす影響は軽微であることが判明

(b) トンレサップ川へ流れる汚水を直接川へ放流しないように遮集管を計画

(c) 浸水被害調査時において、対象地域住民のプロジェクト実施に対する受容度を確認し、圧倒的多数の賛成を確認

#### 5. 外部要因リスク

計画値以上の降雨や洪水といった突発事態が発生しない。

#### 6. 過去の類似案件からの教訓の活用

(1) 用地買収・家屋移転には時間と費用がかかるため、本案件実施による用地買収・家屋移転を生じないような計画とした。

(2) 軟弱地盤による斜面崩壊を防ぐため、軟弱地盤対策を考慮した施工方法を計画した。

#### 7. プロジェクト全体計画の事後評価に係る提案

(1) プロジェクト全体計画の目標達成を示す成果指標

(a) 洪水防御

メコン川およびトンレサップ川の既往最大洪水（約 30 年確率）が堤防を越水せず、護岸に構造上の損傷がないこと。

(b) 浸水被害軽減

現況 <sup>注)</sup>		実施後	
浸水深:最大 60cm (王宮付近)	継続時間:最長 12 時間 (王宮付近)	浸水深:20cm 以下	継続時間:1~2 時間未満

注)水理解析結果による

(2) その他の成果指標

河川環境改善: 遮集管の新設により、ワットプノン以南の晴天時汚水のトンレサップ川への放流がなくなり、河川環境が改善される。

項目	2010 年	実施後
放流汚水量(m <sup>3</sup> /日)	9,000	0
排出 BOD <sub>5</sub> 量(kg/日)	900	0

(3) 評価のタイミング

(a) 施設完工後 (2010 年) 以降の事後評価

## 7. 入手資料リスト

主管部長	文書管理課長	主管課長	情報管理課長	図書資料室受付印

### 収集資料リスト(1/5)

平成 18 年 3 月 6 日作成

地域名	東南アジア カンボジア	調査団 等名称	カンボジア国洪水防衛・排水改善計画 (フエーズⅡ) 基本設計調査	調査の種類	基本設計調査	作成部課				
						現地調査期間	担当者氏名			
番号	名	称	形態	版型	ページ数	オリジナル・コピー	部数	発行機関又は収集先名称	発行年	寄贈・購入 (価格)の別
1	FSP-Assistance a la maitrise d'ouvrage en gestion et developpement urbain au Cambodge Composante 3 Rapport 4 Rapport sur les resultant du modele Decembre 2004		製本	A4	162	コピー	1	Municipalite de Phnom Penh	2004	複写
2	標準マンホール構造図		図面	A4	2	コピー	1	DPWWT (DSD)	-	寄贈
3	Trabek 地区 MOUSE モデル		電子データ	CD	2	コピー	1	DPWWT	-	複写
4	Inventory of Sewage Pipe in Phnom Penh City from 1993 to December 31, 2005		表	A4	1	コピー	1	DPWWT	-	複写
5	Tonle Sap 水位記録 (2001-2005)		電子データ	-	-	コピー	1	DPWWT	-	複写
6	護岸工崩壊箇所設計図面		図面	A3	14	コピー	1	DPWWT	-	複写
7	Srov Dike 設計図面		図面	A3	9	コピー	1	DPWWT	-	複写
8	Tonle Sap, Mekong River 深淺測量図		図面	A1	1	コピー	1	DPWWT	-	複写
9	LABOUR LAW		図書	A5	153	オリジナル	1	World Bank	-	購入(10\$)
10	LAW ON SOCIAL SECURITY SCHEMES FOR PERSONS DEFINED BY THE PROVISIONS OF THE LABOUR LAW		図書	A5	9	オリジナル	1	JICA	-	寄贈

収集資料リスト(2/5)

平成 18 年 3 月 6 日作成

地域	東南アジア	調査団	カンボジア国洪水防御・排水改善計画 (フェーズⅡ)	基本設計調査	作成部課
国名	カンボジア	等名称	カンボジア国洪水防御・排水改善計画 (フェーズⅡ)	基本設計調査	担当者氏名
				平成 18 年 1 月 10 日 - 平成 18 年 2 月 23 日	
				現地調査期間	

