[Appendices]

1. Member List of the Survey Team
2. Survey Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Soft Component (Technical Assistance) Plan
6. Other Relevant Data
7. References

1. Member List of the Survey Team

Name		Title	Organization
JICA Officials			
1	Mr. Yuki ARATSU	Team Leader	Senior Assistant Director, Water Resource Group, Disaster Risk Reduction Group Global Environment Department, JICA
2	Mr. Yoshiaki YOKOTA	Technical Advisor	Senior Advisor (Urban Water Supply), JICA
3	Ms. Akiko FUJITA	Project Planning	Deputy Director, Water Recourses Team 1, Water Resource Group Global Environment Department, JICA
4	Ms. Makiko KIMURA	Project Planning	Assistant Director, Water Recourses Team 1, Water Resource Group Global Environment Department, JICA
5	Mr. Takehiro ANDO	Project Planning	Water Recourses Team 1, Water Resource Group Global Environment Department, JICA
Consultant Team			
6	Mr. Toru AOKI	Chief Consultant/ Water Supply Planning Specialist 1	Nihon Suido Consultants Co., Ltd.
7	Mr. Takehiko OGA	Deputy Chief Consultant/ Water Supply Planning Specialist 2	Nihon Suido Consultants Co., Ltd.
8	Mr. Takahiro NAKATA	Water Source and Intake /Construction & Procurement Planning/Cost Estimation Specialist	Nihon Suido Consultants Co., Ltd.
9	Mr. Hideki ASADA	Water Treatment Facility Planning & Design/O&M Specialist	Nihon Suido Consultants Co., Ltd.
10	Mr. Hideharu KIKUCHI	Raw Water and Treated Water Transmission & Distribution Facilities Specialist	Nihon Suido Consultants Co., Ltd.
11	Mr. Makoto KANEDA	Mechanical & Electrical Equipment Specialist	Nihon Suido Consultants Co., Ltd.
12	Mr. Akira HAYASHI	Mechanical Equipment Specialist	Nihon Suido Consultants Co., Ltd.
13	Ms. Mayumi GOTO	Environmental and Social Considerations Specialist	Nihon Suido Consultants Co., Ltd.
14	Mr. Hiroshi NISHIMAKI	Financial & Management Specialist	ExeIdea Ltd.

2. Survey Schedule

(1) Survey Schedule for the First Work in Lao (JICA Officials and Consultant Team)

Date	Site	Works
April 22th, 2018 (Sun)		Moving (Japan to Vientiane)
April 23th, 2018 (Mon) AM	DWS(MPWT)	Meeting with DWS(MPWT) about IC/R
April 23th, 2018 (Mon) PM	Japan Embassy	Meeting with Japan Embassy about Outline of the Study
	JICA Lao Office	Meeting with JICA Lao Office about Outline of the Study
		Moving (Vientiane to Luang Prabang)
April 24th, 2018 (Tue) AM	Phouphueng WTP	Field Survey
	Luang Prabang District Office	Courtesy visit to the prefectural governor
April 24th, 2018 (Tue) PM	DPWT	Meeting with DWS(MPWT), DPWT-LPB, WSSE-LPB, and World Heritage Office on Contents of the Request
April 25th, 2018 (Wed) AM	WSSE-LPB	Meeting with DWS(MPWT), DPWT-LPB and WSSE-LPB on Contents of the Request
April 25th, 2018 (Wed) PM	Namkhan WTP	Field Survey
	Demco WTP	Field Survey
April 26th, 2018 (Thu) AM	WSSE-LPB	Meeting with DWS(MPWT), DPWT-LPB and WSSE-LPB about IC/R
April 26th, 2018 (Thu) PM	World Heritage Office	Meeting with World Heritage Office about HIA.
April 27th, 2018 (Fri)	Asia WTP	Field Survey
	WSSE-LPB	Meeting with DWS(MPWT), DPWT-LPB and WSSE-LPB on Minute of Meetings
		Moving (Luang Prabang to Japan)(JICA Officials)

(2) Survey Schedule for the First Work in Lao (Consultant Team)

Date	Works
April 30th, 2018 (Mon)	Data collection of aged pipe, supply area, pipe material and other related data
May 1st, 2018 (Tue)	Data collection and analysis
May 2nd, 2018 (Wed)	Field survey on target area for expansion of service area
	Request for letter for implementation of social survey

Date	Works
May 3rd, 2018 (Thu)	Data collection and analysis
May 4th, 2018 (Fri)	Data collection and analysis on water demand prediction
	Field survey on transmission pipeline and south area for expansion of service area
May 7th, 2018 (Mon)	Meeting with WSSE-LPB about base data of water demand prediction
May 8th, 2018 (Tue)	Data collection and analysis
May 9th, 2018 (Wed)	Field survey of flow meter
May 10th, 2018 (Thu)	Data collection and analysis
May 11th, 2018 (Fri)	Meeting with WSSE-LPB about requested data
May 14th, 2018 (Mon)	Field survey of existing network
May 15th, 2018 (Tue)	Field survey on Namkhan WTP
May 16th, 2018 (Wed)	Data collection and analysis
May 17th, 2018 (Thu)	Data collection and analysis
May 11th, 2018 (Fri)	Meeting with UXO-LPB and WSSE-LPB
May 21th, 2018 (Mon)	Meeting with Fire Police
May 22th, 2018 (Tue)	Data collection and analysis
May 23th, 2018 (Wed)	Field survey on new reservoir with UXO-LPB
May 24th, 2018 (Thu)	Formulation of Project Component with WSSE-LPB and DPWT
May 25th, 2018 (Fri)	Formulation of Project Component with WSSE-LPB and DPWT
May 28th, 2018 (Mon)	Meeting with WSSE-LPB, DPWT-LPB, WSSE-LPB, World Heritage Office, DPI, and UXO-LPB
May 29th, 2018 (Tue)	Data collection and analysis Moving (Luang Prabang to Vientiane)
May 30th, 2018 (Wed)	Meeting with DWS
May 31th, 2018 (Thu)	Reporting to EOJ and JICA Office
June 4th, 2018 (Mon)	Meeting with DPWT-LPB
	Meeting with DF-LPB
	Visit to Pakham village head
June 7th, 2018 (Thu)	Field survey on Lak 8
June 8th, 2018 (Fri)	Field survey on stock yard
June 13th, 2018 (Wed)	Visit to Pakham village head and Pongvang village head
June 14th, 2018 (Thu)	Visit to Phanom village head and interview on river use to residents near Namkhan WTP
June 15th, 2018 (Fri)	Data Collection about water quality data of Namkhan WTP
June 18th, 2018 (Mon)	Confirmation of procedure in case of discovering relics, remnants during construction
June 19th, 2018 (Tue)	Data Collection about accounting system
June 20th, 2018 (Wed)	Data Collection about accounting system

Date	Works
June 21th, 2018 (Thu)	Data Collection about production and consumption
June 22th, 2018 (Fri)	Data Collection on management
June 25th, 2018 (Mon)	Data collection and analysis
June 26th, 2018 (Tue)	Data collection and analysis
June 27th, 2018 (Wed)	Data collection and analysis
June 28th, 2018 (Thu)	Data collection and analysis
June 29th, 2018 (Fri)	Meeting about IEE with WSSE-LPB
June 1st, 2018 (Sun)	Moving (Luang Prabang to Vientiane)
June 2nd, 2018 (Mon	Meeting about IEE with sub-contractor
June 3rd, 2018 (Tue)	Moving (Vientiane to Japan)

(3) DOD Meeting Schedule in Lao PDR (JICA Officials and Consultant Team)

Date	Site	Works
November 25th, 2018 (Sun)		Moving (Japan to Luang Prabang)
November 26th, 2018 (Mon)	WSSE-LPB	DOD Meeting
	Luang Prabang District Office	Courtesy visit to the prefectural governor
November 27th, 2018 (Tue)	WSSE-LPB	DOD Meeting
		Meeting with DWS(MPWT), Prefectural Governor and WSSE-LPB on Minute of Meetings
		Moving (Luang Prabang to Japan)

(4) Survey Schedule for the Second Work in Lao PDR (Consultant Team)

Date	Works
November 27th, 2018 (Tue)	DOD Meeting
	Meeting with DWS(MPWT), Prefectural Governor and WSSE-LPB on Minute of Meetings
	Filed survey with Luang Prabang World Heritage Office
November 28th, 2018 (Wed)	Meeting about HIA with WSSE-LPB
November 29th, 2018 (Thu)	Meeting about HIA with Luang Prabang World Heritage Office, WSSE-LPB and DPWT
November 30th, 2018 (Fri)	Recive letter of HIA from Luang Prabang World Heritage Office Meeting about Obligations of Recipient Country with WSSE-LPB
December 1st, 2018 (Sat)	Moving (Luang Prabang to Japan)

3. List of Parties Concerned in the Recipient Country

Department of Water Supply (DWS) of Ministry of Public Works and Transport (MPWT)	
Mr.Phomma Veoravanh	Director General
Mr.Khanthone Vorachith	Director of Water Supply Division
Department of Planning and Cooperation (DPC) of Ministry of Public Works and Transport (MPWT)	
Chao Yang	Officer of Cooperation and Investment Division
Department of Public Works and Transport (DPWT-LPB)	
Mr.Fasananh Thammavong	Director
Mr.Asween Inphithack	Deputy Director
Mr.Bounpone Mekdara	Water Supply Staff
Mr.Bounsomunuk	Technical Staff
Water Supply State Enterprise Luang Prabang Province (WSSE-LPB)	
Mr.Soulith Chindamany	General Manager
Mr.Thongkham	Director of Technical Division
Mr.Bountherng	Director of Engineer Division
Mr.Phoutha	Director of Inspection Division
Ms.Vattanachin	Director of Commercial Division
Mr.Chanthone Sanaphay	Deputy Director
Mr.Oudone	Deputy Director of Financial Division
Mr.Yhoy Mounmeuangxam	Deputy Director of WTP Division
Mr.Ladda Philavong	Head of Administration Section
Mr.Sitpaserth	Deputy Commercial Section
Mr.Sunti	Technical Staff Engineer Division
Mr.kathi Duangchampa	Technical Staff
Mr.Sengphet	Technical Staff
Luang Prabang Province (LPB)	
Mr.Khamkhan Chanthavisouk	Governor
Dr.Bouakhong Nammavong	Vice Governor
Mr.Lithiphong	Technical Staff
Department of Planning and Investment (DPI)	
Ms.Siliphone	Director
City of LPB	
Mr.Sayloung	Vice Governor
Unexploded Ordnance Lao(UXO-Lao)	
Mr.Saomany Manivong	Chief of Programme Office and Public Information
Mr.Houmphanh Chanthavong	Provincial Coordinator
Mr.Santi Khotisen	Deputy Provincial Coordinator
Mr.Somphone	Administrator Staff
Fire Police	
Mr.philaniso	Director
Asia Nampapa Luang Prabang Co., Ltd.	
Mr.Peter Rodgers	Chief Executive Officer
Demco De Lao Co., Ltd	
Mr.Manaphat Asakit	Director
Mr. Prasobsin Panthong	Operation Controller Manager
Luang Prabang World Heritage Office	
Mr. Saveuy Silavanh	Director

4. Minutes of Discussions

Date	Minutes of Discussion
27th April, 2018	Minutes of Discussions on the Preparatory Survey for the Project for Expansion of Water Supply System in Luang Prabang
27th November, 2018	Minutes of Discussions on the Preparatory Survey for the Project for Expansion of Water Supply System in Luang Prabang City (Explanation on Draft Preparatory Survey Report)

Minutes of Discussions
on the Preparatory Survey for the Project for
Expansion of Water Supply System in Luang Prabang

Based on the several preliminary discussions between the Government of Lao People's Democratic Republic (hereinafter referred to as "Lao P.D.R.") and JICA Laos Office, Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") of the Project for Expansion of Water Supply System in Luang Prabang (hereinafter referred to as "the Project") to Lao P.D.R.. The Team held a series of discussions with the officials of the Government of Lao P.D.R. and conducted a field survey. In the course of the discussions, both sides have confirmed the main items described in the attached sheets.

Luang Prabang, 27th April, 2018

Mr. Yuki Aratsu
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Mr. Phomma Veoravanh
Director General
Department of Water Supply
Ministry of Public Works and Transport
Lao People's Democratic Republic

Witness

Dr. Bouakhong Nammavong
Vice Governor
Luang Prabang Province
Lao People's Democratic Republic

ATTACHMENT

1. Objective of the Project

The objective of the Project is to upgrade the water supply system through improvement of the function of the Namkhan Water Treatment Plant and Phoupung Water Treatment Plant, and rehabilitation and expansion of the water distribution network for the water supply service area, thereby contributing to improvement of water supply system in Luang Prabang City.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Expansion of Water Supply System in Luang Prabang".

3. Project site

Both sides confirmed that the site of the Project is in Luang Prabang City, which is shown in Annex 1.

4. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

4-1. Department of Water Supply (DWS) of Ministry of Public Works and Transport (MPWT) will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be managed by relevant authorities properly and on time. The organization charts are shown in Annex 2.

4-2. Department of Public Works and Transport (DPWT) of Luang Prabang Province and Luang Prabang Water Supply State Enterprise (WSSE-LPB) will be the implementing agency for the Project. Implementing agency shall assist the Executing Agency to implement the Project smoothly, and shall operate and maintain the Project facilities after the construction.

5. Items requested by the Government of Lao P.D.R.

5-1. The Lao side explained their request as follows:

- Namkhan WTP: Rehabilitation and enhancement of existing Namkhan WTP through construction of coagulation, flocculation and sedimentation facilities to ensure the full-fledged production capacity of 12,000 m^3/day and potable

water quality throughout the year.

- Phouphueng WTP: Countermeasures for high concentration of hardness
- Pipeline: Installation of new pipes, replacement of aged pipes, distribution tanks, and installation of fire hydrants
- Monitoring System

The Team recommended the priority of the project purpose and items as following orders;

(1) Effective use of treated water

- Replacement of aged pipes at the World Heritage area
- Effective use of treated water from the private sector WTPs and expansion of service area (North, South)

  *The monitoring system may be considered for this purpose.

(2) Improvement of treated water quality by upgrading of existing facility

- Rehabilitation and enhancement of treatment facilities to ensure the maximum production capacity of Namkhan WTP
- Effective use of the treated water from Phouphueng WTP

As a result of discussions, both sides confirmed that the items requested by the Government of Lao P.D.R. are as follows:

- Pipeline: Installation of new pipes, replacement of aged pipes, distribution tanks, and installation of fire hydrants
- Namkhan WTP: Rehabilitation and enhancement of treatment facilities to ensure 12,000m^3/day of production capacity
- Phouphueng WTP: Countermeasures for high concentration of hardness
- Monitoring System

5-2. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

5-3. The Government of Lao P.D.R. shall submit an official request to the Government of Japan through a diplomatic channel by August 2018.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Lao side agreed that the procedures and basic principles of Japanese Grant as described in Annex 3 shall be applied to the Project.

