

## ***APPENDICES***



CONSTRUCTION TIME SCHEDULE  
 DECENTRALIZED WASTEWATER TREATMENT SYSTEM (DDWATS) PILOT PROJECT  
 CBS THONGKHANKHAM VILLAGE  
 BAY HONGKHANKHAM, CHANTHABOLY DISTRICT, VIENTIANE CAPITAL, LAO PDR

No	Description	2020-09-01/09/2020							2020-09-08/08/2020							2020-09-15/15/2020						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Sign Contract with local contractor																					
2	Pre-construction Meeting																					
3	Site construction cleared																					
4	Flow Pipe installation																					
5	Grading channel																					
6	Excavating																					
7	Flow concrete work																					
8	Reinforcement concrete for bottom pipe																					
9	Back Masonry																					
10	Reinforcing work																					
11	Reinforcement concrete for column and beam																					
12	Install pump installation																					
13	Water treatment																					
14	Soil filling																					
15	Soil filling in concrete																					
16	Concrete ring installation																					
17	Reinforcement concrete for top pipe																					
18	Reinforcement concrete for top pipe																					
19	Frame for top pipe covered																					
20	Grading work																					
21	Control tank and pipe line construction																					
22	Reinforcement concrete for top pipe																					
23	Construction inspection																					
24	Construction inspection																					

Notes: The work will be started on 1 September 2020 and should be finished on 15 November 2020.  
 Commissioning will be conducted on 1 December 2020, one month after wastewater treatment be operational.  
 Construction inspection will be conducted by the supervisor every Saturday. The latest construction inspection conducted on 15 November 2020.  
 Weekly report must be submitted by the supervisor every Monday and give it to project manager. The last progress report will be provided on 20 November 2020.  
 Weekend (Sunday)

CONSTRUCTION TIME SCHEDULE  
CENTRALIZED WASTEWATER TREATMENT SYSTEM (DEWATS) PILOT PROJECT  
SBS PHOUANG SCHOOL  
BAN KHOUANG, CHANTHABOULY DISTRICT, VIENTIANE CAPITAL, LAO PDR

Sl. No.	Construction Description	Period 1: 01/09/2010							Period 2: 01/10/2010							Period 3: 01/11/2010						
		week 1	week 2	week 3	week 4	week 5	week 6	week 7	week 8	week 9	week 10	week 11	week 12	week 13	week 14	week 15	week 16	week 17	week 18	week 19	week 20	week 21
1.	Sign Contract with Vendor for Construction																					
2.	Pre-construction Meeting with Vendor																					
3.	Site construction cleared and ready for work																					
4.	Site Preparation (excavation, leveling, etc.)																					
5.	Excavation for foundation																					
6.	Foundation work (concrete, reinforcement)																					
7.	Foundation work (concrete, reinforcement)																					
8.	Reinforcement concrete for bottom plate																					
9.	Reinforcement concrete for bottom plate																					
10.	Reinforcement concrete for bottom plate																					
11.	Reinforcement concrete for bottom plate																					
12.	Reinforcement concrete for bottom plate																					
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22.	Reinforcement concrete for bottom plate																					
23.	Reinforcement concrete for bottom plate																					
24.	Reinforcement concrete for bottom plate																					

Notes :  
The work will be started on 1 September 2010 and should be finished on 15 November 2010.  
Construction will be completed on 1 December 2010, one month after construction start-up.  
Construction inspection will be conducted by the supervisor every Saturday. The latest construction inspection conducted on 15 November 2010.  
Weekly report must be accomplished by the supervisor every Monday and give it to project manager. The last progress report will be provided on 20 November 2010.  
Weekend (Sunday)