番号	名	称	形	態	版	型	ページ数	オリジナル・コピー	部数	発行機関又は収集先名称	発行年	寄贈・購入 (価格) の別
11	CPAC CAMBODIA CO., LTD.	(バンプレット)	図書	図書	A5	A5	70	オリジナル	1	CPAC CAMBODIA CO., LTD.	-	寄贈
12	OPERATORS LOG BOOK	(Tuol Kouk I ホップ場)	図書	図書	A5	A5	40	コピー	1	DPWT	-	寄贈
13	OPERATORS LOG BOOK	(Trabek No.1 ホップ場)	図書	図書	A5	A5	40	コピー	1	DPWT	-	寄贈
14	OPERATORS LOG BOOK	(Tumpun No.5 ホップ場)	図書	図書	A5	A5	62	コピー	1	DPWT	-	寄贈
15	OPERATORS LOG BOOK	(ルノー-No. 1)	図書	図書	A5	A5	40	コピー	1	DPWT	-	寄贈
16	OPERATORS LOG BOOK	(ルノー-No. 2)	図書	図書	A5	A5	40	コピー	1	DPWT	-	寄贈
17	OPERATORS LOG BOOK	(ルノー-No. 3)	図書	図書	A5	A5	40	コピー	1	DPWT	-	寄贈
18	降雨量データ	(Pochentong st. 2001~2005)	表	表	A4	A4	5	コピー	1	MWRM (Department of Meteorology)	-	購入(\$75)
19	最高気温データ	(Pochentong st. 2001~2005)	表	表	A4	A4	5	コピー	1	MWRM (Department of Meteorology)	-	購入(\$75)
20	最低気温データ	(Pochentong st. 2001~2005)	表	表	A4	A4	5	コピー	1	MWRM (Department of Meteorology)	-	購入(\$75)
21	湿度データ	(Pochentong st. 2001~2005)	表	表	A4	A4	5	コピー	1	MWRM (Department of Meteorology)	-	購入(\$75)
22	風速・風向データ	(Pochentong st. 2001~2005)	表	表	A4	A4	5	コピー	1	MWRM (Department of Meteorology)	-	購入(\$75)
23	降雨量データ	(Basac st. 2001~2005)	表	表	A4	A4	5	コピー	1	MWRM (Department of Meteorology)	-	購入(\$75)

収集資料リスト(3/5)

平成18年3月6日作成

地域	東南アジア	調査団	カンボジア国洪水防衛・排水改善計画 (フエーズII) 基本設計調査	調査の種類	基本設計調査	作成部課	
国名	カンボジア	等名称		調査の期間	平成18年1月10日～平成18年2月23日	担当者氏名	

番号	名	称	形態	版型	ページ数	デジタル・コピー	部数	発行機関又は収集先名称	発行年	寄贈・購入 (価格)の別
24	Flood Mitigation in the wat Phnom Area		製本	A4	15	コピー	1	KOSAN Engineering	-	寄贈
25	Machine and Equipment Inventory		表	A4	2	コピー	1	DPWT	-	寄贈
26	DPWT Proposed Budget (2006-2008)		表	A4	1	コピー	1	DPWT	-	寄贈
27	DSD Planning and Actual Budget (2003~2005)		表	A4	8	コピー	1	DPWT	-	寄贈
28	Answer to Questionnaire		仮綴	A4	14	コピー	1	DPWT	-	寄贈
29	Operation and Maintenance Cost of Existing Pumping Station in the Municipality of Phnom Penh (1999)		電子データ	-	-	コピー	1	DPWT	-	寄贈
30	Operation and Maintenance Cost of Existing Pumping Station in the Municipality of Phnom Penh (2004)		電子データ	-	-	コピー	1	DPWT	-	寄贈
31	Operation and Maintenance Cost of Existing Pumping Station in the Municipality of Phnom Penh (2005)		電子データ	-	-	コピー	1	DPWT	-	寄贈
32	Budget of the Department of Public Works and Transport (1997-2006)		表	A4	1	コピー	1	DPWT	-	寄贈
33	Environmental Law Legislation Related to Environment March 2004		製本	A4	100	コピー	1	Department of Environment, Municipality of Phnom Penh	2004	複写