As for the monitoring of the implementation of the Project, JICA requires the

Lao side to submit the Project Monitoring Report that the form is attached as Annex 4.

6-2. The Lao side agreed to take the necessary measures, as described in Annex 5, for smooth implementation of the Project. The contents of the Annex 5 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the Draft Preparatory Survey Report.
The contents of Annex 5 will be updated as the Preparatory Survey progresses, and eventually, will be used as an attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Lao P.D.R. until July 2018.

7-2. The official request to the Government of Japan will be submitted before August, 2018.

7-3. JICA will prepare a draft Preparatory Survey Report in English and its summary in Lao, and dispatch a mission to Lao P.D.R. in order to explain its contents around October, 2018.

7-4. If the contents of the draft Preparatory Survey Report are accepted and the undertakings for the Project are fully agreed by the Lao side, JICA will finalize the Preparatory Survey Report and send it to Lao P.D.R. around December, 2018.

7-5. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

8-1. The Lao side confirmed to give due environmental and social considerations during implementation, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as "B" from the following considerations:
The Project may include the pipe replacement work and the installation of fire hydrants in the World Heritage area, so that the due consideration is necessary and the given procedures and regulations should be followed. Otherwise, the Project is not located in a sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the JICA guidelines for environmental and social considerations (April 2010), and its potential adverse impacts on the environment are not likely to be significant.
The Lao side confirmed to conduct the necessary procedures concerning the environmental assessment (including stakeholder meetings, Environmental Impact Assessment (EIA) /Initial Environmental Examination (IEE) and

information disclosure, etc.) and make EIA/IEE report of the Project. The EIA/IEE approval shall be received from the responsible authorities and submitted to JICA within 1 month after the signing of the G/A.

9. Other Relevant Issues

9-1. Both sides agreed that the target year of the Project is 2025, which is considered to be around three or four years after the completion of the Project and outline design of the Project shall be conducted based on the demand and situation at the target year. Although the Team will forecast the demand until 2035, and review the viability of the Project and make recommendations on necessary measures in future.

9-2. Both sides confirmed that the necessity of the HIA on the Project will be examined by the Luang Prabang World Heritage Office after the submission of the draft Preparatory Survey Report, includes draft outline design and execution plan by the Team. The necessary conditions and requirements on the Project will be examined by Luang Prabang World Heritage Office.

9-3. The Lao side confirmed the required procedures for the application of tax exemption as Annex 6. The Lao side also confirmed that Lao P.D.R. performs the key active administrative role, and takes necessary measures without delay.

9-4. The Lao side agreed to take the following actions against the danger of UXOs during project implementation.

-Before Construction Work:

The Lao side shall assure the safety of the construction sites from UXOs by submitting the official report to JICA Laos Office by the commencement of the construction work.

-During Construction Work:

In case UXOs were found during the construction work, the Lao side should clear it and verify the safety of its surrounding area.

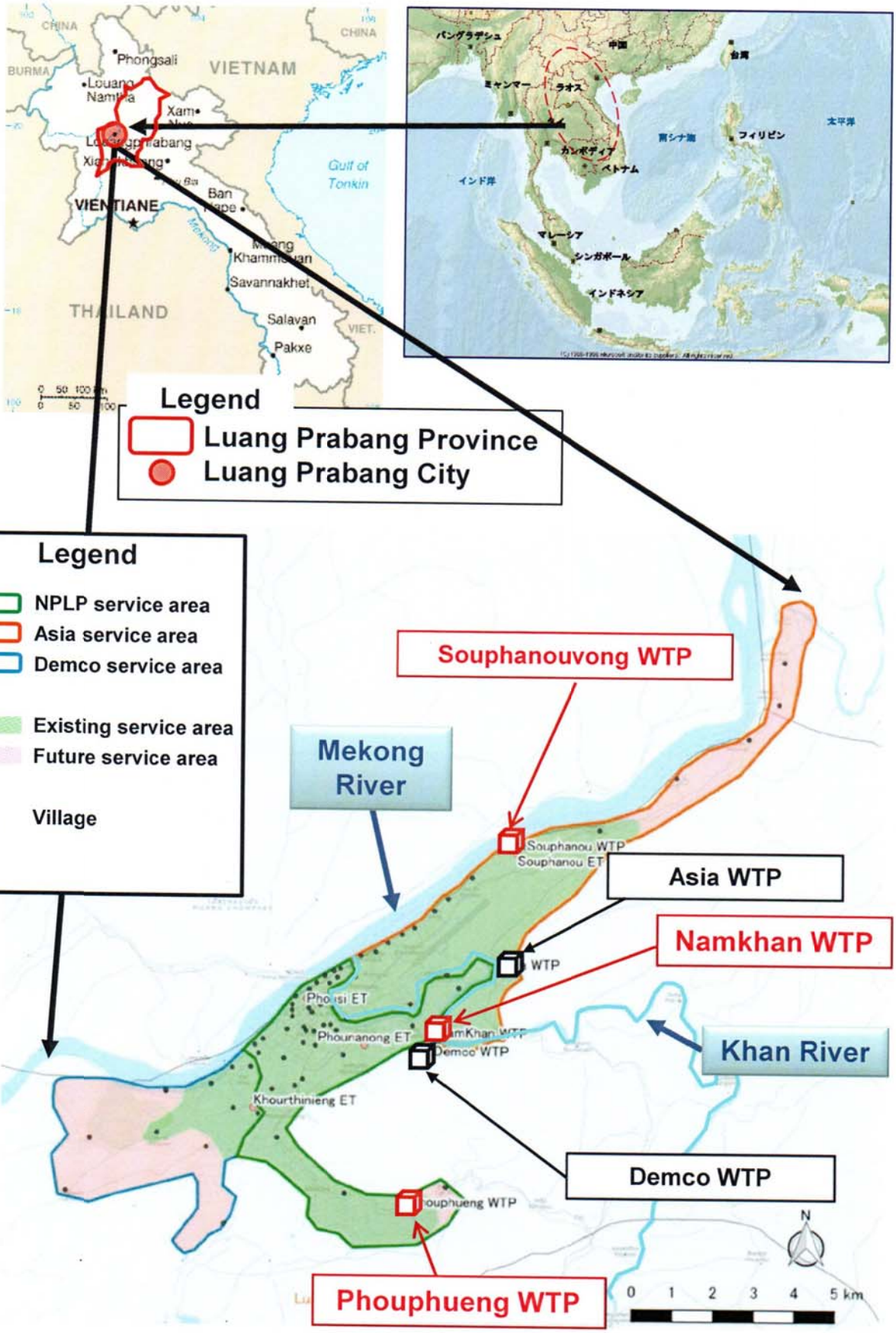
9-5. The Lao side agreed to secure land for wastewater treatment facility for Namkhan WTP and water distribution facility before commencement of the Project, if the necessity of securing land would be confirmed based on the survey by the Team.

9-6. The Lao side confirmed to submit the following documents by 10th May, 2018.

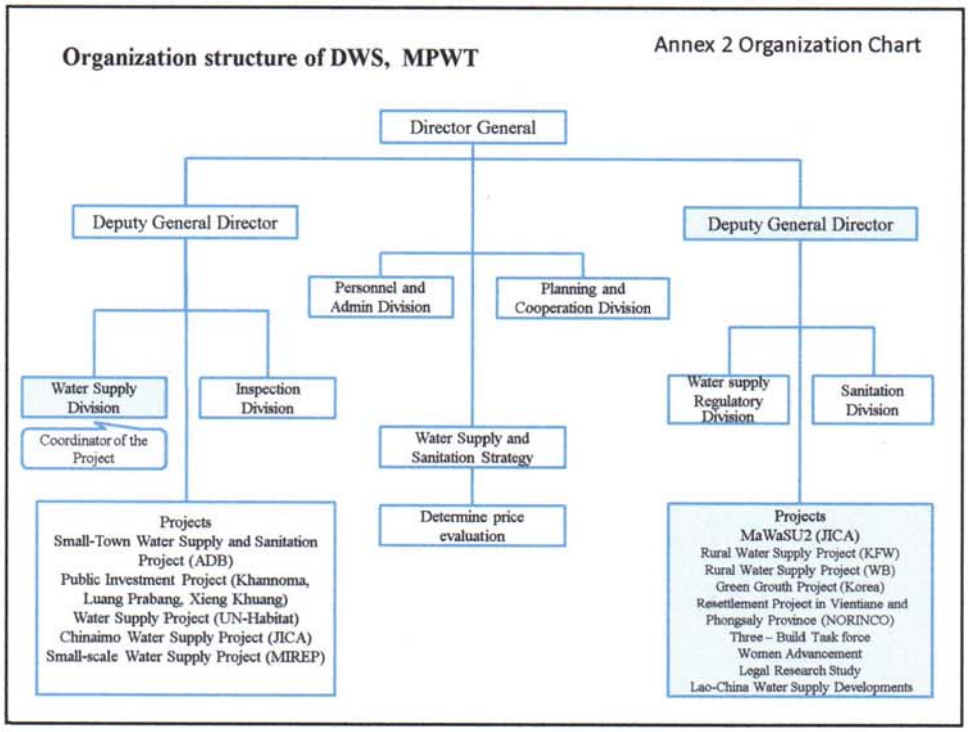
- Detailed Information on new development plan in Luang Prabang City to study water demand forecast.
- Information on locations and frequency of water meter maintenance related to water hardness.

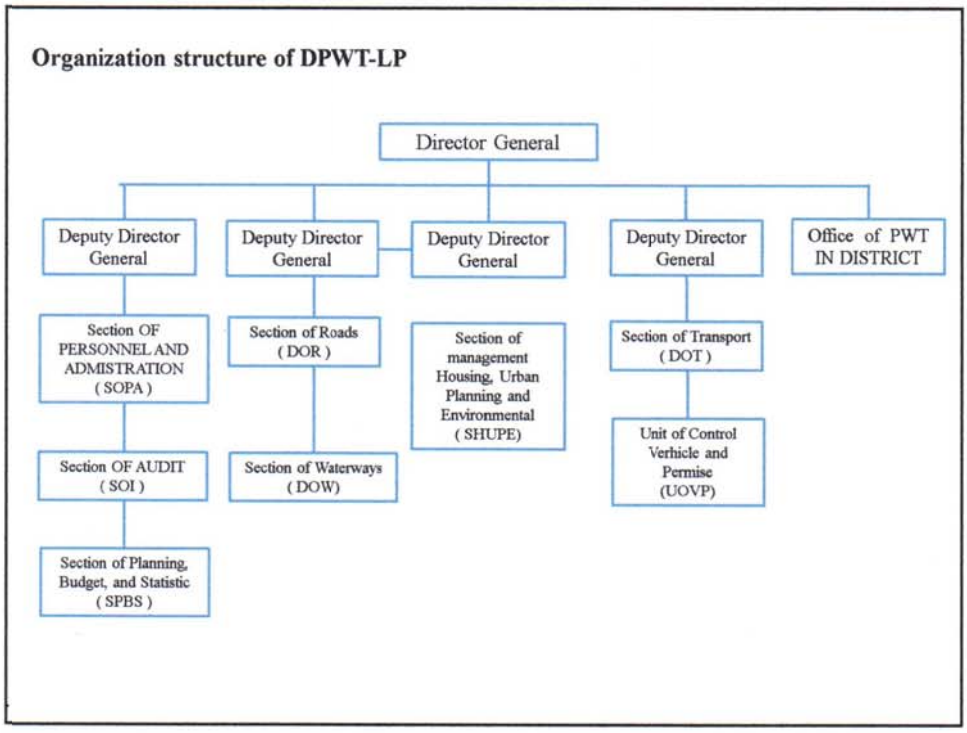
Annex 1 Project Site
Annex 2 Organization Chart
Annex 3 Japanese Grant
Annex 4 Project Monitoring Report (template)
Annex 5 Major Undertakings to be taken by the Government of Lao P.D.R.
Annex 6 Procedures for application of tax exemption

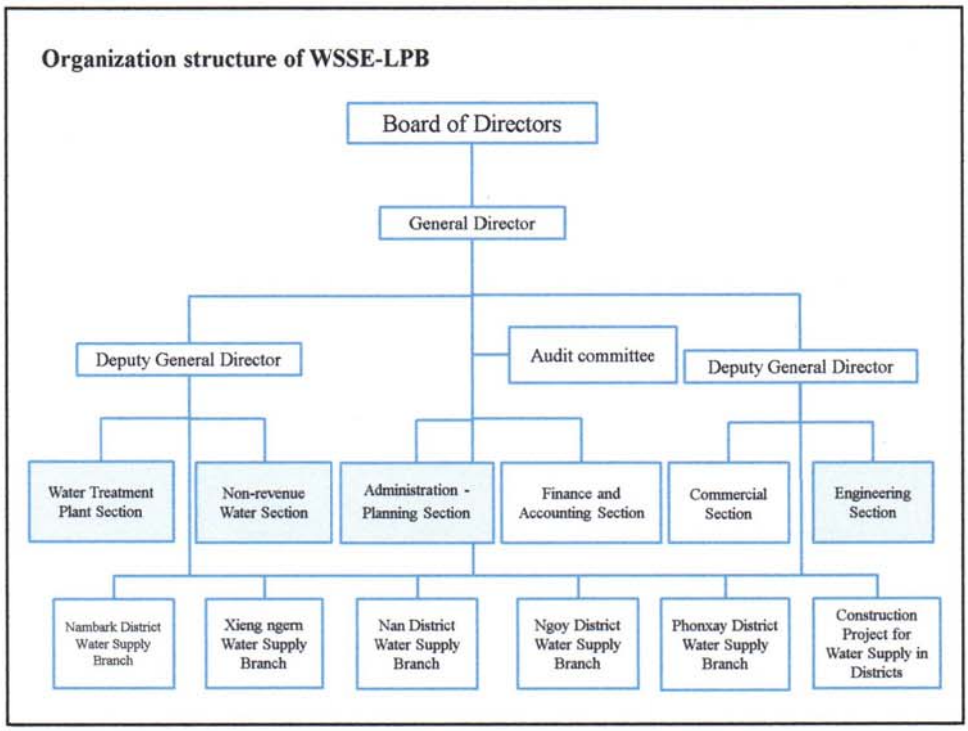
Location map of Luang Prabang City



Source:JICA (2017) THE DATA COLLECTION SURVEY ON WATER SUPPLY SECTOR IN LAO PEOPLE'S DEMOCRATIC REPUBLIC


Organization structure of DWS, MPWT
Annex 2 Organization Chart
Director General
Deputy General Director
Deputy General Director
Personnel and Admin Division
Planning and Cooperation Division
Water Supply Division
Inspection Division
Water supply Regulatory Division
Sanitation Division
Coordinator of the Project
Water Supply and Sanitation Strategy
Determine price evaluation
Projects
Small-Town Water Supply and Sanitation Project (ADB)
Public Investment Project (Khannoma, Luang Prabang, Xieng Khuang)
Water Supply Project (UN-Habitat)
Chinaimo Water Supply Project (JICA)
Small-scale Water Supply Project (MIREP)
Projects
MaWaSU2 (JICA)
Rural Water Supply Project (KFW)
Rural Water Supply Project (WB)
Green Grouth Project (Korea)
Resettlement Project in Vientiane and Phongsaly Province (NORINCO)
Three – Build Task force
Women Advancement
Legal Research Study
Lao-China Water Supply Developments