### Appendix 3 スクリーニング基準

Type of investment project		Category 1 Required to undertake Initial Environmental Examination (IEE)	Category 2 Required to undertake Environmental Impact Assessment (EIA)
<b>I. Development Projects: Energy sector</b>			
1.1	Hydropower plants project	<15 MW or water capacity <200 million m Or having Reservoir area <1,500 ha	≥15 MW or water capacity ≥200 million m Or having Reservoir area ≥1,500 ha
1.2	Nuclear power plant project		All scale
1.3	Natural gas power plants project	5-50 MW	>50 MW
1.4	Thermal power plants project	≤ 10MW	>10MW
1.5	Development of oil and gas pipeline project		All scale
1.6	Oil refinement project		All scale
1.7	High voltage electrical power line construction project		
1.7.1	High voltage electrical power line construction project ≥ 230KV	≤ 50 Km	> 50 Km
1.7.2	High voltage electrical power line construction project <230KV	All scale	In case of power line is through National conservation area or community area
1.7.3	High voltage electrical power station	< 10 ha	≥ 10 ha
<b>II. Development Projects: Agriculture and Forestry sector</b>			
2.1	Industrial tree plantations project	20-300 ha	>300 ha
2.2	Industrial plants project	20-500 ha	>500 ha
2.3	Irrigation construction project	100-2000 ha	>2000 ha
2.4	Livestock framing project; cattle, horse, etc.	≥500 animals	
2.5	Poultry framing project	≥1000 poultries	
2.6	Pig framing project	≥200 animals	
2.7	Fishery or aquatic animals in the pond	≥10 ha	
2.8	Fishery or aquatic animals in floating basket in the river	≥300 animals	
2.9	Crocodile framing project	≥100 animals	
<b>III. Development Projects: Industrial Processing sector</b>			
3.1	Meat processing plant	≤20Ton/day	>20Ton/day
3.2	Fish processing plant	≤20Ton/day	>20Ton/day
3.3	Fruit and vegetable processing plant	All scale	
3.4	Milk manufacturing plant	≤40Ton/day	>40Ton/day
3.5	Flour manufacturing plant	50-100Ton/day	>100Ton/day
3.6	Animal feed factory	All scale	
3.7	Sugar factory	≤50Ton/day	>50Ton/day
3.8	Noodle manufacturing plant	>1Ton/day	
3.9	Alcohol processing factory; whisky, wine, beer, etc.	≤500,000 liters/year	>500,000 liters/year
3.10	Non-alcohol beverage processing factory; soda, soft drink, mineral water	All scale	
3.11	Drinking water processing factory	All scale	
3.12	Tobacco product manufacturing	All scale	
3.13	Industrial textile, cord and fiber manufacturing factory	All scale	
3.14	Garment and dyed textile manufacturing factory	All scale	
3.15	Skin smoke and massage factory	All scale	
3.16	Bag, suitcase and similar product; saddle and bridle manufacturing	≤1.0 million unit/year	>1.0million unit/year
3.17	leather shoes product manufacturing	≤1.0 million pair/year	>1.0million pair/year
3.18	Wood, rattan, straw products and wicker	All scale	
3.19	Plywood product	≤100,000m <sup>2</sup> /year	>100,000m <sup>2</sup> /year



3.20	paper and pulp production	≤50Ton/day	>50Ton/day
3.21	Printing service	All scale	
3.22	Petroleum factory		All scale
3.23	Basic chemical manufacturing exclude chemical fertilizer and	≤500 Ton/year	>500 Ton/year
3.24	Pesticide and agriculture chemicals		All scale
3.25	Medicine, chemical medicine and traditional medicine product	≤500 Ton/year	>500 Ton/year
3.26	Soap, detergent , hygiene and cleansing liquid products, perfume and cosmetic production	≤10 Ton/day	> 10 Ton/day
3.27	Other chemical products		All sale
3.28	Elastic rubber, rubber products	100-300 Ton/year	>300 Ton/year
3.29	Plastic products	≤500 Ton/year	> 500 Ton/year
3.30	Crystal products	All sale	
3.31	Non-metal products	All sale	
3.32	Cement, lime and plaster product	≤30 Ton/hour	> 30 Ton/hour
3.33	Iron making and Steel making	≤120 Ton/day	> 120 Ton/day
3.34	Value metal and other metal making	≤50 Ton/day	> 50 Ton/day
3.35	Steel casting	≤50 Ton/day	> 50 Ton/day
3.36	Non-steel metal casting	All sale	
3.37	Metal forming	All sale	
3.38	Generator manufacturing	All sale	
3.39	Domestic appliance manufacturing	All sale	
3.40	Stationary and computing machine manufacturing	All sale	
3.41	Electronic device and apparatus manufacturing	All sale	
3.42	Battery manufacturing	≤100 Ton/year	>100 Ton/year
3.43	Radio, Television , communication devise and their accessories manufacturing	All sale	
3.44	Medical appliance, Ophthalmic Equipment and clock manufacturing	All sale	
3.45	Automobile, trailer and semi-trailer assembly plant	All sale	
3.46	Vehicle Spare part and machine	≤1,000 Ton/year	>1,000 Ton/year
3.47	Bicycle and wheel chair manufacturing	≤10,000 unit/year	>10,000 unit/year
3.48	Home furniture manufacturing	≤10,000 unit/year	>10,000 unit/year
3.49	Storage non-hazard waste	All sale	
3.50	Hazards waste disposal		All sale
3.51	Services of others waste disposal and management		All sale
3.52	Fish source manufacturing factory	All sale	

#### IV. Development Projects: Infrastructure and services sector

4.1	Reclamation of ponds, rivers, canals and drainages system that will affect the public		All scale
4.2	Service apartment, detached house construction project	>50 rooms	
4.3	Golf course construction project	9 holes	
4.4	Sport complex construction project		All scale
4.5	Oil storage construction	600-60,000 bushel	
4.6	Industrial zone development and construction		All scale
4.7	Special economic zone development and construction		All scale
4.8	Waste water drainage canal construction	All scale	
4.9	Urban, hospital and processing factory Waste water treatment plant construction project		All scale
4.10	Road construction through national preservation, and a preserved wildlife area		All scale
4.11	Railway construction project		≥100 km
4.12	New road construction (National, provincial, district, rural road, and special high way)		All scale
4.13	Road improvement (National, provincial, district, rural road, and special high way)	All scale	
4.14	Reconstruction (National, provincial road)	All scale	
4.15	Air port runway construction project	1,000-2,500 m	≥2,500 m