## 収集資料リスト(4/5)

平成 18 年 3 月 6 日作成

地域名	東南アジア		調査団等名称	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	バージョン数	形態	形態	名称	バージョン数	オリジナル・コピー	部数	発行機関又は収集先名称	発行年	寄贈・購入(価格)の別
	国名	カンボジア												
34					A4 A3	製本 図面	Flood Mitigation in the Wat Phnom Area December 2005	5 10	1	コピー	1	KOSAN Engineering	-	複写
35					-	電子データ	中圧(22KV)電線ネットワーク図 (基本設計調査範囲のみ)	-	1	オリジナル	1	EDC	-	寄贈
36					-	電子データ	電話線ネットワーク図	-	1	オリジナル	1		-	寄贈
37					A1	図面	水道管ネットワーク図 (基本設計調査範囲のみ)	5	1	オリジナル	1	PPWSA	-	寄贈
38					-	電子データ	排水管ネットワーク図	-	1	オリジナル	1	DPWT	-	寄贈
39					A4	書類	JICA 無償 国道 1 号線 積算単価表	3	1	コピー	1	片平エンジニアリング	-	寄贈
40					A4	書類	JICA カンガースル灌漑 積算単価表	9	1	コピー	1	日本工営	-	寄贈
41					A4	書類	電話線地下埋設図	4	1	コピー	1	Camintel	-	寄贈
42					-	電子データ	TV ケーブル地下埋設図	-	1	コピー	1	PPFP TV	-	寄贈
43					-	電子データ	ラジオケーブル地下埋設図	-	1	コピー	1	National Radio	-	寄贈
44					-	図書	カンボディア国別援助研究会報告書	-	1	コピー	1	JICA	-	寄贈



収集資料リスト(5/5)

平成 18 年 3 月 6 日作成

地域名	調査団等名称		調査の種類	調査期間	基本設計調査	作成部課	寄贈・購入 (価格)の別	
	東南アジア	カンボジア						現地調査期間
45	Study on the Vertical and Horizontal Datum and the Geodetic Surveys Carried Out in Cambodia	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	86	1	発行機関又は収集先名称 Master's Thesis of Jyrki Anttonen 1999	複写
46	Updating Hydrographic Atlas Project Topographic Mapping Component in Cambodia (Phase-1)	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	200	1	発行機関又は収集先名称 Mekong Secretariat 1995	複写
47	Géodésie et stéréopréparation de la ville de PHNOM-PENH, Cambodge	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	116	1	発行機関又は収集先名称 Compte-rendu de mission -	複写
48	Electricite Du Cambodge, DESIGN STANDARD	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	180	1	発行機関又は収集先名称 Electricite Du Cambodge 1996	複写
49	ROAD DESIGN STANDARD (3分冊)	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	計217	1	発行機関又は収集先名称 Ministry of Public Works and Transport 2003	購入(\$30)
50	BRIDGE DESIGN STANDARD	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	58	1	発行機関又は収集先名称 Ministry of Public Works and Transport 2003	購入(\$30)
51	CONSTRUCTION SPECIFICATION	カンボジア国洪水防御・排水改善計画 (フェーズII) 基本設計調査	紙	A4	400	1	発行機関又は収集先名称 Ministry of Public Works and Transport 2003	購入(\$30)

## 8. 浸水被害調査結果

QUESTIONNAIRE FOR PUBLIC AWARENESS AND ENVIRONMENT & SANITARY CONDITION  
SURVEY RELATING TO FLOODING

No. \_\_\_\_\_

Date: \_\_\_\_\_

Interviewer name: \_\_\_\_\_

**I. General Questions**

1. Type of interviewee: \_\_\_\_\_

- 1 Housewife
- 2 The master
- 3 Children
- 4 Other house member
- 5 Housekeeper (servant)
- 6 Others (please specify): \_\_\_\_\_