Organization structure of DPWT-LP
Director General
Deputy Director General
Deputy Director General
Deputy Director General
Deputy Director General
Office of PWT IN DISTRICT
Section OF PERSONNEL AND ADMISTRATION (SOPA)
Section of Roads (DOR)
Section of management Housing, Urban Planning and Environmental (SHUPE)
Section of Transport (DOT)
Section OF AUDIT (SOI)
Section of Waterways (DOW)
Unit of Control Verhicle and Permise (UOVP)
Section of Planning, Budget, and Statistic (SPBS)


Organization structure of WSSE-LPB
Board of Directors
General Director
Deputy General Director
Audit committee
Deputy General Director
Water Treatment Plant Section
Non-revenue Water Section
Administration - Planning Section
Finance and Accounting Section
Commercial Section
Engineering Section
Nambark District Water Supply Branch
Xieng ngern Water Supply Branch
Nan District Water Supply Branch
Ngoy District Water Supply Branch
Phonxay District Water Supply Branch
Construction Project for Water Supply in Districts

Annex 3

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal

-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")

-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")

-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of

relevant agencies of the Recipient necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve 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 executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.

b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

Attachment 1

PROCEDURES OF JAPANESE GRANT

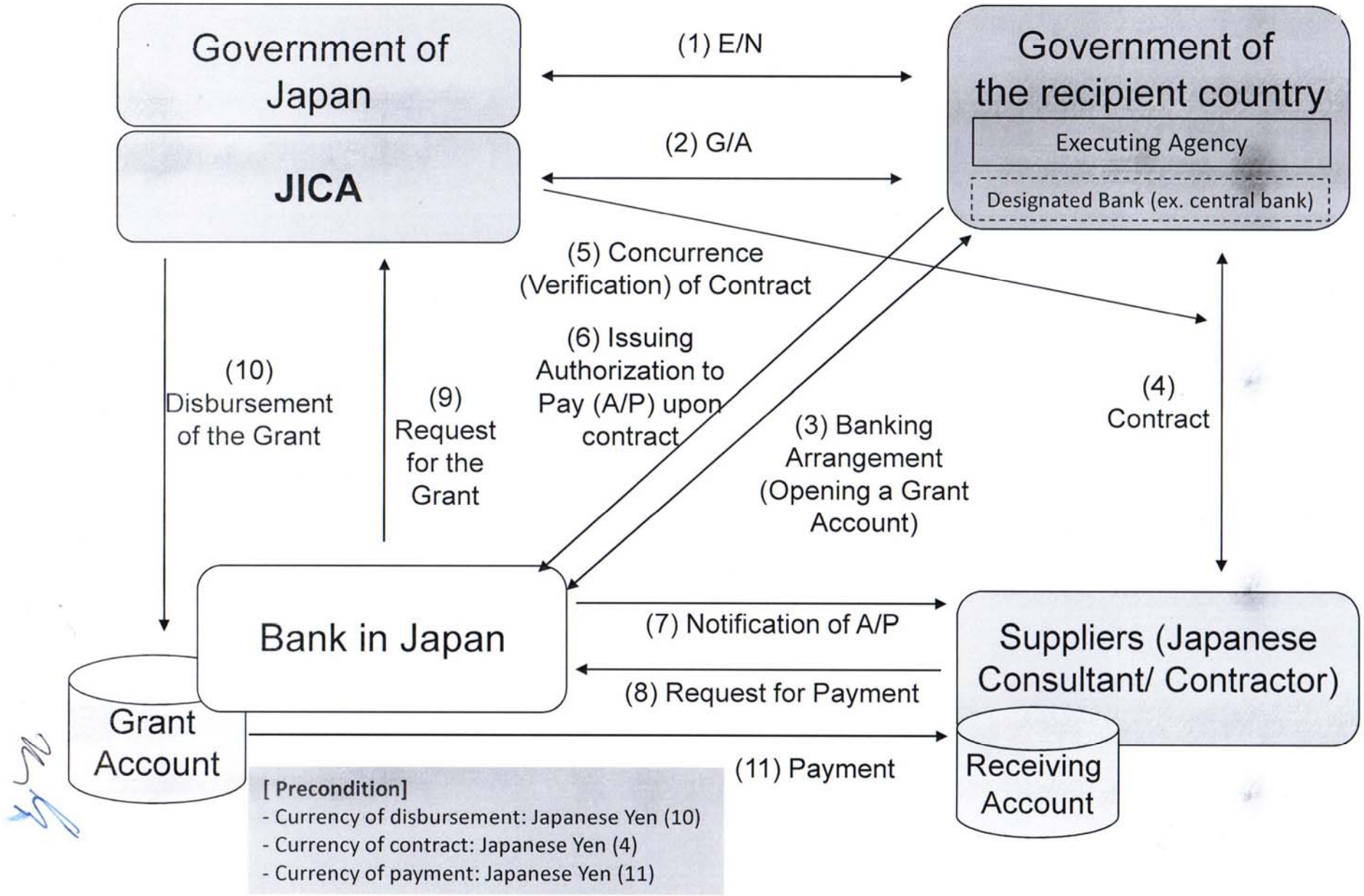
Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
2. Appraisal	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.

2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

Financial Flow of Japanese Grant (A/P Type)



Date:
Ref. No.

JAPAN INTERNATIONAL COOPERATION AGENCY
JICA XXX OFFICE
[Address specified in the Article 5 of the Grant Agreement]

Attention: Chief Representative

Ladies and Gentlemen:

NOTICE CONCERNING PROGRESS OF PROJECT

Reference : Grant Agreement, dated 署名日(signed date of the G/A), for プロジェクト名(name of the Project)

In accordance to the Article 6 (3) of the Grant Agreement, we would like to report on the progress of the Project up to the following stages:

[Common]
- ☐ Preparation of bidding documents - result of detailed design
- ☐ Completion of final works under construction/procurement contract

[Construction]
- ☐ Monthly progress [Month/Year]

[Procurement of Equipment]
- ☐ Shipping/delivery, hand-over (take over) of equipment
- ☐ Installation works
- ☐ Operational training

- ☐ Other _____

Please see the details as per attached Project Monitoring Report (PMR).

Very truly yours,

[*Signature*]
[*Name of the signer*]
[*Title of the signer*]
[*Name of the executing agency*]

cc:
Director General
Financial Cooperation Implementation Department
Japan International Cooperation Agency
[Address specified in the Article 5 of the Grant Agreement]

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX

20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Executing Agency	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Line Ministry	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (1,000 Taka)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*

Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design)*

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
- Contractor's Main Staff List

4. Check list for the Contract (including Record of Amendment of the Contract/ Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Attachment 6

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C−D	Price (Increased) F=C+D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

-

-

-

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

		Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost		(A/D%)	(B/D%)	(C/D%)	
	Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
	others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost		(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost		(A/D%)	(B/D%)	(C/D%)	
Total		(A/D%)	(B/D%)	(C/D%)	

Annex 5

Major Undertakings to be taken by the Government of the Lao P.D.R

1. Specific obligations of the Government of Lao P.D.R. which will not be funded with the Grant

(1) Before the Bidding

No	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	within 1 month after the signing of the G/A	MOF		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract(s)	MPWT		
3	To approve IEE/EIA(Conditions of approval should be fulfilled, if any) and secure the necessary budget for implementation.	within 1 month after the signing of the G/A	DONRE		
4	To secure the necessary budget and implement land acquisition if necessary	before notice of the bidding document(s)	DPWT-LP/ WSSE-LPB		
5	To secure, clear and level the following lands/sites * 1) Site for wastewater treatment facility for Namkhan WTP 2) Temporary construction yard and stock yard near the Project area 3) Site for water supply distribution facility (if necessary) 4) Other sites (if necessary) *The details will be confirmed by the Preparatory Survey	before notice of the bidding document(s)	DPWT-LP WSSE-LPB		
6	To secure the space for the Monitoring System in WSSE-LPB office	before notice of the bidding document(s)	WSSE-LPB		
7	To obtain the construction permit	before notice of the bidding document(s)	DPWT-LP/ WSSE-LPB		
8	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding document(s)	MPWT		

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	MPWT		
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)	MPWT		
	2) Payment commission for A/P	every payment	MOF		
3	To ensure prompt customs clearance and to assist the Supplier(s) with internal transportation in the country of the Recipient	during the Project	MPWT		
4	To accord Japanese physical persons and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MPWT		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and be borne by its designated authority without using the Grant;	during the Project	MPWT		
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project	MPWT		
7	1) To submit Project Monitoring Report	every month	MPWT/ DPWT-LP		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	MPWT/ DPWT-LP		
8	To submit a report concerning completion of the Project	within six months after completion of the Project	MPWT/ DPWT-LP		
9	To construct access roads* *To be confirmed by the Preparatory Survey	3 months before completion of the construction	DPWT-LP/ WSSE-LPB		
10	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site(s)				
	1) Electricity The distributing line to the site *To be confirmed by the Preparatory Survey	before start of the construction	DPWT-LP/ WSSE-LPB		
	2) Water Supply The city water distribution main to the site *To be confirmed by the Preparatory Survey	before start of the construction	DPWT-LP/ WSSE-LPB		
	3) Drainage The city drainage main (for storm, sewer and others) to the site *To be confirmed by the Preparatory Survey	before start of the construction	DPWT-LP/ WSSE-LPB		

11	To take necessary measure for safety construction - traffic control - rope off *To be confirmed by the Preparatory Survey	during the construction	DPWT-LP/ WSSE-LPB		
12	To implement EMP and EMoP	during the construction	DONRE/ DPWT-LP/ WSSE-LPB		
13	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	MPWT/ DPWT-LP		
14	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between DWS(MPWT) and JICA. *To be confirmed by the Preparatory Survey	- until the end of livelihood restoration program (In case that livelihood restoration program is provided) *- for two years after land acquisition and resettlement complete (In case that livelihood restoration program is not provided)*	MPWT/ DPWT-LP		
16	To take necessary measures for residents and shops such as restaurants and street markets when the construction would be carried out along the busy street	during the construction	Committee*		

*Committee is established by the Governor, consist of DPWT-LP, WSSE-LPB, DONRE, etc..

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To implement EMP and EMoP	for a period based on EMP and EMoP	DONRE/ DPWT-LP		
2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between DWS (MPWT) and JICA.	for three years after the Project	MPWT/ DPWT-LP		
3	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance 3) Routine check/Periodic inspection	After completion of the construction	WSSE-LPB		

Annex 6

PROCEDURES OF TAX EXEMPTION

Item	Procedure*	Related agency	Application destination
Corporate tax	Confirmation of tax exemption at executing agency and tax office	MPWT tax office	tax office
Personal income tax	Confirmation of tax exemption at executing agency and tax office	MPWT tax office	tax office
Value added tax (VAT)	After having obtained a tax exemption agreement at the executing agency, the MOF, and the tax office, request a tax office to issue a tax exemption certificate	MPWT MOF tax office	Tax office
Customs duties	Details are shown below	MPWT MOF DPWT WSSE-LPB Dept. of Tax & Excise, Customs office WSSE-LPB	Dept. of Tax & Excise. Customs office

Detailed process of Customs Duties

1. Approval of Master List

Contractor →WSSE-LPB→(DPWT)→MPWT→MOF

WSSE-LPB : Confirm contents and attach Confirmation Letter
(DPWT) : Confirm contents and attach Confirmation Letter
MPWT : Confirm contents with procurement, approve by the Minister
: Compare/collate with construction contents
MOF : Confirm contents with Dept. of Tax & Excise, return to Contractor after approval

2. Approval of Shipping Invoice

Contractor →WSSE-LPB→(DPWT)→MPWT→Customs

WSSE-LPB : Confirm contents and attach Confirmation Letter
(DPWT) : Confirm contents and attach Confirmation Letter
MPWT : Check with Master List.
Contractor : Submit to Customs office and customs clearance

Minutes of Discussions
on the Preparatory Survey for the Project for
Expansion of the Water Supply System in Luang Prabang City
(Explanation on Draft Preparatory Survey Report)

With reference to the Minutes of Discussions signed between Department of Water Supply of Ministry of Public Works and Transport (hereinafter referred to as "MPWT-DWS") and Japan International Cooperation Agency (hereinafter referred to as "JICA") on 27th April, 2018 and in response to the request from the Government of Lao People's Democratic Republic (hereinafter referred to as " Lao P.D.R.") dated 8th August, 2018, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for Expansion of the Water Supply System in Luang Prabang City (hereinafter referred to as "the Project").

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Luang Prabang, 27th November, 2018

Mr. Yuki Aratsu
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Mr. Phomma Veoravanh
Director General
Department of Water Supply
Ministry of Public Works and Transport
Lao People's Democratic Republic

Witness

Mr.Khamkhan Chanthavisouk
Governor
Luang Prabang Province
Lao People's Democratic Republic

ATTACHMENT

1. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for Expansion of the Water Supply System in Luang Prabang City".

2. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Lao P.D.R side agreed to its contents.

3. Cost estimate

Both sides confirmed that the cost estimate including the contingency described in Annex 1 is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc..

4. Confidentiality of the cost estimate and technical specifications

Both sides confirmed that the cost estimate and technical specifications of the Project should never be disclosed to any third parties until all the contracts under the Project are concluded.

5. Timeline for the project implementation

The Team explained to the Lao P.D.R. side that the expected timeline for the project implementation is as attached in Annex 2.

6. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Lao P.D.R. side shall be responsible for the achievement of agreed key indicators targeted in year 2025 and shall monitor the progress based on those indicators.

[Quantitative indicators]

Indicator	Baseline Data (Year 2017)	Target (Year 2025) 【3 years after completion of the new facilities】
Served Population	58,800	70,800
Number of new connections in expansion area	0	600
Maximum turbidity of Namkhan Water Treatment Plant (NTU)*1	12*2	less than 5
Water supply pressure (m)	0-10	More than 10

*NTU:Nephelometric Turbidity Units

*2Maximum in past five years

[Qualitative effect]

- Reducing water leakage and low supply pressure area
- Providing water in stable amount and quality by preventing overload operation of sedimentation basins in Namkhan Water Treatment Plant (WTP)
- Enhancing the ability to prevent fire in the World Heritage Area

7. Technical assistance ("Soft Component" of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, following technical assistance is planned under the Project. The Lao P.D.R. side agreed to allocate necessary number of counterparts who are appropriate and competent in terms of the purpose of the technical assistance as described in the Draft Report.