4.16	Hospital construction	≤100 beds	>100 beds
4.17	Hotel or resort construction near the river	<80 room	>80 room
4.18	Hotel complex construction	<50 ha	>50 ha
4.19	Tourist spot and accommodation development in the national conservation area		All scale
4.20	Waste recycle plant construction project		All scale
4.21	Incinerator construction project		All scale
4.22	All kind of waste incinerator construction project		All scale
4.23	A project that uses part or whole areas which have negative impacts to natural preservation area, national park, historical cultural and natural trace zone, and range view that preserved by provincial and local authorities who belong to central		All scale
4.24	Telecommunication network construction project	All scale	
4.25	Water way construction project (improvement water way navigation along Mekong River)	≤200 Ton	>200Ton
4.26	Port construction		
4.26.1	Passenger port	≤500 Ton (exclude boat weight)	>500 Ton (exclude boat weight)
4.26.2	General cargo port	≤500 Ton (exclude boat weight)	>500 Ton (exclude boat weight)
4.26.3	Hazard substance cargo port; chemical, petrol, coal, etc.		All scale
4.27	Embankment construction project		>1km
4.28	Community Landfill construction project	<50 ha	>50 ha
4.29	Landfill for hazard waste construction project		All scale
4.30	Landfill for industrial waste construction project		All scale
V. Minerals/ore sector			
5.1	Utilizing underground water for industrial, agriculture and urban development project	<4,500 m <sup>3</sup> /day	>4,500 m <sup>3</sup> /day
5.2	Gravel and sand Excavation in the water project	1,000-50,000 m <sup>3</sup> /year	50,000 m <sup>3</sup> /year (one site)
5.3	Rock excavation and crushing	≤50 Ton/year	>50 Ton/year
5.4	Construction material excavation (soil, gravel and sand) on the surface soil	<100,000 m <sup>3</sup> /year	≥100,000 m <sup>3</sup> /year
5.5	Mining projects (Non-chemical)		All scale
5.6	Solid mineral processing using hazard chemical project		All scale
5.7	Solid minerals processing project	≤50,000 Ton/year	>50,000 Ton/year
5.8	Underground water drilling project		>5,000m <sup>3</sup> /day
5.9	Surface water consumption		>10,000m <sup>3</sup> /day
5.10	Natural minerals drilling (surface water and underground water) for consumption		>1,000m <sup>3</sup> /day
5.11	Natural minerals drilling (surface water and underground water) for medical treatment and usage, etc.		>500m <sup>3</sup> /day
5.12	Mining projects (using chemical)		All scale
5.13	Oil and gas drilling projects		All scale

Source: WREA





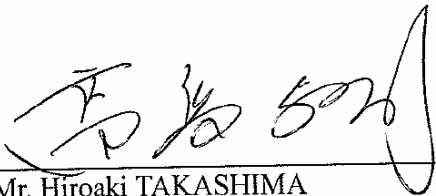
***SCOPE OF WORK***  
***AND***  
***MINUTES OF MEETINGS***



SCOPE OF WORK  
FOR  
THE STUDY  
ON  
IMPROVEMENT OF WATER ENVIRONMENT  
IN  
VIENTIANE CITY,  
LAO PEOPLE'S DEMOCRATIC REPUBLIC


AGREED UPON BETWEEN  
MINISTRY OF PUBLIC WORKS AND TRANSPORT  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

VIENTIANE, 3<sup>rd</sup> November, 2008



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Mr. Hiroaki TAKASHIMA  
Chief Representative  
Laos Office  
Japan International Cooperation Agency



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Mr. Sommad Pholsena  
Minister  
Ministry of Public Works and Transport  
(MPWT)

## I. INTRODUCTION

In response to the request from the Government of Lao People's Democratic Republic (hereinafter referred to as "the Government of Lao PDR"), the Government of Japan has decided to conduct "the Study on Improvement of Water Environment in Vientiane City, Lao People's Democratic Republic" (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force 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 relevant authorities concerned of the Government of Lao PDR.

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

## II. OBJECTIVE OF THE STUDY

The specific objectives of the Study are:

1. To survey and analyze the existing conditions of water environment in the Study area
2. To formulate a master plan for water environment management in Vientiane City
3. To transfer the technique on how to formulate a master plan for water environment management to Lao counterparts

## III. STUDY AREA

The Study area is seven (7) districts (Sikhottabong, Chanthabury, Sissatanak, Xaisetha, Hadxaifong, Xaithany, Pakngum) especially Mak Hiao river basin in Vientiane city as shown in the attached sheet of Annex I.