2. Address: \_\_\_\_\_  
\_\_\_\_\_

3. Employment of the master: \_\_\_\_\_

- 1 Primary industry (agriculture & mining)
- 2 Secondary industry (manufacturing)
- 3 Tertiary industry (service oriented profession)
- 4 Pensioner (retired)
- 5 Unemployed
- 6 Others (please specify): \_\_\_\_\_
- 7 I don't know

4. Number of persons staying in the house: \_\_\_\_\_

5. Number of dwelling years at this place: \_\_\_\_\_

- 1 Less than 5 years
- 2 5- 9 years
- 3 10- 19 years
- 4 20 years or more
- 5 I don't know

6. What type of your dwelling: \_\_\_\_\_

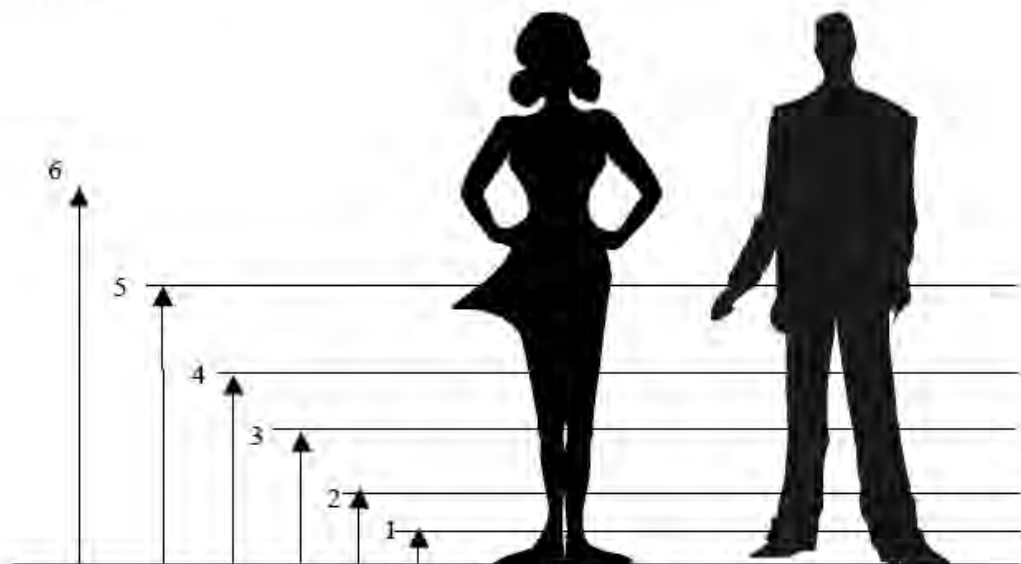
- 1 Own house
- 2 Rental
- 3 I don't know

7. If "Question No. 7 answer 2 Rental", how much is your house rent? : \_\_\_\_\_ US\$/month

8. Total expenditure of your house per month: \_\_\_\_\_
- 1 Less than 100 US\$/month
  - 2 101- 200 US\$/month
  - 3 201- 500 US\$/month
  - 4 501- 1000 US\$/month
  - 5 1001- 2000 US\$/month
  - 6 More than 2001 US\$/month
  - 7 I don't know

**II. Questions on Inundation Situation**

9. Have you ever had experience in flooding in front of your house? : \_\_\_\_\_
- 1 Yes
  - 2 No
  - 3 I don't know
10. If "Question No.9 answer Yes", how often do you have the flooding? : \_\_\_\_\_
- 1 Once a year
  - 2 2 – 3 times a year
  - 3 More than 4 times a year
  - 4 Once in 2 – 3 years
  - 5 Others (please specify): \_\_\_\_\_
  - 6 I don't know
11. If "Question No.9 answer Yes", how deep was the flooding? : \_\_\_\_\_
- 1 Up to your ankle
  - 2 Up to your shin
  - 3 Up to your knee
  - 4 Up to your thigh
  - 5 Up to your waist
  - 6 Higher than waist
  - 7 I don't know