1) Operation/maintenance and water quality management of the Namkhan WTP
2) Distribution control using monitoring system

8. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 3. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in (2) 5 of Annex 3, both sides confirmed that such customs duties, internal taxes and other fiscal levies shall be clarified in the bid documents by MPWT-DWS during the implementation stage of the Project.

With regards to VAT as stipulated in Annex 3, MPWT-DWS agreed to clarify and

confirm the procedures for VAT exemption with Ministry of Finance.

The Lao P.D.R. side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that the Annex 3 will be used as an attachment of G/A.

9. Monitoring during the implementation

The Project will be monitored by MPWT-DWS and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 4. The timing of submission of the PMR is described in Annex 3.

10. Project completion

Both sides confirmed that the project completes when all the facilities constructed and equipment procured by the grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

11. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Lao P.D.R. side is required to provide necessary support for the data collection for the evaluation.

12. Schedule of the Survey

JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Lao P.D.R. side around January, 2019.

13. Environmental and Social Considerations

13-1. General Issues

13-1-1. Environmental Guidelines and Environmental Category

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April, 2010)' (hereinafter referred to as "the Guidelines") is applied to the Project. The Project is categorized as B, because the Project is not located in a

sensitive area, nor has sensitive characteristics, nor falls into sensitive sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

13-1-2. Environmental Checklist

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex 5. Both sides confirmed that in case of major modification of the content of the Environmental Checklist, the Lao P.D.R. side shall submit the modified version to JICA in a timely manner.

13-2. Environmental Issues

13-2-1. Initial Environmental Examination

The Project requires an Initial Environmental Examination (hereinafter referred to as "IEE") according to the Ministerial Agreement No.8056 and an Environmental Compliance Certificate (ECC) before starting construction. Both sides confirmed that the IEE report has already been submitted to Department of Natural Resources and Environment in Luang Prabang Province (DONRE) and it is expected to be approved by 10th December, 2018.

Both sides confirmed that regarding IEE, the mitigation activities by the construction contractor shall be inspected by an environmental and social staff (ESS) in Project Implementation Unit (hereinafter referred to as " PIU") which is composed of DPWT-LP and WSSE-LPB for implementing the Project, and that the result of inspection will be reviewed by the PIU manager and submitted to DONRE regularly throughout the construction period.

13-2-2. Environmental Management Plan and Environmental Monitoring Plan

Both sides confirmed Environmental Management Plan (hereinafter referred to as "EMP") and Environmental Monitoring Plan (hereinafter referred to as "EMoP") of the Project are attached as Annex 6 and Annex 7, respectively. Both sides agreed that environmental mitigation measures and monitoring shall be conducted based on the EMP and EMoP, which may be updated during the Detailed Design stage.

13-3. Social Issues

13-3-1. Land Acquisition

The land necessary for a new reservoir constructed in the Project is comprised

of the government land.

The required government land is under the management of the village and an inter-governmental land transfer arrangement which should be implemented in order to utilize the land for the Project. The village head of the land had made agreement on the transfer of land use right from village to WSSE-LPB for the Project at this time. DONRE has already proceeded the request of its aproval from the Governer of Luang Prabang Province and it is expected that the approval from the Governer and the official documentation, will be completed by the end of January 2019.

Regarding a part of the required government land which is operated by private, the negotiation on the compensation price and the payment is beeing conducted between MPWT-DWS, WSSE-LPB and the private operator.

Both sides confirmed that Project Steering Comittee shall finalize the compensation plan by the end of December, 2018.

13-4. Environmental and Social Monitoring

13-4-1. Environmental Monitoring

Both sides agreed that the Lao P.D.R. side shall submit results of environmental monitoring to JICA with PMR by using the monitoring form attached as Annex 8. The timing of submission of the monitoring form is described in Annex 3.

13-4-2. Information Disclosure of Monitoring Results

Both sides confirmed that the Lao P.D.R. side will disclose the results of environmental and social monitoring to local stakeholders through their website / in their field offices.

The Lao P.D.R. side agreed JICA will disclose on its website the monitoring results submitted by the Lao P.D.R. side as the monitoring forms attached as Annex 8.

13-5. The procedure regarding the World Heritage Site

13-5-1. Approval for the construction

The Lao P.D.R. side understood that the Project will not make any change to existing historical buildings or landscape in the World Heritage Site and negative impacts such as causing damage to the unknown historical object/structure underground. Such negative impacts will be avoided by adequate measures. Both sides confirmed WSSE-LPB shall submit detailed construction plan including construction location, methods, schedule, etc. to Luang Prabang World Heritage

Office for its approval prior to the commencement of construction.

13-5-2 Heritage Impact Assessment

Both side comfirmed that the Project will not make significant adverse effects nor damages on world heritage. The necessity of Heritage Impact Assessment (HIA) will be finally confirmed after the joint site visit by the Team and Luang Prabang World Heritage Office. The Office shall report to JICA promptly after the site visit.

14. Other Relevant Issues

14-1. Service Connections

For expansion areas, the Project will install distribution pipes, while service connections will be installed at the expense of customers, and the service connections will be installed by the WSSE-LPB under the request from customers. To promote the installation of the service connections, the Lao P.D.R. side agreed to take necessary measures (ex.public relations as described in 14-3.).

14-2. Suggestions for Financial Improvements

14-2-1. Management improvements

The Team explained that according to the financial simulation, it is inevitable for the WSSE-LPB to continue its financial deficits under the current management conditions. The Lao P.D.R. side recognized the importance to implement proactive management improvements of the WSSE-LPB as follows:

- human resource capacity development and effective human resource allocations
- reduction of NRW including leakages
- enhanced customer base expansion
- overall improvements in management efficiency

14-2-2. Tariff adjustment

In addition to the management improvement efforts listed above, the Lao P.D.R. side agreed to make their best efforts to realize adequate adjustment in tariff on an annual basis without accompanying a large economic burden on the customers.

14-3. Public Relations

Both sides understood the importance of public relations during and after the

Project. The Lao P.D.R. side agreed to make continuous efforts to create public acceptance in order to increase the number of customers and revise water tariff on a regular basis.

14-4. Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public soon after the completion of the Preparatory Survey. The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

14-5. Safety for Construction Works

Both sides confirmed that the highest priorities shall be placed on safety and human life in the Project. The Lao P.D.R. side agreed to implement the Project with due diligence to ensure that the safety of workers and the general public be maintained, thereby avoiding serious accidents, in consideration of "the Guidance for the Management of Safety for Construction Works in Japanese ODA Projects" which has been published on JICA's URL below.

https://www.jica.go.jp/english/our_work/types_of_assistance/oda.html

The Lao P.D.R. side also agreed to notify JICA immediately of any accident during the implementation of the Project as stipulated in "Major Undertakings to be taken by the Government of the Lao P.D.R." in Annex 3

Annex 1 Project Cost Estimation
Annex 2 Project Implementation Schedule
Annex 3 Major Undertakings to be taken by the Government of Lao P.D.R.
Annex 4 Project Monitoring Report
Annex 5 Environmental Check List
Annex 6 Environmental Management Plan
Annex 7 Environmental Monitoring Plan
Annex 8 Environmental and Social Monitoring Form

Annex 1

Confidential

Project Cost Estimation

1. Cost Estimation Borne by the Government of Japan

This part is closed to due to the confidentiality.

2. Cost Estimation Borne by the Government of Lao P.D.R

Expenditure Item	Million LAK	Million JPY (equivalent)
Land acquisition	750.0	9.9
Site ~~Clearing~~ Clearing	349.9	4.6
Access road construction	897.0	11.8
Repairment, Withdrowal, in Namkhan WTP	305.7	4.0
Water buying	15.0	0.2
Arranging electric supply	212.4	2.8
Stock yard	334	4.4
Environmental and social considerations	14.0	0.2

Budget for VAT (Pending issue)	4,000	52.8
Total	6878	90.8

Notes:

1) Conditions of cost estimation

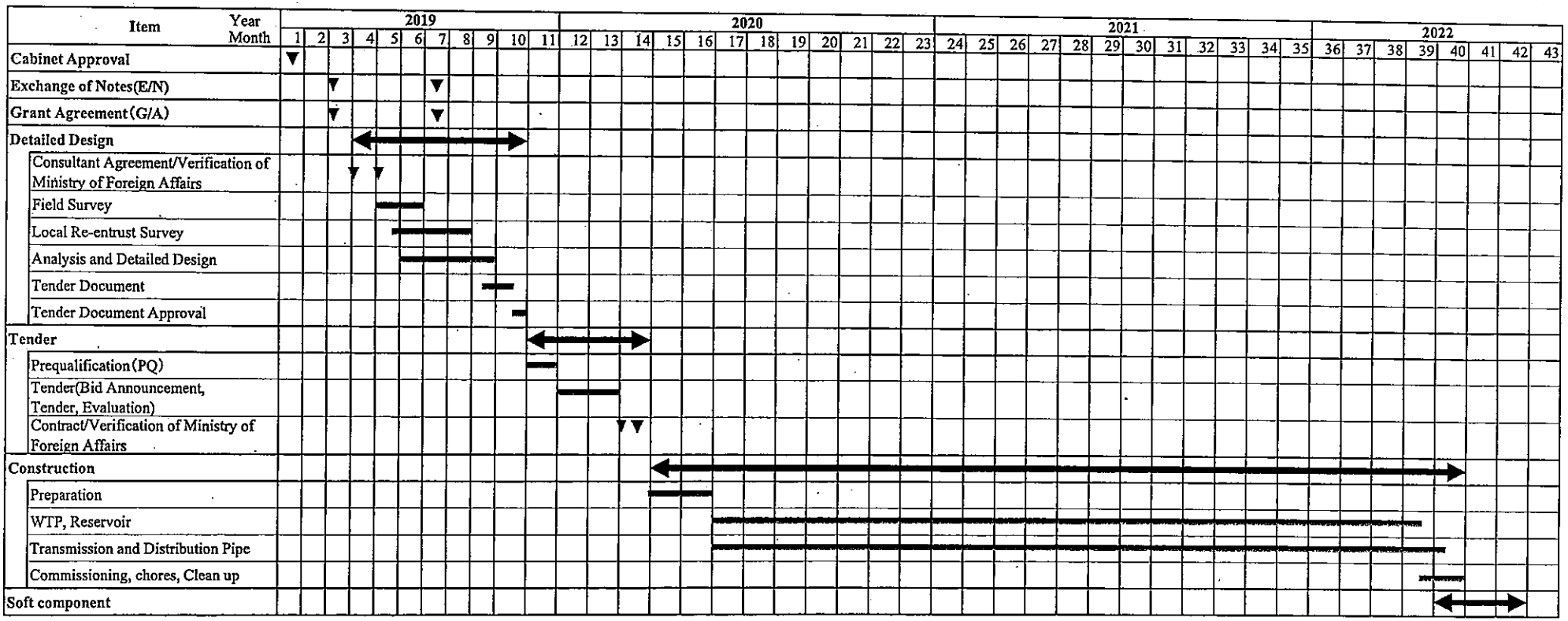
- Estimated timing: November 2018
- Exchange rates: USD 1.00 = JPY 108.75
  LAK1.00 = JPY 0.0132

2) Others

The project is implemented in accordance with the system of Japanese Grant. The above cost estimation does not assure the ceiling cost on the E/N and will be reviewed by the Government of Japan before the conclusion of E/N between the two governments.

Annex 2

Project Implementation Schedule



Annex 3

Major Undertakings to be taken by the Government of the Lao P.D.R

1. Specific obligations of the Government of Lao P.D.R. which will not be funded with the Grant

(1) Before the Bidding

No	Items	Deadline	In charge	Estimated Cost (Million LAK)	Ref.
1	To open bank account (B/A)	within 1 month after the signing of the G/A	MOF	150	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract(s)	MPWT	-	*1
3	To approve IEE (Conditions of approval should be fulfilled, if any) and secure the necessary budget for implementation.	within 1 month after the signing of the G/A	DONRE	-	
4	To secure the necessary budget and implement land acquisition	before notice of the bidding document(s)	DPWT-LP/WSSE-LPB	-	
5	To acquire land for the reservoir site		Project Steering Committee *2	750	
6	To secure, clear the following lands/sites				
	1) To repair civil engineering structures and withdraw followings on the site for wastewater treatment facility for Namkhan WTP - A hut in the area for the sedimentation basin - A shrine and a hut in the area for the lagoon - Tree trimming in the area for the new facilities	before notice of the bidding document(s)	DPWT-LP/WSSE-LPB	305.7	
	2) Temporary stock yard for the contractor near the Project area	before notice of the bidding document(s)	DPWT-LP/WSSE-LPB	334	
	3) To clear the site for new reservoir	before notice of the bidding document(s)	DPWT-LP/WSSE-LPB	349.9 *tentative	
7	To secure the space for the Monitoring System in WSSE-LPB office, Namkhan WTP and Phouphueng WTP	before notice of the bidding document(s)	WSSE-LPB	-	
8	To obtain the construction permit	before notice of the bidding document(s)	DPWT-LP/WSSE-LPB	-	
9	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding document(s)	MPWT	-	
10	To coordinate with relevant authorities and make necessary arrangements to exempt VAT portion of the Project cost. (Pending Issue)	before notice of the bidding document(s)	MPWT	0	

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

*1. The estimated cost is included in the cost shown in (1)-1.

*2. Project Steering Committee is established by the Governor, consist of DPWT-LP, WSSE-LPB, DONRE, etc..

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost (Million LAK)	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the contractor(s)	within 1 month after the signing of the contract(s)	MPWT	-	
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)	MPWT	-	*1
	2) Payment commission for A/P	every payment	MOF	-	*1
3	To ensure prompt customs clearance and to assist the Supplier(s) with internal transportation in the country of the Recipient	during the Project	MPWT	-	
4	To accord Japanese physical persons and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	MPWT	-	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and be borne by its designated authority without using the Grant;				
	1) Import Duties	during the Project	MPWT	-	
	2) Corporate Tax/Personal Income Tax *Local subcontractors are not applicable.	during the Project	MPWT	-	
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project	MPWT	-	
7	To submit a report concerning completion of the Project	within six months after completion of the Project	MPWT/ DPWT-LP	-	
8	To construct access road to the new reservoir site	3 months before completion of the construction	DPWT-LP/WSSE-LPB	897.0	
9	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site(s)				
	1) Electricity The distributing line to the new reservoir site	before start of the construction	DPWT-LP/WSSE-LPB	212.4	
	2) Drainage Drainage from the reservoir site (outside of the site)	before start of the construction	DPWT-LP/WSSE-LPB	-	
10	To implement EMP and EMoP	during the construction	DONRE/ DPWT-LP/WSSE-LPB	14	

11	To submit results of environmental and social monitoring to JICA, by using the monitoring form, on a monthly basis as a part of Project Monitoring Report	during the construction	MPWT/ DPWT-LP	-	
12	To submit Project Monitoring Report to JICA	every month	MPWT/ DPWT-LP	-	
	To submit Project Monitoring Report (final) to JICA	within one month after signing of Certificate of Completion for the works under the contract(s)	MPWT/ DPWT-LP	-	
13	To take necessary measures for residents and shops such as restaurants and street markets when the construction would be carried out along the busy street	during the construction	Project Steering Committee *	-	
14	To Adjust the operation of Namkhan WTP for stopping - to empty the existing flocculation basin and clear water reservoir respectively - increase supply from Asia and Demco WTPs to cover the shortfall of water	for 3 weeks during construction	DPWT-LP/ WSSE-LPB	15	
15	To notify JICA promptly of any incident or accident, which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public or workers.	during the construction	MPWT/ DPWT-LP/ WSSE-LPB	-	
16	To arrange for the Soft component - Arrangement of staff for training - Arrangement of meeting room for training - Preparation and installation of baffle plates	after the construction	MPWT/ DPWT-LP/ WSSE-LPB	17	
17	To take necessary measures to promote the installation of service connections in the expansion areas (paid by customer) such as Public Relations, etc.	during the Project	DPWT-LP/ WSSE-LPB		

*1. The estimated cost is included in the cost shown in (1)-1.