## IV. SCOPE OF THE STUDY

To achieve the above objectives, the Study will cover the following items:

### Phase I

Baseline Survey and making draft master plan for water environment management in Vientiane City

1. Review of the existing data and information such as governmental environment policy, related legal system, hydrology, meteorology, geography, geology, natural and social environmental information and related existing reports
2. Monitoring survey for natural conditions in the Mak Hiao river basin
3. Survey of current situation of the storm water and wastewater management systems in the Study area
4. Review of the existing urban development plan, water supply project plan, wastewater treatment plan, urban drainage plan in the Study area
5. Formulation of the draft master plan for water environment management in Vientiane City including following items
  - (1) Water Environment Improvement Strategy for 2020
  - (2) Implementation plan based on the strategy
    - 1) Improvement plan of drainage water quality in Vientiane City
    - 2) Promotion plan of environmental education for water environment improvement

- 3) Consolidation plan of the legal framework for water environment
- (3) Implementation of Initial Environmental Examination (IEE)
- (4) Identification of priority items(s) among each plan showed in above: 5.(2). 1),2)and 3).
- (5) Recommendations
6. Selection of the target item(s) from priority ones showed in 5.(2).1)2)and 3) for a pilot project and a pre-Feasibility Study
7. Conducting (a) seminar(s) and/or (a) workshop(s)

## Phase II

Implementation of a pilot project and a pre-Feasibility Study (pre-F/S)

1. Implementation of an environmental education pilot project
2. Implementation of a pre-F/S
  - (1) To conduct field survey at the construction site (Topographic survey, Environmental survey)
  - (2) To formulate a construction plan and a procurement plan
  - (3) To formulate an operation and maintenance plan
  - (4) To estimate the project cost
  - (5) To conduct the IEE survey (See attached Annex II)
  - (6) To evaluate the project by economical, financial, technical, social and environmental aspects)
3. Finalization of the master plan based on the result of 1) and 2) of Phase II.
4. Conducting (a) seminar(s) and/or (a) workshop(s)

## V. STUDY SCHEDULE

The Study will be carried out in accordance with attached tentative schedule shown in the Annex III. The schedule is tentative and subject to be modified when both parties agree upon and any necessity that arises during the course of the Study.

## VI. REPORTS

JICA shall prepare and submit the following writing reports and a digital data to the Government of Lao PDR.

1. Inception Report:  
Twenty five (25) copies in English at the commencement of the Study
2. Progress Report (1)  
Twenty five (25) copies in English during Phase I
3. Interim Report:  
Twenty five (25) copies in English at the end of Phase I
4. Progress Report (2)  
Twenty five (25) copies in English during Phase II
5. Draft Final Report:  
Twenty five (25) copies in both English and Lao at the end of Phase II  
The Government of Lao PDR shall submit its comments within one (1) month after receipt of the Draft Final Report.
6. Final Report:  
Fifty (50) copies in both English and Lao within one (1) month after receipt of the comments on the Draft Final Report from the Government of Lao PDR.

## VII. UNDERTAKING OF THE GOVERNMENT OF LAO PDR

1. To facilitate smooth conduct of the Study, the Government of Lao PDR shall take the following necessary measures ;
  - (1) To secure the safety of the Japanese study team (hereinafter referred to as "the Team"),
  - (2) To permit the members of the Team to enter, leave and sojourn in Lao People's Democratic Republic (hereinafter referred to as "Lao PDR") for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees,
  - (3) To exempt the members of the Team from taxes, duties, fees and any other charges on equipment, machinery and other materials brought into and out of Lao PDR for the conduct of the Study,
  - (4) To exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study,
  - (5) To provide necessary facilities to the Team for remittance as well as utilization of the funds introduced into Lao PDR from Japan in connection with the implementation of the Study,
  - (6) To secure permission for the Team to enter into private properties or restricted areas for the implementation of the Study,
  - (7) To secure permission for the Team to take all data and documents including maps and photographs related to the Study out of Lao PDR to Japan, and
  - (8) To provide medical services as needed. Its expenses will be chargeable to the members of the Team.
2. The Government of Lao PDR 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 member of the Team.
3. Public Works and Transport Institute (hereinafter referred to as "PTI") shall act as counterpart agency to the Team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.
4. PTI and the related organizations shall nominate a counterpart team that will work closely with the Team throughout the study period.
5. PTI shall, at its own expense, provide the Team with the followings, in cooperation with other organizations concerned:
  - (1) available data and information related to the Study,
  - (2) counterpart personnel,
  - (3) suitable office space with necessary equipment such as desks, chairs, telephone,
  - (4) credentials or identification cards to members of the Team,
  - (5) necessary permission by security authorities for field surveys of the Team, and
  - (6) information on as well as support in obtaining medical services.
6. Ministry of Public Works and Transport (MPWT) will be the executing agency for the Study. A Steering Committee will be organized under the chairmanship of MPWT consisting of all the concerned organizations, such as PTI, DHUP, the related departments of the Water Resources and Environment Administration (WREA), Department of Public Works and Transport of Vientiane city and Vientiane Urban Development Administration Authority (VUDAA). The Committee will be convened at times when there is a need to discuss and resolve critical issues related to development policies and strategy.