12. If "Question No.9 answer Yes", how long was the flooding? : \_\_\_\_\_
- 1 Less than 30 minutes
  - 2 30 min. to 1 hour
  - 3 2 -3 hours
  - 4 Around 4 -6 hours
  - 5 Almost half day
  - 6 1 day
  - 7 More than 1 day
  - 8 I don't know

**III. Questions on Sanitary Condition**

13. Do you have any trouble after flooding? : \_\_\_\_\_
- 1 Yes
  - 2 No

14. If "Question No.13 answer Yes", what kind of trouble did you have due to the flooding? :

- 1 Cannot go out for business or shopping
- 2 Cannot open for business
- 3 Soil the furniture, merchandize or inside the house
- 4 Smell the house
- 5 Others (please specify): \_\_\_\_\_
- 6 I don't know

15. How do you dispose of your nightsoil? : \_\_\_\_\_
- 1 No treatment (defecate in your backyard)
  - 2 Septic tank
  - 3 Flowing to a drainage pipe
  - 4 Others (please specify): \_\_\_\_\_
  - 5 I don't know

16. Have you and your family ever had the following disease after flooding?

(multiple answer acceptable)

- |                  |         |        |                            |
|------------------|---------|--------|----------------------------|
| 1 Skin disease   | Yes ( ) | No ( ) | please tick in the bracket |
| 2 Flu            | Yes ( ) | No ( ) | -ditto-                    |
| 3 Food poisoning | Yes ( ) | No ( ) | -ditto-                    |
| 4 Diarrhea       | Yes ( ) | No ( ) | -ditto-                    |
| 5 Typhoid        | Yes ( ) | No ( ) | -ditto-                    |
| 6 Dysentery      | Yes ( ) | No ( ) | -ditto-                    |
| 7 I don't know   |         |        |                            |

**IV. Others**

17. Do you agree that the road in front of your house and drainage condition will be improved? :

- 1 Yes
- 2 No
- 3 I don't know

18. If "Question No.17 answer Yes", do you still agree that the improvement requires construction work in front of your house? : \_\_\_\_\_
- 1 Yes
  - 2 No
  - 3 I don't know
19. If "Question No.17 answer Yes", what kind of benefits do you expect the road and drainage improvement in front of your house? : \_\_\_\_\_ (multiple answer acceptable)
- 1 Better sanitary condition (including outbreak of insects, water-borne disease, etc.)
  - 2 Better environmental condition (air, dust, odor, etc.)
  - 3 Better traffic condition
  - 4 Better business condition
  - 5 Others (please specify)
  - 6 I don't know
20. If "Question No.17 answer No", why do not you agree the improvement in front of your house? : \_\_\_\_\_ (multiple answer acceptable)
- 1 Do not feel the necessity
  - 2 Do not like noise, vibration, dust and so on resulting from the construction work
  - 3 Do not want to interfere with my business
  - 4 Others (please specify): \_\_\_\_\_
  - 5 I don't know

(End of Questions)

**បញ្ជីសំណួរសំរាប់ស្រាវជ្រាវរបស់ក្រុមការងារស្រាវជ្រាវ និងបំណិនដ៏សាមញ្ញៈ  
ទាក់ទងនឹងការវិនិយោគដោយឥតស្រូវ**

លេខ. . . . .

ថ្ងៃទី \_\_\_\_\_ ខែ \_\_\_\_\_ ឆ្នាំ ២០០៦

ឈ្មោះអ្នកផ្តល់បទសំភាសន៍ . . . . .

**ក. ព័ត៌មានទូទៅ**

១- ប្រភេទនៃអ្នកធ្វើសំភាសន៍

- ១.១ ភរិយា
- ១.២ មេគ្រួសារ
- ១.៣ កូន
- ១.៤ សមាជិកគ្រួសារផ្សេងទៀត
- ១.៥ អ្នកបម្រើ
- ១.៦ ផ្សេងៗទៀត (សូមបញ្ជាក់) . . . . .