*2. Project Steering Committee is established by the Governor, consist of DPWT-LP, WSSE-LPB, DONRE, etc..

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost (Million LAK)	Ref.
1	To implement EMP and EMoP	for a period based on EMP and EMoP	DONRE/ DPWT-LP	-	
2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between DWS (MPWT) and JICA.	for three years after the Project	MPWT/ DPWT-LP	-	
3	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance 3) Routine check/Periodic inspection	After completion of the construction	WSSE-LPB	-	
4	To take necessary measures to promote the installation of service connections in the expansion areas (paid by customer) such as Public Relations, etc.	After the Project	DPWT-LP /WSSE-LPB	-	

Project Monitoring Report
on
Expansion of the Water Supply System in Luang Prabang City
Grant Agreement No. XXXXXXX

20XX, Month

Organizational Information

Signer of the G/A (Recipient)	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Executing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Implementing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:
Implementing Agency	Person in Charge	(Designation)
	Contacts	Address: Phone/FAX: Email:

General Information:

Project Title	Expansion of the Water Supply System in Luang Prabang City
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

The project will improve the operation of the water treatment plant and renew and expand the distribution network in Luang Prabang city, thereby contributing to the improvement of the sustainable urban environment of Luang Prabang city with the World Heritage Site.

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

The water supply service coverage ratio in urban area of Luang Prabang city as of 2017 is 91.2%, which achieved the goal set by NSEDP (8th Five-Year National Socio-economic Development Plan), however WSSE-LPB has the following issues:

- Water leakage in pipeline network
- Distribution pipe network is not sufficient in north and south zones
- Namkhan WTP (lack of sedimentation basin)
- Phouphueng WTP (hardness)

The JICA technical cooperation for "Capacity Development Project for Improvement of Management Ability of Water Supply Authorities (MaWaSU)" supported the Lao side to prepare guidelines and long-term plans for water supply systems. Those guidelines and long-term, which were approved by Department of Water Supply (DWS), plans refer not only to water supply coverage but also to the safety, stability and sustainability of the infrastructure to provide high quality service.

Although Luang Prabang city has achieved the goal set by NSEDP as described above, there are a lot of problems which should be solved for the sustainable water supply system.

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr 2017)	Target (Yr 2025)
Served population	58,760	70,812
Number of new connections in expansion area	0	600
Maximum turbidity of treated water in Namkhan WTP	12 (Maximum in last 5 years)	Less than 5
Water supply pressure	0-10 m	More than 10 m
Qualitative indicators to measure the attainment of project objectives		
- *Reducing water leakage and low pressure of pipelines* - *Providing stable water amount with high quality water from Namkhan WTP* - *Reducing the risk of damages to buildings in the World Heritage Area because of fire*		

2: Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.	Attachment 1: Map	

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.Distribution pipelines	L= 60.2km (OD 80-400)	
2.Replacing service connections in existing service area	2,400 connection	
3. Service reservoir	Capacity: 1,500m3	
4.Transmission pipelines	L- 5.0km (OD225-400)	
5.Namkhan WTP (improvement)	Q=12,000 m3/day	
6. Monitoring system	One set (computer with monitor, software, flow meters)	
7.Equipment procurement	Belt conveyor (1)	
8.Soft component	Soft component	
9.Detailed Design/ Construction Supervision	Detailed Design/ Construction Supervision	

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	
E/N	Apr. 2019		
G/A	Apr. 2019		
Detailed Design	Jun. 2019		
Tender Announcement	Dec. 2019		
Signing of Contract	Mar. 2020		
Completion of Construction	May 2022		
Soft Component	May 2022 to Jul. 2022		
Project Completion Date*	Jul. 2022		
Defect Liability Date	May 2023		

*Project completion is defined as the completion of Soft Component

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
Construction Facilities	Construction facilities			
Equipment	Belt conveyor			
Consulting Services	Detailed Design Construction Supervision Soft Component			
Contingencies				
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (Million LAK)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
New reservoir	Land acquisition for reservoir site		750	
	Clearing reservoir site		349.9	
	Access road construction		897	
	Arranging electric supply to reservoir site		212.4	
Namkhan WTP	Repair civil engineering structures Withdrawal of followings		305.7	

	- A hut in the area for the sedimentation basin - A shrine and a hut in the area for the lagoon - Tree trimming in the area for the new facilities			
UXO, Stock yard,	- UXO survey before construction - Removal cost when discovered - Stock yard - Arrangement with relevant agencies		334	
Environmental and social considerations	Monitoring		14	
Tax exemption	Budgeting VAT (Pending issue)		4,000	

Note: 1) Date of estimation: 19 November 2018
2) Exchange rate: 1 US Dollar = 8,239 LAK

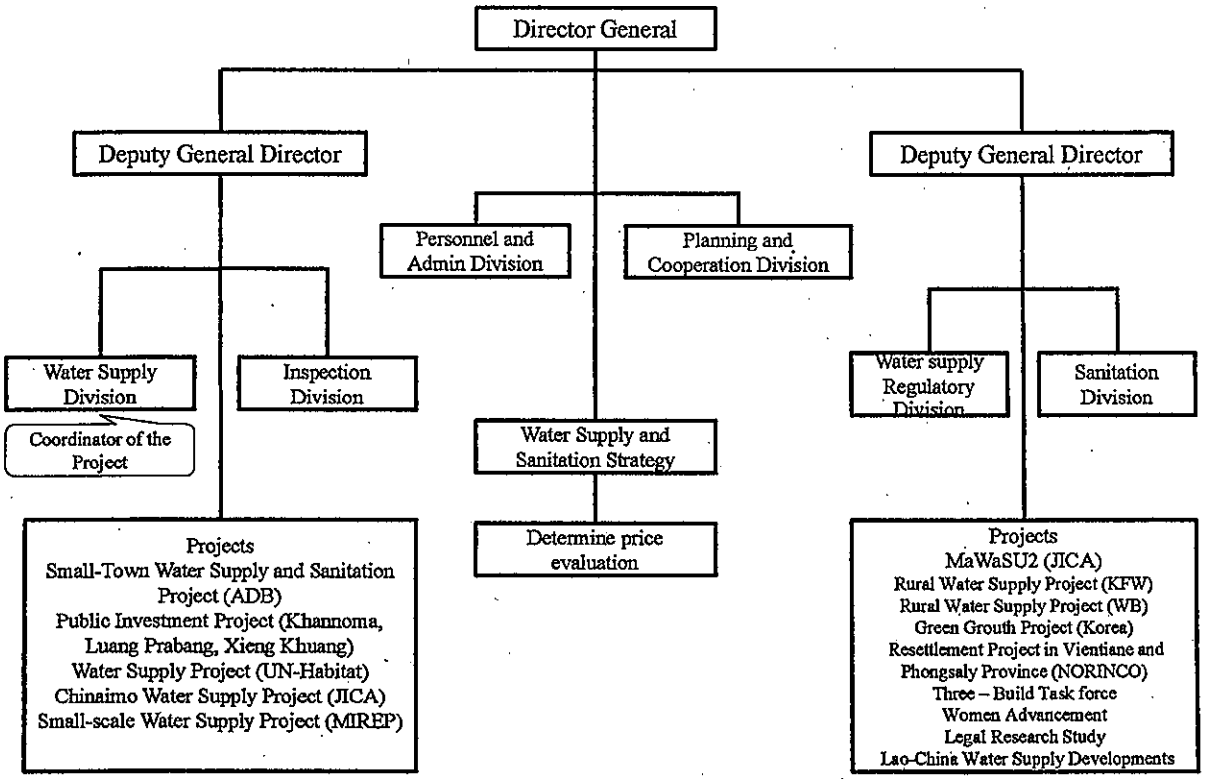
Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)*
name: Department of Water Supply of Ministry of Public Works and Transport
role:
financial situation:
institutional and organizational arrangement (organogram):
human resources (number and ability of staff):



Actual *(PMR)*

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

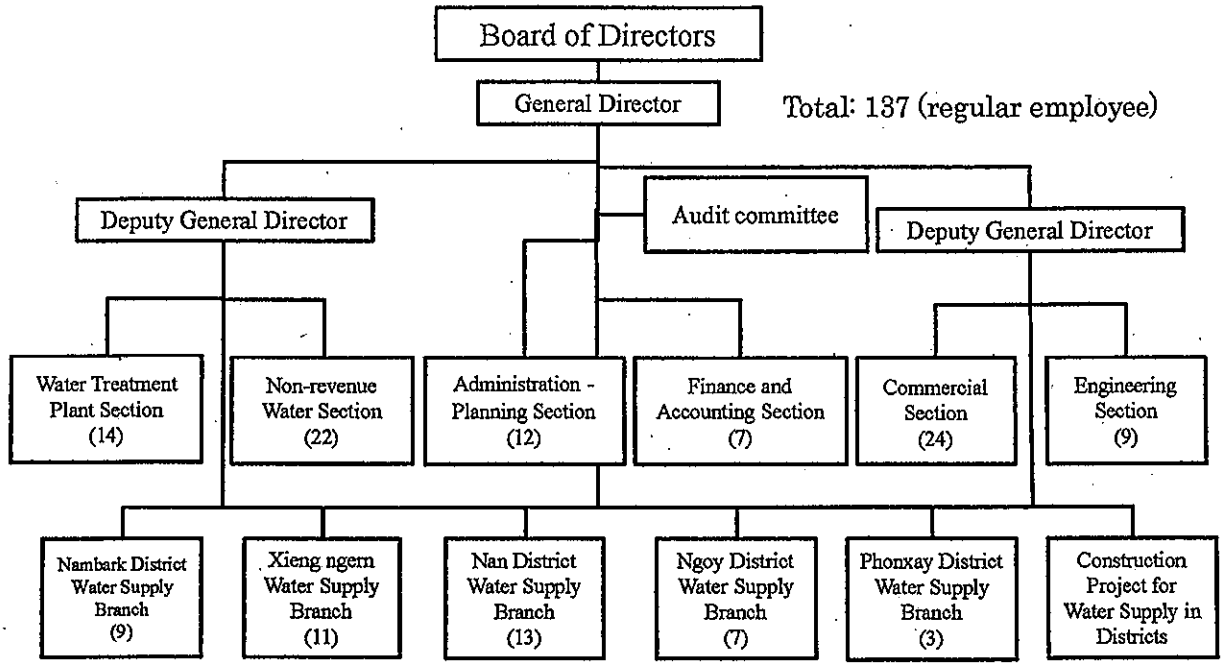
3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original *(at the time of outline design)*

Name: Luang Prabang Water Supply State Enterprise (WSSE-LPB)



Note: Number in ( ) shows the number of regular staff of each section

Figure Organization chart of WSSE-LPB

Sections related to O&M are as follows

- Administration-Planning Section: responsible for planning of water supply
- Water Treatment Plant Section: responsible for operation of WTP
- Non-revenue Water Section: responsible for maintenance of pipeline networks

Table List of construction machinery owned by WSSE-LPB

No	Type	Weight (ton)	Number
1	Truck (Hyundai)	1.5	3
2	Truck (Hyundai)	3	1
3	Truck (Kia)	1.5	1
4	Dump Truck	2.5	1
5	Backhoe (Hitachi)	1.5	1
6	Backhoe (Kubota)	5	1
7	Backhoe (JCB)	9	1
Total			9

Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*

Items	O&M Cost (Million LAK/year)	
	2017	2025(Target Year)
1. Personnel Expenses	718	764
2. Chemical	480	538
3. Electricity	904	1,023
4. Repair and Maintenance	117	176
Total	2,219	2,501

Actual *(PMR)*

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks *(at the time of outline design)*

Potential Risks	Assessment
1. Delay of land acquisition for new reservoir site	Probability: High/Moderate/(Low)
	Impact: (High)/Moderate/Low
	Analysis of Probability and Impact:
	Discussions have already been started with the land owner. The land acquisition is expected by the start of construction.
	Mitigation Measures:
	Negotiation with the land owner
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. House connections in the expansion area are not proceeded as expected	Probability: High/Moderate/(Low)
	Impact: High/(Moderate)/Low
	Analysis of Probability and Impact:
	Interview survey confirmed that most of the residents in the area wanted to connect water supply pipelines. Therefore, increases of connections are expected as planned.
	Mitigation Measures:
	PIU needs to carry out activities for public relations in the target area.
	Action required during the implementation stage:

	Same as above
	Contingency Plan (if applicable):
3. Damage to Namkhan WTP by flooding	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	If dams were operated properly, the risk of damages to the WTP would be almost none, since the WTP have the proper altitude considering river water level.
	Mitigation Measures:
	Dam operation should be carried out properly.
	Action required during the implementation stage:
	Dam operation should be carried out properly.
	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant

Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
- Contractor's Main Staff List

4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final)only)
8. Pictures (by JPEG style by CD-R) (PMR (final)only)
9. Equipment List (PMR (final)only)
10. Drawing (PMR (final)only)
11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

	Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
						Price (Decreased) E=C－D	Price (Increased) F=C＋D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

	Items of Specified Materials	1st ●month, 2015	2nd ●month, 2015	3rd ●month, 2015	4th	5th	6th
1	Item 1						
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

-
-
-

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction Cost	(A/D%)	(B/D%)	(C/D%)	
others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1. Permits and Explanation			
(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) Y (b) N (c) - (d) Y	(a)(b) (c) IEE is requested for the Project. The IEE report has been submitted to Department of Natural Resources and Environment (DONRE), Luang Prabang Province in October 2018 for obtaining an environmental compliance certificate. It has been under review. (d) Approval on the construction activities in the World Heritage Site area shall be obtained from Luang Prabang Heritage Office before construction phase.
(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Through consultation meetings on the IEE of the Project, the content of project and potential impacts from the Project have been explained to villages concerned and Governmental bodies concerned at Provincial and City level. In 6 November 2018, the stakeholder meeting including affected villagers and Governmental bodies concerned at Provincial, City and Village in the Project area was organized for disseminating the result of IEE and collecting opinions on the Project. (b) The request on the construction method such as avoid construction activities in a high season of tourism in World Heritage Site area has been reflected to the Project planning.
(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Alternatives on the location of the waste water facilities in the Namkhan Water Treatment Plant (the Namkhan WTP) and the location of new reservoir have been examined from the viewpoint of environmental and social considerations.
2. Pollution Control			

(1) Air Quality	(a) Is there a possibility that chlorine from chlorine storage facilities and chlorine injection facilities will cause air pollution? Are any mitigating measures taken? (b) Do chlorine concentrations within the working environments comply with the country's occupational health and safety standards?	(a) Y (b) Y	(a) (b) In carrying out the regular monitoring of the storage facilities and training for proper management, air pollution from the storage facilities are to be avoided.
(2) Water Quality	(a) Do pollutants, such as SS, BOD, COD contained in effluents discharged by the facility operations comply with the country's effluent standards?	(a) Y	(a) Together with effluents from existing facilities, the water quality from the water treatment plant will be sampled regularity in order to comply with the country's standards.
(3) Wastes	(a) Are wastes, such as sludge generated by the facility operations properly treated and disposed in accordance with the country's regulations?	(a) Y	(a) The waste water generated in the process of treating water in the Namkhan WTP is to be separated into sludge and supernatant by the newly constructed waste water treatment facilities. The sludge is to be collected from the facilities and disposed at the city owned disposal site regularly.
(4) Noise and Vibration	(a) Do noise and vibrations generated from the facilities, such as pumping stations comply with the country's standards?	(a) Y	(a) The facilities to be constructed are located in the premises of existing facilities which are not located residential areas. Accordingly, noise and vibration from these facilities are not considered to give negative impacts.
(5) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N	(a) No plan to extract ground water.
3 Natural Environment			
(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) There is no protected area located in the proposed location of facilities.