## VIII. OTHERS

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

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## Terms of Reference for the Environmental and Social Considerations Study

### Environmental and Social Considerations Study (IEE Level)

1. Analysis of environmental baseline data
  - (1) Social and economic conditions  
population, economy, employment, infrastructure/public facilities (water supply, sewerage, etc.), land use, water use, landownership, public health, local conflicts, religious groups, cultural heritage/historical site, hazards(risk), accident, protection/reserve area, etc.
  - (2) Natural conditions  
Topography, geology, soil, ground water, meteorology, hydrology (water level, tidal current, wave, etc.), ecology (fauna & flora), vegetation/forests, water bodies (river, canal, reservoir, pond, etc), erosion, landscape, natural disaster, etc.
  - (3) Polluted situations  
Air pollution/quality, water pollution/quality, soil contamination, noise and vibration, land subsidence, offensive odor, waste materials, etc.
  - (4) Laws  
Laws concerning Environmental Impact Assessment, compensation and resettlement and environmental issue, etc.
2. Scoping  
“scoping” means deciding alternatives to be analyzed, and grasping a range of significant and likely significant impacts, and considering study methods.
3. Initial environmental examination and study on mitigation measures (including study on alternatives)
4. Consultations with stakeholders (stakeholders meetings) at the appropriate study stage.

## Tentative Schedule of the Study

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Work Schedule	<div>Phase I</div>															<div>Phase II</div>										<div></div>				
Reports	△ IC/R		△ PR/R(1)								△ IT/R					△ PR/R(2)					△ DF/R			△ F/R						

IC/R : Inception Report

IT/R : Interim Report

PR/R : Progress Report

DF/R : Draft Final Report

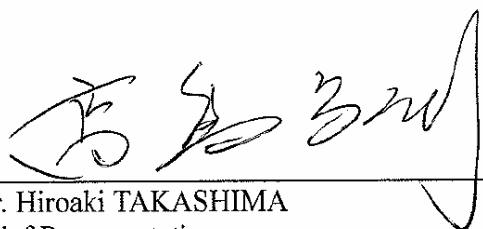
F/R : Final Report



MINUTES OF MEETINGS  
ON  
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IMPROVEMENT OF WATER ENVIRONMENT  
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VIENTIANE, 3<sup>rd</sup> November, 2008



Mr. Hiroaki TAKASHIMA  
Chief Representative  
Laos Office  
Japan International Cooperation Agency



Mr. Sommad Pholsena  
Minister  
Ministry of Public Works and Transport  
(MPWT)

## **1. COUNTERPART ORGANIZATION**

Department of Housing and Urban Planning (DHUP), Ministry of Communication, Transport and Construction (MCTPC) requested the proposal of the Study in August, 2007. After that MCTPC was reorganized and changed its name to Ministry of Public Works and Transport (MPWT) in 12 October, 2007. MPWT assigned PTI (the former URI: Urban Research Institute) as the counterpart agency for the Study.

PTI shall nominate a counterpart team that work closely with the Japanese Study Team throughout the Study period. And related organization such as DHUP, the related departments of the Water Resources and Environment Administration (WREA), Department of Public Works and Transport of Vientiane city and Vientiane Urban Development Administration Authority (VUDAA) shall nominate member(s) of the counterpart team mentioned above. Lao side will provide a list of counterpart team personnel before commencement of the Study.

## **2. STUDY PERIOD**

The duration of the Study will be two (2) years and six (6) months.

## **3. COLLECTING DATA AND INFORMATION**

Both sides agreed that PTI will provide JICA Study Team with all available data and information related to the Study. PTI will also make best efforts to provide data and information of other organizations. JICA Study Team will utilize those data and information for the purpose of the Study.

Necessary information and data should be provided by Lao side before formulating a master plan for Water Environment Management in Vientiane City, such as quality and quantity of water discharge to That Luang Marsh and Mak Hiao River basin and those related to legal framework changes with respect to EIA.

Especially, "Vientiane New Town Project" will affect the contents of the Study in quality and quantity. Lao side shall provide JICA Study Team with basic design including target population, planned standard quality of effluent from residents, facilities etc as pre-condition for the Study.

## **4. STEERING COMMITTEE**

Both sides agreed that PTI would set up a steering committee for the smooth implementation of the Study. It will consist of the representatives of relevant organizations under the chairpersonship of MPWT. Organizations as follows are assumed to join the committee at the present moment. The JICA Study Team and JICA representative will also attend the committee.