២- អាស័យដ្ឋាន ផ្ទះលេខ . . . . . ផ្លូវ . . . . . សង្កាត់ . . . . .  
ទូរស័ព្ទទាក់ទងលេខ . . . . .

៣- មុខរបរ របស់ មេគ្រួសារ

- ៣.១ ឧស្សាហកម្មដំបូង ( កសិកម្មនិងវារី )
- ៣.២ ឧស្សាហកម្មទី២ ( ផលិតឧស្សាហកម្ម )
- ៣.៣ ឧស្សាហកម្ម ទី៣ ( សេវាបម្រើមុខរបរ )
- ៣.៤ ចូលនិវត្តន៍
- ៣.៥ គ្មានមុខរបរ

- ៣.៦ ផ្សេងៗទៀត (សូមបញ្ជាក់) . . . . .
- . . . . .
- ៣.៧ ខ្ញុំមិនដឹង

៤- ចំនួនមនុស្សស្នាក់ នៅ . . . . .

៥- ចំនួនអ្នកដែលបានស្នាក់ នៅទីនេះ :

- ៥.១ ក្រោម ៥ អ្នក
- ៥.២ ពី ៥ ដល់ ៩ អ្នក
- ៥.៣ ពី ១០ ដល់ ១៩ អ្នក
- ៥.៤ ពី ២០ អ្នកឡើង
- ៥.៥ ខ្ញុំមិនដឹង

៦- លំនៅដ្ឋានស្នាក់នៅជាប្រភេទអ្វី ?

- ៦.១ កម្មសិទ្ធិផ្ទាល់
- ៦.២ ជួលគេ
- ៦.៣ ខ្ញុំមិនដឹង

៧- ប្រសិនបើជាផ្ទះជួលគេ តើលក្ខណៈផ្ទះមួយខែប៉ុន្មាន ? . . . . . \$US ក្នុងមួយខែ

៨- ការចំណាយក្នុងផ្ទះ សរុបប្រចាំខែ (ជាមធ្យម)

- ៨.១ តិចជាង ១០០ \$US ក្នុងមួយខែ
- ៨.២ ពី ១០១-២០០ \$US ក្នុងមួយខែ
- ៨.៣ ពី ២០១-៥០០ \$US ក្នុងមួយខែ
- ៨.៤ ពី ៥០១-១០០០ \$US ក្នុងមួយខែ

- ៨.៥ ពី ១០០១-២០០០ \$US ក្នុងមួយខែ
- ៨.៦ លើសពី ២០០១ \$US ក្នុងមួយខែ
- ៨.៧ ខ្ញុំមិនដឹង

៩- ព័ត៌មានអំពីស្ថានភាពលិចលង់

៩- អ្នកធ្លាប់ (ពិសោធ-ឃើញ) ភាពលិចលង់នៅខាងមុខផ្ទះ ឬទេ ?

- ៩.១ បាទ ឬចាសធ្លាប់
- ៩.២ មិនដែល
- ៩.៣ ខ្ញុំមិនដឹង

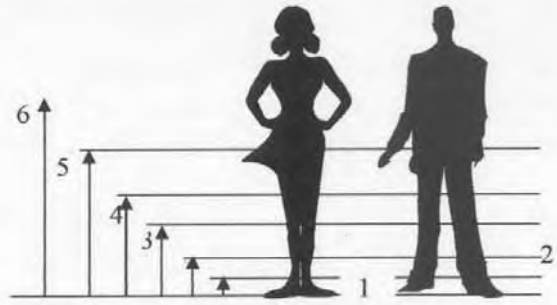
១០- បើលោកអ្នក ឆ្លើយថាធ្លាប់ តើពេលណា ប៉ុន្មានដង ? :

- ១០.១ មួយដង ក្នុងមួយឆ្នាំ
- ១០.២ ២-៣ ដង ក្នុងមួយឆ្នាំ
- ១០.៣ លើសពី ៤ដង ក្នុងមួយឆ្នាំ
- ១០.៤ ២-៣ ឆ្នាំ មានម្តង