(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?(b) Does the project site or discharge area encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?(c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?(d) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by project will adversely affect aquatic environments, such as rivers? Are adequate measures taken to reduce the impacts on aquatic environments, such as aquatic organisms?	(a) N (b) N (c) N (d) N	(a) No primeval forest, tropical rain forests or ecologically valuable habitats confirmed in the project area. (b) No protected habitats of endangered species confirmed in the project area.(c) Not applicable(d) There is no plan to increase the amount of in water intake at the Namkhan WTP.
(3) Hydrology	(a) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by the project will adversely affect surface water and groundwater flows?	(a) N	(a) The amount of water taken from the Namkhan river will not increase by the Project.
4. Social Environment			
(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?	(a) N (b) Y (c) Y (d) Y (e) Y (f) - (g) - (h) - (i) - (j) Y	(a) No involuntary resettlement is planned by the Project. (b) Consultation with affected people from land acquisition to be carried out before finalizing compensation price. (c) Compensation price will be set based on the Decree on Compensation and Resettlement (No.86 2016) (d) Compensation will be disbursed before the commencement of construction phase (e) The compensation policy is addressed in Environmental and Social Management Plan (EMSP) and it will be approved together with the IEE report by DONRE Luang Prabang Province. (f) (g) (h) (i) Not applicable. There is no resettlement. (j) The Project's steering committee will play a role for the grievance redress mechanism on the compensation and it will monitor the process of

	(g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?		compensation disbursement.
(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary?(b) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by the project will adversely affect the existing water uses and water area uses?	(a) N(b) N	(a) (b) No negative impact is anticipated. On the contrary, the expansion of water supply coverage in the project area will contribute to increase living standard.
(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) Construction activities in the World Heritage Sits area would damage unknown historical objects underground at the time of excavating public road for installation of distribution pipes. However, it will be avoided by applying mitigation measures such as follows: 1) Instruct all construction contractor's employees regarding the proper handling of historical object/structure discovered during construction activity 2) Stop construction activity immediately 3) report to the steering committee for further instruction.
(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) No adverse impact is anticipated. Because the proposed facilities will be located either in the premises of existing facilities or under public road. The fire hydrants which are to be installed in the World Heritage Site area will be designed in harmony with the historical landscape.
(5) Ethnic Minorities and Indigenous	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in	(a) - (b) N	(a)(b) The project will not give negative impacts on the ethnic minorities.

Peoples	relation to land and resources respected?		
(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) Y (c) Y (d) Y	(a) There is no violation of laws or ordinances on the working conditions due to the project. (b)(c) (d)Safety for individuals involved in the project will be considered by conducting regular monitoring and providing instructions.
5. Others			
(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts? (d) If the construction activities might cause traffic congestion, are adequate measures considered to reduce such impacts?	(a) Y (b) N (c) Y (d) Y	(a) Environmental and social management and monitoring plan (ESMMP) has been developed as a part of IEE. Negative impacts resulting from construction activities including air pollution, water pollution, noise will be minimized in applying mitigation measures addressed in the ESMMP. (b) No negative impact is expected. (c) The Project's steering committee will play a role for the grievance redress mechanism Any complaints will be dealt with the committee via environmental and social staff assigned in the project implementation unit (d) In the congested traffic area, it is required in the ESMMP that the Contractor shall assign a staff for dealing with smooth traffic flow.

(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?(b) What are the items, methods and frequencies of the monitoring program?(c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?(d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y(b) Y(c) Y(d) Y	(a) (b) (c) It was developed in the environmental and social management plan (ESMMP) as a part of IEE. In the ESMMP, mitigation measures and monitoring items, implementation frequencies of the mitigation measures and the monitoring, institutional responsibility for implementing mitigation measures and monitoring the mitigation activities and the budget for monitoring activities are addressed. Dust , water quality, waste, noise, disturbance to locals along the road, traffic, health and safety of workers and locals will be managed daily by the Contractors and monitored monthly by the environmental and social staff in the project implementation unit in inspecting the construction sites and reviewing the result of water quality and noise level from the construction sites.(d) The result of site inspection and the result of water quality will be reported to DONRE Luang Prabang Province quarterly.
6. Note			
(1) Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Dam and River Projects checklist should also be checked.	(a) N	(a) Not applicable
(2) Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) Not applicable

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

【Annex 6】 Environmental Management Plan

Table 1 Environmental Management Plan for pre-construction/construction phases

Predicted Impacts	Proposed Mitigation Measures	Implementing Organization	Responsible Organization
1 Pollution Control			
1.1 Air Pollution			
-Emission from construction vehicles	- Maintain vehicle in good condition to minimize exhaust emissions - Use fuel and lubricants of good quality in compliance with national standards - Initiate good traffic control to reduce congestion	Construction contractor	PIU (DPWT/ WSSE-LPB)
-Dust especially when the weather is dry	- Cover load-carrying platforms properly when carrying earth/sand - Spray water at the construction site on unpaved road and adjacent to restaurant/shops during dry conditions		
1.2 Water Pollution			
- Polluted water from construction contractor's employees camp	-Ensure good sanitation especially in kitchens and latrines and install good drainage and install treatment pond for the wastewater from kitchen and bathing facilities and septic tanks.	Construction contractor	PIU (DPWT/ WSSE-LPB)
1.3 Waste			
- Domestic waste from construction contractor's employees camp	- Designate temporary locations for garbage collection for transportation to city owned disposal site.	Construction contractor	PIU (DPWT/ WSSE-LPB)
- Construction waste from construction sites	- Designate temporary waste disposal points for transportation to city owned disposal site.		
1.4 Noise and Vibration			
- Noise and vibrations from vehicles transporting construction materials/on-site construction activities	- Schedule to minimize construction activities during business hours, peak tourist season as much as possible	Construction contractor	PIU (DPWT/ WSSE-LPB)
2 Natural Environment			
- Disturbance to wild animals and loss of trees	- Instruct construction contractor's employees not to hunt or collect wood in the forest	Construction contractor	PIU (DPWT/ WSSE-LPB)
3 Social Environment			
3.1 Land Acquisition, Involuntary Resettlement			
- Loss of Land	- Provide proper compensation	PIU (DPWT/ WSSE-LPB)	Steering Committee
3.2 Local Economy, Employment, Livelihood			
- Disruptions to businesses along the construction site	- Schedule construction activities to avoid business hours, peak tourist season as much as possible	Construction contractor	PIU (DPWT/ WSSE-LPB)
	- Provide detail information on construction schedule and location to Pakham village authorities so that they can make arrangement	PIU (DPWT/ WSSE-LPB)	PIU (DPWT/ WSSE-LPB)

Predicted Impacts	Proposed Mitigation Measures	Implementing Organization	Responsible Organization
	to temporarily relocate affected stalls until the completion of the work in the construction section.		
3.3 Existing Social Infrastructures and Services			
- Disruption to pedestrian and vehicle traffic during installation of transmission/ distribution pipes	- Provide temporary pedestrian walkway on road side and assign traffic control person on site in case there is not enough space left for pedestrian walkway.	Construction contractor	PIU (DPWT/ WSSE-LPB)
	- Provide detail information on construction schedule and location to the village authorities in WHS for temporally prohibiting the parking along the construction site.	PIU (DPWT/ WSSE-LPB)	
- Disruption to businesses at the night market in WHS	- Provide detail information on construction schedule and location to Phakam village authorities, so that they can relocate affected stalls inside the night market area.	PIU (DPWT/ WSSE-LPB)	
3.4 Cultural Heritage			
- Damage to the historical object/ structure underground	- Instruct all workers on proper handling of historical object/structure discovered during construction activity. - Inform all workers regarding the exact location of excavation and proper method of excavation (no excess digging). - Suspend construction activities when historical objects or structure is found during construction and report to the project steering committee for instruction.	Construction contractor	PIU (DPWT/ WSSE-LPB)
3.5 Landscape			
- Disturbance to the scenery in WHS	- Schedule construction during off season (rainy season) for tourism to World Heritage Site.	Construction contractor	PIU (DPWT/ WSSE-LPB)
3.6 Communicable Diseases such as HIV/AIDS			
- Spread of communicable diseases	- Conduct information, education and communication (IEC) campaigns targeting staff and workers and local communities, concerning the risks, dangers and impact, and appropriate avoidance behavior with respect to sexually transmitted diseases (STD) - or sexually transmitted infections (STI) in general and HIV/AIDS in particular.	Construction contractor	PIU (DPWT/ WSSE-LPB)
3.7 Work Environment (includes worker's safety)			
Risk of accidents due to inappropriate management of work environment	- Prepare safety plan and safe construction plan - Provide personal protective equipment to workers - Give instructions on health and safety to workers regularly throughout construction phase	Construction contractor	PIU (DPWT/ WSSE-LPB)
4 Others			
4.1 Accidents			
- Risk of accidents due to inappropriate management of construction activities	- Fence around the construction site - Assign traffic control person on site	Construction contractor	PIU (DPWT/ WSSE-LPB)
4.2 UXO			
- UXO Risk	- - Examine the reservoir construction site at deeper level or access road to new reservoir on UXO risk before construction as appropriate	PIU (DPWT/ WSSE-LPB)	Steering Committee

注）ESS: Environmental and Social Staff in PIU

Table 2 Environmental Management Plan during operation

Predicted Impacts	Proposed Mitigation Measures	Implementing Organization	Responsible Organization
Pollution Control			
1.1 Waste			
Improper management of sludge generated from water treatment process	- Scrape and collect the sludge and transport to city owned disposal site	Namkhan WTP	WSSE-LPB
1.2 Offensive Odor			
Improper management of chlorine at water treatment plant	- Ensure proper handling of chlorine chemicals	Namkhan WTP	WSSE-LPB
Water Quality			
Improper management of sludge generated from water treatment process	- Discharge only supernatant to the Khan River.	Namkhan WTP	WSSE-LPB
Improper management of chlorine at water treatment plant	- Dilute the wash water from calcium hypochlorite solution tank before discharge in order not to discharge high concentrate of calcium hypochlorite to the Khan river	Namkhan WTP	WSSE-LPB

*Item Number in Scoping

【Annex 7】 Environmental Monitoring Plan

Table 1 Monitoring plan for pre-construction/construction phases

Monitoring Items	Monitoring Methods	Measurement Point	Frequency	Organization Concerned
Air Pollution				
-Vehicles to be maintained in good condition to minimize exhaust emissions -Use fuel and lubricants of good quality in compliance with national standards - Maintain good traffic control to reduce congestion	-Visual inspection on site	All construction sites	Monthly	PIU(DPWT/ WSSE-LPB)
- Cover load-carrying platform properly when carrying earth/sand -Spray water on unpaved roads during dry season	-Visual inspection on site	All construction sites	Monthly	PIU(DPWT/ WSSE-LPB)
Water Pollution				
-Install good drainage and treatment pond to deal with wastewater from kitchens and latrines, bathrooms and septic tanks.	-Visual inspection on site	Construction contractor's camp	Monthly	PIU(DPWT/ WSSE-LPB)
	- Water sampling (BOD≤30mg/l, Turbidity, Temperature, Color)	- Discharge point to the Khan River		
Waste				
- Designate temporary collection points in the construction contractor's' camp for contracted garbage collector to pick up and transport to the designated disposal site (city owned disposal site).	-Visual inspection on site	Construction contractor's camp	Monthly	PIU(DPWT/ WSSE-LPB)
- Designate waste disposal points at the construction site for transporting to city owned disposal site.	-Visual inspection on site	All construction sites	Monthly	PIU(DPWT/ WSSE-LPB)
Noise and Vibration				
- Minimize construction activities during business hours and peak tourist season as much as possible	-interviews with village head	Construction sites of transmission/distribution pipes	Monthly	PIU(DPWT/ WSSE-LPB)
Ecosystem				
- Instruct the Contractor's employees not to hunt or collecting wood in the forest	-Visual inspection on site	Construction site of the new reservoir	Monthly	PIU(DPWT/ WSSE-LPB)
Land Acquisition, Involuntary Resettlement				