- (1) Ministry of Public Works and Transport (MPWT) (Chair)
- (2) Vientiane city
- (3) PTI
- (4) WREA
- (5) Department of Housing, and Urban Planning (DHUP)
- (6) Department of Public Works and Transport (DPWT), Vientiane city
- (7) Health Department, Vientiane city
- (8) Agriculture and Forestry Department, Vientiane city
- (9) Industry and Commerce Department, Vientiane city
- (10) Environment Office, Vientiane city
- (11) Vientiane Urban Development Administration Authority (VUDAA)
- (12) Vientiane New Town Project, Vientiane City
- (13) Other related organizations

**5. Local sub contractor**

The Japanese study team will contract local specialists to assist the Study. The Lao study director and Japanese Study Team Leader are responsible for preparing terms of the references (TOR) for recruiting the local specialists and their work plans. The finalization of contract of local sub-contractor(s) will be carried out under rules and regulations of JICA

**6. Equipment for the study**

JICA would provide an equipment and supplies for the Study, if necessary. The equipment will remain the property of JICA for the duration of the Study. Its ultimate ownership shall be decided by JICA in consultation with Lao side.

**7. Counterpart fund**

Lao side shall bear the allocation of the counterpart fund for the study, in accordance with the Agreement on Technical Cooperation between the Government of Japan and the Government of Laos signed on 12 December in 2003.

**8. Dispatch of Japanese study team**

JICA will dispatch, at its own expense, the Japanese study team to Laos. The Japanese study team will jointly work with Laos study team and pursue technology transfer to ensure the effective management of water environment in Vientiane City in the course of the Study.

**9. Disclosure of the reports**

MPWT and JICA agreed that the final reports specified in the S/W would be disclosed to all interested parties to facilitate the dissemination of the Study.





**Minutes of Meeting**  
**on**  
**the First Steering Committee**  
**of**  
**The Study on Improvement of Water Environment in Vientiane City**  
**agreed upon between**  
**Public Works and Transport Institute, Ministry of Public Works and**  
**Transport**  
**and**  
**Japan International Cooperation Agency**

February 6, 2009  
Vientiane, LAO PDR

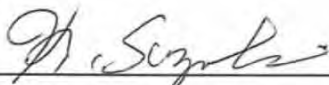


Mr. Kanehiro MORISHITA  
Leader of the Study Team  
Japan International Cooperation Agency



Mr. Keophilavanh APHAYLATH  
Director General of Public Works and Transport  
Institute  
Ministry of Public Works and Transport

Witness



Mr. Kazuya SUZUKI  
Director of Environmental Management Division 1  
Global Environment Department  
Japan International Cooperation Agency



Mr. Bounchanh SINTHAVONG  
Vice Mayor of Vientiane City

## **I. General**

The Government of Japan, in response to the official request of the Government of Lao People's Democratic Republic (hereinafter referred to as "the Government of Lao PDR"), decided to conduct the Study on Improvement of Water Environment in Vientiane City (hereinafter referred to as "the Study") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Study Team to Lao PDR in March 2008.

Based on the above study results, Ministry of Public Works and Transport (hereinafter referred to as "MPWT") and JICA Laos Office signed on and exchanged agreement on the Scope of Work (hereinafter referred to as "S/W") and Minutes of Meetings (hereinafter referred to as "M/M") for the Study in November 2008.

JICA has prepared the Study according to the S/W and M/M, and dispatched the Study Team, headed by Mr. Kanehiro MORISHITA of CTI Engineering International Co., Ltd., to Lao PDR from January 20, 2009.

At the commencement of the Study, the Study Team explained the overall activities described in the Inception Report to Lao organizations concerned (hereinafter referred to as "Lao side"), and Lao side and the Study Team (hereinafter referred to as "Both sides") had a discussion on the Inception Report, which was chaired by Mr. Bounchanh SINTHAVONG, Vice Mayor of Vientiane City. Finally the Committee members agreed upon work components and work plan contained in the Inception Report. The list of attendance in the meeting is attached in Attachment.

## **II. Discussions and Suggestions**

### **1. Agreement upon the Study Framework**

The chairman mentioned that (1) boundary of the study area, (2) study approach and methodology, (3) planning strategy and (4) study period of 30 months, which were explained by the Study Team, could be agreed upon by the Lao side.

### **2. Comments from VUDAA**

Vice president of VUDAA pointed out the followings: (1) information on drainage system as shown in 2.1.2 of the Inception Report is not fully covered over the VUDAA projects, (2) responsibility of planning should be included into present capacity of VUDAA as shown in 2.1.3 of the Inception Report, and (3) local authorities of districts and villages should be involved in the proposed pilot project. The Japanese side replied that (1) the drainage information mentioned would be collected in the course of the Phase 1 Study, (2) The planning would be included in the responsibility of VUDAA,

and (3) the local authorities should be involved in the future activities on the pilot project.