- ១០.៥ ផ្សេងៗទៀត (សូមបញ្ជាក់)
- .....
- ១០.៦ ខ្ញុំមិនដឹង

១១- ក្នុងរយៈពេលលិចលង់ តើមានជម្រៅប៉ុន្មាន ? :

- ១១.១ ត្រឹម ៣ ជើង
- ១១.២ ត្រឹម ស្ទង់ជើង
- ១១.៣ ត្រឹម ជង្គង់
- ១១.៤ ត្រឹម ភ្នៅ
- ១១.៥ ត្រឹម ចង្កេះ
- ១១.៥ លើសពីចង្កេះ
- ១១.៦ ខ្ញុំមិនដឹង



១២- តើការលិចលង់នោះ មានរយៈពេលប៉ុន្មាន ?

- ១២.១ តិចជាងកន្លះម៉ោង
- ១២.២ កន្លះម៉ោងទៅ ០១ ម៉ោង
- ១២.៣ ២-៣ ម៉ោង
- ១២.៤ ប្រមាណ ៤-៦ ម៉ោង
- ១២.៥ ជិតកន្លះថ្ងៃ
- ១២.៦ ០១ ថ្ងៃ
- ១២.៧ លើសពី ០១ ថ្ងៃ
- ១២.៨ ខ្ញុំមិនដឹង



**គ. ព័ត៌មានអំពី លក្ខខណ្ឌ អនាម័យ បរិស្ថាន**

១៣- តើលោកអ្នកមានបញ្ហា ទេ បន្ទាប់ពីការលិចលង់ ?

- មានបញ្ហា
- គ្មានបញ្ហាទេ

១៤- បើមានបញ្ហា តើជាបញ្ហាអ្វី ដែលកើតមានឡើងក្នុងរយៈពេលលិចលង់ ?

- ១៤.១ មិនអាចចេញក្រៅដើម្បីប្រកបមុខរបរ ឬ ទៅផ្សារ
- ១៤.២ មិនអាចបើកទ្វារ ប្រកបមុខរបរ
- ១៤.៣ ធ្វើអោយប្រឡាក់គ្រឿងសង្ហារឹម ទំនិញ ឬក្នុងផ្ទះ
- ១៤.៤ មានក្លិនអាក្រក់ក្នុងផ្ទះ
- ១៤.៥ ផ្សេងៗទៀត ( សូមបញ្ជាក់) . . . . .
- ១៤.៦ ខ្ញុំមិនដឹង

១៥- តើការបង្ហាញរបស់ គ្រួសារលោកអ្នកយ៉ាងម៉េចដែរ ?

- ១៥.១ គ្មានការដោះស្រាយ (បត់ដើងនៅព្រៃក្រោយផ្ទះ)
- ១៥.២ មានបង្គន់អនាម័យប្រកបដោយ អាងចំរោះសិបទឹក
- ១៥.៣ មានបង្គន់ បញ្ចេញផ្ទាល់ទៅក្នុងប្រព័ន្ធលូសាធារណៈ
- ១៥.៤ ផ្សេងៗទៀត ( សូមបញ្ជាក់) . . . . .
- ១៥.៥ ខ្ញុំមិនដឹង

១៦- តើលោកអ្នកឬគ្រួសារអ្នកធ្លាប់ជួបប្រទះជម្ងឺ ក្នុងប្រព័ន្ធក្រោយពេលលិចលង់ឬទេ ? ( អាចមានច្រើនឬមួយប្រភេទ)