Monitoring Items	Monitoring Methods	Measurement Point	Frequency	Organization Concerned
- Provide proper compensation	-Confirm agreement sheet on land compensation	Each project affected person	- Before the commencement of construction activity	Steering Committee
Local Economy, Employment, Livelihood				
- Minimize construction activities during business hours and peak tourist season as much as possible	-Confirm the number of complaints at PIU	Construction sites of transmission/distribution pipes	Monthly	PIU(DPWT/ WSSE-LPB)
- Provide schedule and location of construction activities in advance to Pakham village authority so that they can make arrangement to temporarily relocate affected stalls until the completion of the work in the construction section.	-Confirm the number of complaints at PIU	Construction sites of transmission/distribution pipes	Monthly	PIU(DPWT/ WSSE-LPB)
Existing Social Infrastructures and Services				
- Provide temporary pedestrian walkway on road side and assign traffic control person on site as required.	-Visual inspection on site	Construction sites of transmission/distribution pipes	Monthly	PIU(DPWT/ WSSE-LPB)
- Provide detail information on construction schedule and location to the village authorities in WHS for temporal prohibiting the parking along the construction site	-Confirm the number of complaints at PIU	Construction sites in WHS	At the time of construction in WHS weekly	PIU(DPWT/ WSSE-LPB)
- Provide information on schedule and location of construction activities to Pakham village authority so that affected stalls can be relocated inside the night market area.	-Confirm the number of complaints at PIU	Construction site at night market area	At the time of construction at Night Market weekly	PIU(DPWT/ WSSE-LPB)
Cultural Heritage				
- Suspend construction activities when historical objects or structures are found during construction and report to the project steering committee for instruction.	-Confirm the number of incidents at PIU	Construction sites of distribution pipes in WHS	At the time of construction at WHS monthly	PIU(DPWT/ WSSE-LPB)
Landscape				
- Schedule construction during off season (rainy season) in WHS.	-Visual inspection on site	Construction sites of distribution pipes in WHS	At the time of construction at WHS monthly	PIU(DPWT/ WSSE-LPB)
Communicable Diseases such as HIV/AIDS				
-Conduct Information, Education and Communication (IEC) campaigns targeting staff, workers and local communities concerning risks, dangers and appropriate avoidance behavior with respect to, sexually transmitted diseases (STD) - or sexually transmitted infections (STI) in general and HIV/AIDS in particular.	-Check record of IEC	Construction contractor's camp	Every 6 Months	PIU(DPWT/ WSSE-LPB)

Monitoring Items	Monitoring Methods	Measurement Point	Frequency	Organization Concerned
Working Environment (includes worker's safety)				
- Equip construction workers with safety gears	-Visual inspection on site	All construction sites	Monthly	PIU(DPWT/ WSSE-LPB)
- Train workers on health and safety regularly throughout construction period	-Check record	Construction contractor's camp	Monthly	PIU(DPWT/ WSSE-LPB)
Others				
Accidents				
- Fencing along temporary pedestrian walkway	-Visual inspection on site	Construction sites of transmission/distribution pipes	Monthly	PIU(DPWT/ WSSE-LPB)
-Assign traffic control person on site	-Visual inspection on site	Construction sites of transmission/distribution pipes	Monthly	PIU(DPWT/ WSSE-LPB)
UXO				
- Examine the reservoir construction site at deeper level or access road to new reservoir on UXO risk before construction as appropriate	-Check record of examination	Construction site of the new reservoir and access road to the new reservoir	Before starting construction at new reservoir	Implemented by PIU(DPWT/WSSE-LPB) inspected by steering committee

Table 2 Monitoring plan during operation (draft)

Monitoring Items	Monitoring Measures	Monitoring Point	Frequency	Organization Concerned
Waste				
- Scrape, collect and transport sludge for disposal at city owned disposal site	- Check record	Namkhan WTP	To be finalized	Implemented by Namkhan WTP, inspected by WSSE-LPB
Offensive Odor				
- Ensure proper handling procedure for chlorine chemicals	- Check record	Namkhan WTP	To be finalized	Implemented by Namkhan WTP, inspected by WSSE-LPB
Water Quality				
- Discharge only supernatant to the Khan River	- Check record	Namkhan WTP	To be finalized	Implemented by Namkhan WTP, inspected by WSSE-LPB
- Dilute wash water from calcium hypochlorite solution tank before discharge in order not to discharge high concentrate of calcium hypochlorite to the Khan river	- Check record	Namkhan WTP	To be finalized	Implemented by Namkhan WTP, inspected by WSSE-LPB

MONITORING FORM

-If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

-When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

1. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring item	Monitoring results during report period
Responses/Actions to Comments and Guidance from Government Authorities	

2. Mitigation Measures

[Construction Phase]

- Air Quality (Emission Gas / Ambient Air Quality)

Monitoring item	Measurement point	Monitoring Frequency	Implementation Schedule	Monitoring result during report period
Vehicles to be maintained in good condition	b, c, d, e, f	Monthly	Throughout construction stage	
Spray water to control dust at the construction site on unpaved road and adjacent to restaurant/shops during dry weather	c, d, e, f	Monthly	Throughout construction works	
Instruct good traffic control to reduce congestion	d, f	Monthly	Throughout construction works	
Cover load-carrying platform properly when carrying earth/sand	c, e	Monthly	Throughout construction works	

- Water Quality

Monitoring item	Measurement point	Monitoring Frequency	Implementation Schedule	Monitoring result during report period
Ensure good sanitation including kitchens and latrines and install good drainage, install treatment pond for the waste water from kitchen and bathing and septic tank for the water from toilets	a	Monthly	Throughout construction stage	

- Water Sampling

Item	Unit	Measured Value	Country's Standards*	(International Standard**)	Remarks (Measurement Point, Frequency, Method, etc.)**
BOD^5	mg/l		≦30	(≦120**)	Monthly, a

*Waste water control Category C Discharge from building, National Environmental Standards, No.823, 2017 MONRE

** National Minimum Effluent Standards, Water Pollution Prevention Act 1970, Japan

Note>There is no standards standing in the same ground in Lao PDR and Japan nor situation fit for this sampling (temporary camp for construction employees). The standard in Lao PDR focuses on the discharged water from buildings such as hotels or business compound. The standard in Japan focuses on the effluent water in general. In the case of this project, the standard in Lao PDR will be applied.

- Waste

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
(Domestic waste) Designate temporary collecting points in the	a, c, d, e, f	Monthly	Throughout construction stage	

construction contractor's camp/construction site for contracted garbage collector to pick up and transport to the designated disposal site (city government owned disposal site)				
(Construction waste) Designate temporary waste disposal point in the construction site for transporting to the designated disposal site (city government owned disposal site)	c, e	Monthly	Throughout construction stage	

- Noise and Vibration

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Make a good scheduling such as minimizing construction activities during business operation hours, peak tourism season as much as possible	d, f	Monthly	Throughout construction stage	

-Local Economy, Employment, Livelihood

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Make a good scheduling such as minimizing construction activities during business operation hours, peak tourism season as much as possible	d, f	Monthly	Throughout construction works	
Provide detail information of schedule and location to the village authorities of Phakam village for re-arranging the location of affected stalls inside of night market area	d	Weekly	Throughout construction works	

- Existing Social Infrastructures and Services

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Provide temporary pedestrian walk way on road side and assign traffic control person on site in case there is not enough space left	d, f	Monthly	Throughout construction works	
Provide detail information of schedule and location to the village authorities in WHS for prohibiting the parking along the construction site temporally	d, f	Weekly	Throughout construction works	
Provide detail information of schedule and location to the village authorities of Phakam village for re-arranging the location of affected stalls inside of night market area	d	Weekly	Throughout construction works	

- Cultural Heritage

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Suspend construction activities when any historical object or structure was seen underground during construction and report to the Project Committee for further instruction	d, f	Monthly	Throughout construction works	

- Landscape

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period

Arrange construction schedule at off season of tourism (rainy season) in WHS	d, f	Monthly	Throughout construction works	

- Communal Diseases

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Conduct information ,education and communication (IEC) campaigns to all the site staff and labor (including all the contractor's employees, all subcontractors)	a	Every 6 Months	Throughout construction stage	

-Health and Safety

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Equip construction worker with safety gears	c, d, e, f	Monthly	Throughout construction stage	
Give instructions on health and safety to the construction contractor's employees constantly	c, d, e, f	Monthly	Throughout construction stage	

-Accident

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Fencing temporary pedestrian walk way	d, f	Monthly	Throughout construction stage	
Assign traffic control person on site	d, f	Monthly	Throughout construction stage	

-UXO

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Examining the risk of UXO from access road to new reservoir by UXO specialist before construction as required	e	Monthly	Before construction	

-Restoration to the Original Condition

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Restoration State	a, b, d, f	Once	On completion of construction activities	

Note:
a: Contractor's Office/Contractor's Employees' Camp
b: Disposal Area
c: Namkhan Water Treatment Plant
d: Transmission/Distribution Pipe
e: New Reservoir
f: Fire Hydrants

[Operation Phase] (Draft)*
*Monitoring plan in the operation phase shall be finalized prior to the commencement of the operation phase

-Waste

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Scrape and collect the sludge to transport to dispose at the city government owned disposal site	c	To be finalized	Throughout operation stage	

- Offensive Odor

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Ensure proper handling procedure of chlorine chemicals	ⓒ	To be finalized	Throughout operation stage	

- Water Quality

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Scrape and collect the sludge to transport to dispose at the city government owned disposal site and only supernatant to discharge to the Khan River	ⓒ	To be finalized	Throughout operation stage	
Dilute the washing water before discharge when the Calcium hypochlorite solution tank is washed	ⓒ	To be finalized		

- Land Acquisition

Activities	Total	Unit	Progress	Progress (%)	Completed	Responsible Organization
Approval of IEE including compensation plan	-	-	Approved Date		-	DPWT/WSEE -LPB
Finalization of Project Affected Person		-	Finalized Date		-	DPWT/WSEE -LPB
Progress of Land Acquisition		ha				PIU
		Number of Project Affected Person				PIU

-Complain resulting from the Project

Number of Complain	Content of Complain	Action Taken and Result

5. Soft component

PREPARATORY SURVEY
ON
THE PROJECT FOR
EXPANSION OF THE WATER SUPPLY SYSTEM
IN LUANG PRABANG CITY

SOFT COMPONENT
(TECHNICAL ASSISTANCE) PLAN

JANUARY 2019

1. BACKGROUND OF SOFT COMPONENT

1.1 Background

The project will construct water supply facilities in Luang Prabang city that would include (1) improvement of Namkhan WTP, (2) renewal of existing distribution pipelines, (3) expansion of water supply area to the northern and southern areas, (4) installation of fire hydrants, and (5) introduction of a monitoring system.

In order to continuously operate and maintain the above mentioned water facilities, WSSE-LPB staffs, who are in charge of operation and maintenance at the Namkhan WTP and water management, need to acquire the ability to properly operate the facilities and equipment to be introduced by the project.

The target departments for technical assistance are as follows:

(1) Operation/maintenance and water quality management of Namkhan WTP: Water Treatment Plant Division
(2) Distribution control using the monitoring system: Administration Planning Division and Finance and Accounting Division

Following technical assistance will be delivered:

(1) Operation and maintenance and water quality management of Namkhan WTP
(2) Distribution control using the monitoring system

Outline of the monitoring system is shown in Table 1.1 and Figure 1.1.

Using the monitoring system, it will be possible to check the monitoring target items at the computer screens in WSSE-LPB office, Namkhan WTP, and Phouphueng WTP.

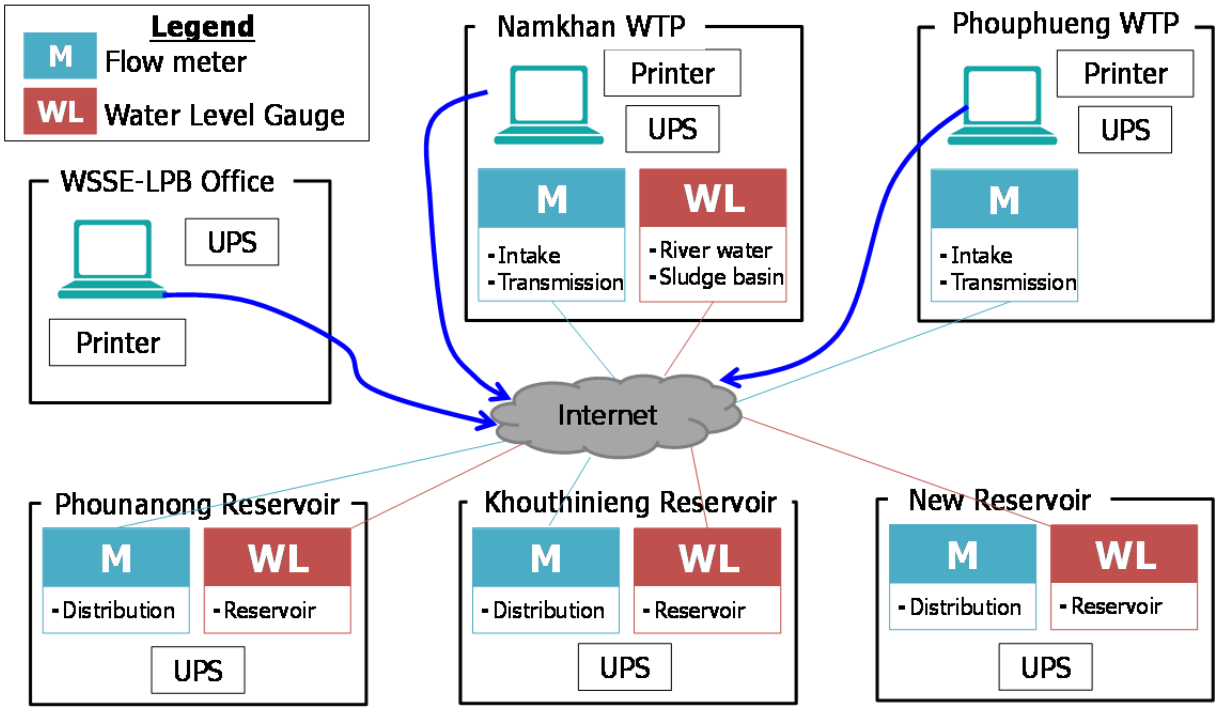


Figure 1.1 Outline of the Monitoring Systems

Table 1.1 Monitoring Targets

Location	Monitoring Targets
Namkhan WTP	Khan River water level, sludge basin water level, intake flow rate, and transmission flow rate
Phouphueng WTP	Intake flow rate and transmission flow rate
Phounanong Reservoir	Water level and distribution flow rate
Khouthinieng Reservoir	Water level and distribution flow rate
New Reservoir	Water level and distribution flow rate

1.2 Necessity of soft components

Technical cooperation projects and grassroot technical cooperation projects carried out in Luang Prabang city are shown in Table 1.2.

Table 1.2 Technical Cooperation Project and Grassroot Technical Cooperation Project in Luang Prabang city

No	Project	Period	Japanese side expert	Related agency	Remarks
1	Capacity Development Project for Improvement of Management Ability of Water Supply Authorities	August, 2012 ～ August, 2017	Saitama City, Saitama prefecture, Yokohama City, Kawasaki City	・MPWT-DWS ・DPWT-NL, ・DPWT-LPB, ・DPWT-KM ・WSSE-NL, ・WSSE-LPB,	・Technical cooperation project

No	Project	Period	Japanese side expert	Related agency	Remarks
	（MaWaSU）			・WSSE-KM	
2	The Project for Improvement of Management Capacity of Water Supply Sector （MaWaSU2）	May, 2018～ May, 2023	Saitama City, Saitama Prefecture, Yokohama City, Kawasaki City	・MPWT-DWS ・DPWT-NL, ・DPWT-LPB, ・DPWT-KM ・WSSE-NL, ・WSSE-LPB, ・WSSE-KM	・Technical cooperation project ・MaWaSU (Phase2)
3	The Project for Improving Water Treatment Plant Operations and Maintenance Management of the Water Supply State Enterprises	January, 2016～ January, 2019	Saitama Prefecture	・MPWT-DWS ・WSSE-NL, ・WSSE-LPB, ・WSSE-KM	・Grassroots technical cooperation project ・Including guidance on operation and management of Namkhan WTP
4	Project for Improvement of Pipeline management and Maintenance in WSSEs of Lao PDR	2018～2021	Saitama City	・MPWT-DWS ・WSSE-NL, ・WSSE-LPB, ・WSSE-KM	・Grassroots technical cooperation project ・Improvement of construction capacity of water distribution pipe and water supply pipe

In the above mentioned technical cooperation projects and grassroot technical cooperation projects, technical assistances related to Namkhan WTP have been implemented.