**3. Comments from DOAF, Vientiane City**

Since the Mak Hiao River basin is suitable for agriculture and inland fishery, water quality management is important for agricultural activities. Director of DOAF suggested that the newly surveyed data would be provided to the Study Team.

**4. Comments from DOH, Vientiane City**

Deputy Director of DOH mentioned that the sanitary village projects had been progressed and villages of 255 were already completed so far. He also promised providing the information on the project to the Study Team and further cooperation.

**5. Comments from DOE, WREA**

Deputy Director of DOE suggested that (1) drainage network consists of primary, secondary and tertiary canals so that such entire network should be examined in the Study, (2) DOE had much experience widely covered over the entire stakeholders, and (3) DOE strongly agreed upon the collaborative work with the Study Team and relevant agencies mentioned in the Inception Report. He also added that the comments on the report would be provided to the Study Team in a week.

**6. Request from JICA HQ**

Mission leader of JICA HQ requested for providing the counterpart list from relevant agencies, and Deputy Director of PTI promised it in a week.

**III. Summary and Closing Remarks**

The chairman summarized the discussion results. Finally he gave closing remarks to expect the further progress of the study and the meeting was closed.

## ATTACHMENT

List of participants in the Steering Committee Meeting for Presentation of Inception Report on February 5, 2009 at the Meeting Room of Ministry of Public Works and Transport (MPWT)

### Lao Side

Mr. Bounchan SINTHAVONG	Vice Mayor	Vientiane Capital City
Mr. Keophilavanh APHYLATH	Director General	Public Works and Transport Institute
Mr. Thenekham Thongbon	Deputy Director	Public Works and Transport Institute
Mr. Ketkeo SIHALATH	Vice President	VUDAA
Mr. Khamthavi Thaipachan	Director	Department of Housing and Urban Planning
Mr. Khamphadith KHAMMOUNHEUANG	Deputy Director	Department of Environment, (WREA)
Mr. Oudong NHENGVANNAVONG	Deputy Director	Department of Public Works and Transport
Mr. Sengthong BIRAKOUNE	Deputy Director	Department of Health
Mr. Laisanivong AMARTHITHAJA	Director	Department of Agriculture and Forestry
Ms. Viengphone VIRAVONG	Deputy Director	Department of Industry and Commerce
Mr. Boutsady SIPHILOM	Deputy Director	Water Resources and Environment Office
Mr. Saythivi NHENGVANNAVONG	Chief of Secretariat	Vientiane New City Development Project
Ms. Ketmany BANDASACK	Deputy Director	Department of Education
Ms. Maniseng DOUANGNOULACK	Project Coordinator	Public Works and Transport Institute
Mr. Vongsack MIXAY	Project Coordinator	Public Works and Transport Institute
Mr. Thatsakone CHOULAMOUNTRY	Project Coordinator	Public Works and Transport Institute

### Japanese Side

Mr. Kazuya SUZUKI	Director	Environmental Management Division 1, Global Environment Department, JICA
Ms. Hiroko KAMATA	Senior Advisor	JICA
Mr. Yasutoshi SAGAMI	Associate Expert	Environmental Management Division 1, JICA
Mr. Sota SEKINE	Assistant Resident Representative	JICA Laos Office
Mr. Kanehiro MORISHITA	Team Leader	JICA Study Team
Mr. Yasuhiko KATO	Environmental Education	JICA Study Team
Ms. Kyoko MISHIMA	Ecological Conservation/EIA	JICA Study Team
Mr. Hiroshi SHIMOKOCHI	Sanitation/Water Quality	JICA Study Team
Mr. Makoto KODAMA	Drainage Planning	JICA Study Team
Mr. Yunshan BAI	GIS	JICA Study Team

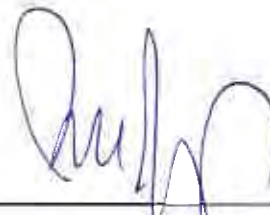
**Minutes of Meeting**  
**on**  
**the Second Steering Committee**  
**of**  
**The Study on Improvement of Water Environment in Vientiane City**  
**agreed upon between**  
**Public Works and Transport Institute, Ministry of Public Works and**  
**Transport**  
**and**  
**Japan International Cooperation Agency**

**September 9, 2009**  
**Vientiane, LAO PDR**



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Mr. Kanehiro MORISHITA  
Leader of the Study Team  
Japan International Cooperation Agency



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Mr. Thenekham THONGBON  
Deputy Director of Public Works and Transport  
Institute  
Ministry of Public Works and Transport



## **I. General**

The Government of Japan, in response to the official request of the Government of Lao People's Democratic Republic (hereinafter referred to as "the Government of Lao PDR"), decided to conduct the Study on Improvement of Water Environment in Vientiane City (hereinafter referred to as "the Study") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Study Team to Lao PDR in March 2008.