- |                   |                                 |                                    |
|-------------------|---------------------------------|------------------------------------|
| ១៦.១ រោគសើរស្បែក  | ធ្លាប់ <input type="checkbox"/> | មិនធ្លាប់ <input type="checkbox"/> |
| ១៦.២ ផ្តាសាយ      | ធ្លាប់ <input type="checkbox"/> | មិនធ្លាប់ <input type="checkbox"/> |
| ១៦.៣ ពុលចំណីអាហារ | ធ្លាប់ <input type="checkbox"/> | មិនធ្លាប់ <input type="checkbox"/> |
| ១៦.៤ រាក រុះ      | ធ្លាប់ <input type="checkbox"/> | មិនធ្លាប់ <input type="checkbox"/> |
| ១៦.៥ គ្រុនពោះវៀន  | ធ្លាប់ <input type="checkbox"/> | មិនធ្លាប់ <input type="checkbox"/> |
| ១៦.៦ រាកមូល       | ធ្លាប់ <input type="checkbox"/> | មិនធ្លាប់ <input type="checkbox"/> |
| ១៦.៧ ខ្ញុំមិនដឹង  |                                 |                                    |

**ឃ. ព័ត៌មានផ្សេងៗទៀត**

១៧- តើលោកអ្នកយល់ស្របថា ផ្លូវ និងប្រព័ន្ធបង្ហូរទឹក ខាងមុខផ្ទះលោកអ្នក ត្រូវធ្វើអោយប្រសើរឡើងឬទេ ?

- ១៧.១ ខ្ញុំយល់ស្រប
- ១៧.២ ខ្ញុំមិនយល់ស្រប
- ១៧.៣ ខ្ញុំមិនដឹង

១៨- ប្រសិនបើលោកអ្នកយល់ស្រប(១៧) តើលោកអ្នកនៅតែគាំទ្រថា ការធ្វើអោយប្រសើរឡើង ត្រូវតែធ្វើការងារសំណង់ ខាងមុខផ្ទះលោកអ្នកមែនឬ ?

- ១៨.១ ខ្ញុំយល់ស្រប
- ១៨.២ ខ្ញុំមិនយល់ស្រប
- ១៨.៣ ខ្ញុំមិនដឹង

១៩- ប្រសិនបើ(១៧) ឆ្លើយថា យល់ស្រប : តើផលប្រយោជន៍អ្វីខ្លះដែលលោកអ្នកសង្ឃឹមទុក អំពីការធ្វើអោយប្រសើរឡើងប្រព័ន្ធបង្ហូរទឹក និងផ្លូវថ្នល់នៅមុខផ្ទះលោកអ្នក ? ( អាចមានចម្លើយច្រើនឬមួយប្រភេទ)

- ១៩.១ ប្រសើរ លើផ្នែកអនាម័យ ( រោគឆ្លង សត្វល្អិត...)
- ១៩.២ ប្រសើរ លើផ្នែកបរិស្ថាន ( ក្លិន គុណភាពខ្យល់ ផូលី . . .)
- ១៩.៣ ប្រសើរ លើផ្នែកចរាចរ
- ១៩.៤ ប្រសើរ លើមុខរបររកស៊ី
- ១៩.៥ ផ្សេងៗទៀត ( សូមបញ្ជាក់) . . . . .
- ១៩.៦ ខ្ញុំមិនដឹង

២០- ប្រសិនបើ(១៧) ឆ្លើយថា ទេ : ហេតុអ្វីបានជាលោកអ្នក មិនយល់ស្របលើការធ្វើអោយប្រសើរឡើងនៅមុខផ្ទះលោកអ្នក ? ( អាចមានចម្លើយច្រើនឬមួយប្រភេទ)

- ២០.១ ហាក់ដូចជាមិនចាំបាច់
- ២០.២ មិនចូលចិត្តឱ្យមានការរំខានដោយសំលេង ឬដោយរំញ័រ និងផូលី ចេញពីការងារសំណង់នៅមុខផ្ទះ
- ២០.៣ មិនចង់អោយរំខានមុខរបរខ្ញុំ
- ២០.៤ ផ្សេងៗទៀត ( សូមបញ្ជាក់) . . . . .
- ២០.៥ ខ្ញុំមិនដឹង

សូមអរគុណចំពោះការចូលរួមផ្តល់ព័ត៌មានខាងលើ

សំភាសន៍ដោយ លោក :  
ហត្ថលេខា