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The Japan International Cooperation Agency (hereinafter referred to as "JICA") has prepared the Study according to the Scope of Work (hereinafter referred to as "S/W") and Minutes of Meetings (hereinafter referred to as "M/M") exchanged in November 2008, and dispatched the Study Team, headed by Mr. Kanehiro MORISHITA of CTI Engineering International Co., Ltd., to Lao People's Democratic Republic (hereinafter referred to as "Lao PDR") from January 20, 2009.

At the end of first half of phase 1 in the Study, the Study Team explained the overall results in the Progress Report 1 to Lao organizations concerned (hereinafter referred to as "Lao side"), and Lao side and the Study Team (hereinafter referred to as "Both sides") had a discussion on this Report, which was chaired by Mr. Sithong THONGKEO, Vice Minister of Ministry of Public Works and Transport. Finally the Committee members agreed upon the work results and work plan for formulation of master plan contained in the Progress Report 1. The list of attendance in the meeting is attached in Attachment.

## **II. Discussions and Suggestions**

### **1. Comments and Questions from Department of Housing and Urban Planning, MPWT**

Acting Director of DHUP mentioned (1) Water Supply Law was already issued through the Cabinet Council, and formulation of the Wastewater Management Strategy was almost completed, (2) Installation of septic tank to individual houses was important to solve the sanitation improvement, and (3) Community-based sanitation (CBS) system should be developed in Vientiane since decentralized system might be suitable to our country. In addition, capacity building for survey and designing of CBS system should be required for the DHUP staff.

The study team replied to the above questions (2) and (3). (2) Installation of septic tank shall be basically made by building owner so that administrative guidance shall be strengthened for increase of

coverage of modern toilet system. (3) Regarding CBS system, the JICA team will cooperate with LIRE (Lao Institute for Renewable Energy), which is planning to install CBS in Vientiane and has much experiences in Indonesia, and will conduct environmental education in the same community where LIRE is planning the installation.

## **2. Questions and Comments from National University of Laos**

Vice Dine of Faculty of Science, National University of Laos, asked why BOD value decreases in accordance with going downstream, and requested to share the experiences and data together between the university and the study team.

The study team answered that water quality purification occurred through SS settling by vegetation filter and increase of DO by photosynthesis of algae and natural aeration effects by shallow flow. The team agreed upon future continuous cooperation.

## **3. Questions from WWF**

WWF representative mentioned that remaining marshes should be conserved to maintain their flood retention and water purification functions, but how secured their areas in future.

The team replied that urban planning study under JICA would start in the near future, and urban planning could be suitable tools for conservation of That Luang marsh as well as remaining marshes in the urban areas.

## **4. Comments from Department of Health, Vientiane City**

Deputy Director of DOH emphasized that propagation of mosquitoes would be one of the problems after water environmental improvement, and DOH needed to work cooperatively with the team in phase II.

The team agreed upon the comments and promised to collect the information prevention of mosquitoes' propagation.

## **5. Comments from Department of Public Works and Transport, Vientiane City**

Technical staff of DPWT made the following comments; (1) Recommendation on water quality standard as a target of the master plan was agreeable, but situation on wastewater in both countries, Laos and the Philippines, might be different. (2) There was no suitable treatment system for New City Development. (3) What kind of wastewater treatment should be done in the industrial area. (4) What kind of facilities the team considered for communal sanitation system.

The team replied as follows; (1) The standard which the team mentioned was set up by water usage, e.g. for fishery, or for agriculture. Fish species and agricultural products were similar in both countries so that the standard of the Philippines could be applied to Laos. (2) There is a large wastewater treatment pond constructed by EU in the New City Development area. Thus DPWT should consider



how utilize the EU pond for wastewater treatment. (3) “The Preparatory Survey on Industrial Zone Development in Laos” under JICA was being carried out. Outcomes in the survey could be used for industrial wastewater treatment facilities.

Project manager of BORDA explained their CBS (Community Based Sanitation) and DEWATS (Decentralized Wastewater Treatment System) with experiences in Indonesia.

#### **6. Comments from Public Works and Transport Institute (PTI)**

Deputy Director of PTI suggested; (1) The major issue of popular use of septic tank was how the house owners could willingly install the septic tank. Some budgetary support such as a subsidy might be necessary for this purpose. (2) Another issue was how the sites of priority projects could be secured. Land of canal was not owned by VUDAA, but drainage structures were maintained by VUDAA.

#### **7. Comments from JICA Expert, MPWT**

According to the experiences in Japan, it took a considerable time to appear the effects of improvement works in water environment. The proper measures should be taken in a sustainable manner with a long-range perspective.

#### **8. Comments from VUDAA**

In recent years, landscape and land use in Vientiane City had been changed drastically due to rapid urbanization. Severe flooding might be apprehensive about frequent occurrence in the outskirt of the City area. Thus additional new drainage canal system should be necessary to prevent such situation.

### **III. Summary and Closing Remarks**

For and on behalf of the chairman, Deputy Director of PTI summarized the discussion results. Finally he gave closing remarks to expect the further progress of the study and the meeting was closed.