Table 1.3 shows the contents of activities related to Namkhan WTP in those projects.

Table 1.3 The Contents of Activities Related to the Namkhan WTP

No	Project	Activities	Achievement
1	Capacity Development Project for Improvement of Management Ability of Water Supply Authorities （MaWaSU）	The following activities were carried out as main activities related to WTP operation management and water quality management. ・ Water quality measurement items and measurement frequency ・ Water quality measurement points (Set multiple points in WTP) ・ Water quality record (by frequency of measurement every day, weekly, monthly, every year) ・ Water quality equipment list ・ Data preparation of WTPs (asset list, usage status of electricity and chemicals (operation	Data on the current state of operation of WTPs was prepared.

No	Project	Activities	Achievement
		cost), repair information)	
2	The Project for Improvement of Management Capacity of Water Supply Sector（MaWaSU2）	Activities related to WTPs, the following is planned. ・ Technical standards required for facility design and construction	Design and construction standards for WTPs will be prepared.
3	The Project for Improving Water Treatment Plant Operations and Maintenance Management of the Water Supply State Enterprises (Saitama Prefecture)	Under the guidance of experts, the following outputs were prepared and operational instructions were carried out by using those outputs for Namkhan WTP. ・ Filtration manual ・ Setting table of chemical feed rate ・ Daily water quality record chart ・ Daily inspection checklist ・ Equipment performance table	Activities such as improvement of the operation management method of the existing water treatment plant and manual preparation were carried out.
4	Project for Improvement of Pipeline management and Maintenance in WSSEs of Lao PDR (Saitama City)	Activities for achieving the following results are implemented. ・ Improvement of construction management system for water distribution pipes and house connections ・ Improvement of construction standards for water distribution pipes and house connections ・ Optimization of material selection for water distribution pipe and service pipe ・ Optimization of management of pipe materials for distribution pipes and service pipes	Activities related to pipeline facilities will be implemented.
5	Soft component in this project	Based on facilities newly introduced in this project, technical guidance will be provided on parts where operating methods change. ・Water quality management by using flow control valve ・Operating method of sludge treatment facilities.	Improvement of operation management ability for newly introduced facilities

Pertaining to activities related to Namkhan WTP, technical assistances have been implemented

particularly by project Nos. 1 and 3.

Data management on operating conditions of the WTP was developed by the No.1 project, and then, the No. 3 project improved the operational management ability of the WTP by creating and operating manuals.

Since Nos. 1 and 3 projects have improved the operational management capability of the Namkhan WTP at the current facility, the technical assistance under this project shall cover only those portions wherein the operational method will be changed due to the implementation of this project.

Based on the above, the necessity of the soft component is shown in Table 1.4.

Table 1.4 Necessity of the Soft Component

Item	Current situation	Outline of this project	Necessity of the soft component
O/M and Water Quality Management of the Namkhan WTP	Intake flow control is not equipped. Depending on the water level of the Khan River, water flow intake fluctuates. To stabilize the quality of treated water, it is important to control the raw water intake amount for the constant chemical feed rate.	Installation of water level gauge in the Khan River informs operation water level for intake pumps. A flow control valve at downstream of intake flow meter will be installed. Installation of the flow control valve makes chemical feed rate constant, thereby providing stable quality of treated water.	For the operation of individual devices such as the water gauge and valves, will be explained by a contractor when the facilities will be handed over. However, the comprehensive operational method by controlling the intake flow rate using water level gauge is out of the scope of the contractor's work, and guidance by an expert is necessary. In addition, guidance for stabilization of treated water quality will be provided. The injection of constant chemical feed rate by using the flow control valve makes water quality stable.
	There are no wastewater facilities and the wastewater is directly discharged to the Khan River.	Following facilities/equipment will be constructed/procured. - Drainage equipment for sedimentation basin - Wastewater/sludge basin and lagoon	It is difficult to operate new wastewater treatment facilities properly without training on the operation and maintenance. Therefore, the training on the wastewater treatment facilities is necessary.
Distribution Control by Using the Monitoring System	There are 4 WTPs in Luang Prabang. the water production cost is 240～2,000kip/m3. Economical water operation is not being implemented because many flow meters installed in the WTPs and the reservoirs are out of order.	Monitoring of operation condition, water level, and flow rate at Namkhan WTP, Phouphueng WTP, and each Reservoirs. It becomes possible to check the monitoring targets item at the computer screen on the WSSE-LPB office, Namkhan WTP, and Phouphueng WTP.	The operation method of individual devices such as the water level gauge and valves, will be explained by a contractor when the facilities will be handed over. Explanation of comprehensive operation method utilizing the monitoring system is not provided by the contractor. Since the monitoring system is newly introduced facilities, any guidance has not been implemented. Therefore, the technical assistance for the monitoring system is required.

2. OBJECTIVE OF SOFT COMPONENT

This project will install pipelines, construct treatment facilities, reservoirs and set up a monitoring system. The consultant will provide training to WSSE-LPB staffs on operation and maintenance of these facilities to ensure that they can operate them effectively and sustainably.

This training will focus on the operations that are different from the existing ones and on the new monitoring system.

3. OUTCOMES OF SOFT COMPONENT

Operational explanation of each equipment introduced under this project will be implemented by the concerned contractor. The training would cover operating methods combined with each device.

WSSE-LPB staff would acquire the capability to operate and maintain the facilities in order to provide customers with safe water meeting water quality standards.

(1) Operation/Maintenance and Water Quality Management of the Namkhan WTP (Technical Staff in WSSE-LPB)

1) Improved understanding of the water treatment process

2) Improved capacity for preparing standard operation procedures (SOPs)

3) Improved operation and maintenance of the Namkhan WTP to provide customers with safe water which meets drinking water quality standards

(2) Distribution Control by Using the Monitoring System (Staff of Administration Planning Division and related WTPs in WSSE-LPB)

1) Improved capacity for operating the flow monitoring system

2) Improved capacity in controlling water distribution

4. EVALUATION OF SOFT COMPONENT

Evaluation methods and indicators for each output are summarized in Table 4.1.

Table 4.1 Evaluation methods and indicators

Sector	Output	Evaluation Method	Indicator
O/M and Water Quality Management in Namkhan WTP	Staff of WSSE-LPB can operate and maintain the WTP and provide customers with safe and stable water following manuals and SOPs	1. Stable treated water quality, with intake controlled by observing river water level (gauge), and feeding the appropriate amount of chemicals.	・Proper revision of SOP ・Constant intake flow rate, regardless of river water level ・Controlled chemical injection rate by using manuals developed by JICA's grass root project ・Appropriate input of operation data for intake flow etc. in record formats ・Operation method on the site
		2. Proper operation of new wastewater facilities. - Proper operation of the supernatant drainage in the sedimentation basins.	・Establishment of proper SOP for wastewater treatment facilitiy ・Preparation of record formats for operation of the wastewater facility ・Appropriate input of operation data for

		- Wastewater and sludge collected in wastewater and sludge basins at lagoons and sludge dewatering. - Supernatant discharge from wastewater and sludge basins and lagoon to the Khan River.	wastewater and sludge treatment in the record format ・Operation method on the site
Distribution Control by Using the Monitoring System	Staff of WSSE-LPB can control water distribution effectively	1. Implementation of effective water distribution based on actual water supply record.	・Records of water transmission and distribution as well as water levels of reservoirs ・Supplied water volume based on the above records. ・Water production plan based on the supplied water volume.

5. TRAINING ACTIVITIES

The details of the training program are shown in Table 5.1. Two Japanese experts will go to Lao PDR in two trips with a total man month of 2.94 M/M. Between the visits, the staff will conduct on-site training on their own. Local interpreters are assigned to the Japanese experts..

Table 5.1 Training Program

Training	Output	Activities	Staff Input
O/M and Water Quality Management of the Namkhan WTP	Staff of WSSE-LPB can operate and maintain the WTP and provide customers with safe water stably by following manuals and SOPs	1. Preparation of training and lecture materials on new facilities at Namkhan WTP 2. Confirming O/M records of existing WTP 3. Lectures and on-the-job training (OJT) on performance evaluation and monitoring method for each process (Flush Mixing→ Flocculation→Sedimentation→Filtration), including performance comparison of new flocculation basin with existing one, methods for examination and training if necessary. 4. Lectures and OJT training on O/M of drainage and sludge treatment for sedimentation basin and filter. 5. Updating the operation recording formats for flow rate (intake and transmission), dosage of chemicals, filter backwashing, drainage and sludge discharge, pump operation time and number by considering information flow. Preparation of revised record format. 6. Training on recording the above. 7. Updating O/M manuals and SOPs of the WTP (utilizing MaWaSU project outcomes). 8. Lectures and OJT training on above manuals and SOPs.	WTP O/M Expert (Japanese consultant) 1 person×1.47M/M (Dispatch twice:1.During trial operation 2.After handover of the facilities) Interpreter/local support staff 1 person×1.47M/M
Distribution Control by Using the Monitoring System	Staff of WSSE-LPB can control water distribution effectively	1. Lectures on distribution control monitoring system (preparation of training materials and lectures). 2. Confirmation of transmission and distribution volume of existing 4 WTPs. 3. Lectures on effective water distribution (preparation of training materials and lectures). 4. Updating the recording formats for the flow rate	Expert in distribution control (Japanese consultant) 1 person×1.47 M/M (Dispatch twice:1.During trial operation 2.After handover of the facilities)

Training	Output	Activities	Staff Input
		and water level in each reservoir. 5. Training on record keeping using the above formats. 6. Lectures for preparation of water distribution plan based on measured data (preparation of training materials and lectures). 7. Preparation of O/M manuals for water distribution system (SOPs of pump, valve[1)] and flow meter etc., O/M schedule of transmission pump). 8. Lectures and OJT training on the above manuals.	Interpreter/support staff (local) 1 person×1.47 M/M

1) Including valve operation to prevent surging.

The training session will be conducted twice, and their purpose will be as follows:

(1) First training session

The first training session is implemented during the trial operation period before handing over the facilities. WSSE-LPB staffs will first study the basic knowledge and then will be given on-the-job training (OJT) on operating facilities. WSSE-LPB staffs shall be given assignments after the first training session. They will study various operational recording formats and discuss the contents to be described in the SOPs by themselves.

(2) Second training session

The second training session is implemented during the actual operational period by WSSE-LPB after handing over the facilities. By the second training session, WSSE-LPB staffs shall receive advice and guidance based on questions and tasks that would arise during actual operations. During the second training session, the Japanese experts will provide additional training on recording formats and preparation of SOPs.

The Manning Schedule is shown in Table 5.2.

Table 5.2 Manning Schedule

	Title	2022						M/M			
								Sub total		Total	
		Mar.	Apr.	May	Jun.	Jul.	Aug.	Field work	Home work	Field work	Home work
Japanese Expert	WTP O&M Expert			1.0 ■		0.47 ■		1.47	0.00	1.47	0.00
	Distribution Control Expert			1.0 ■		0.47 ■		1.47	0.00	1.47	0.00
								2.94	0.00	2.94	0.00
Local Staff	Interpreter / Support 1 (WTP)			1.0 ■		0.47 ■		1.47	0.00	1.47	0.00
	Interpreter / Support 3 (Distribution Control)			1.0 ■		0.47 ■		1.47	0.00	1.47	0.00
								2.94	0.00	2.94	0.00
Report				△ Progress Report		△ Completion Report					

6. RESOURCES REQUIRED TO DELIVER THE TRAINING

Two Japanese experts will be dispatched as follows:

(1) Expert on operation and maintenance of WTP

One Japanese expert/ consultant, who is familiar with overall operational management of WTP, will be dispatched. The expert/ consultant will support flow adjustment of the intake pump, operation of chemical feed amount, sludge treatment, preparation of operation manual, and utilization of related records in order to operate the WTP as a system. The expert/ consultant, however, will not instruct on the operational methods of individual equipment, as they will be conducted by the contractor.

(2) Expert on distribution control

One Japanese expert/ consultant familiar with the operational management of the distribution system will be dispatched. The expert/ consultant will support understanding on the information to be obtained and the economic water management method to be adopted, based on the available information. Those instructions will lead to proper management of transmission and distribution flow for economical water management. The expert/ consultant, however, will not instruct on the operational methods of individual equipment, as they will be conducted by the contractor

7. IMPLEMENTATION SCHEDULE

The Implementation plan for the soft component is shown in Table 7.1.

Two Japanese experts/ consultants (for O/M of the WTP and distribution control) will be dispatched to Lao PDR in two shifts. The WSSE-LPB staffs shall be given assignments after the first training session. They will study various operational recording formats and discuss the contents to be described in the SOPs. The second training session, scheduled after one month, will take place at the completion of the new WTP and distribution facilities and shall focus on the operations of actual facilities. During the second training session, the Japanese experts/ consultants will provide additional training pertaining to recording formats and preparation of SOPs.

Table 7.1 Implementation Plan of the Soft Component

No.	Activities	2022年 May	June	July
1.	Operation/Maintenance and Water Quality Management of the Namkhan WTP			
1-1	Lecture for new facilities at Namkhan WTP (preparation of training materials and lecture)			
1-2	Confirming O/M records of existing WTP			
1-3	Lecture and on-the-job training (OJT) on performance evaluation and monitoring method of each process (Flush Mixing→ Flocculation→ Sedimentation→ Filtration) including performance comparison of new flocculation basin with existing one, improvement methods examination and training if necessary			
1-4	Lecture and OJT training on O/M of drainage and sludge treatment for sedimentation basin and filter			
1-5	Updating the operation recording formats for flow rate (intake and transmission), dosage of chemicals, filter backwashing, drainage and sludge discharge, pump operation time and			
1-6	Training on recording the above formats			
1-7	Updating O/M manuals and SOPs of the WTP (Utilizing MaWaSU project outcomes)			
1-8	Lecture and OJT training on above manuals and SOPs			
2.	Distribution Control by Using the Monitoring System			
2-1	Lecture for distribution control monitoring system (preparation of training materials and lecture)			
2-2	Confirming transmission and distribution volume of existing 4 WTPs			
2-3	Lecture for water distribution method based on above volume (preparation of training materials and lecture)			
2-4	Updating the recording formats for the flow rate and water level in each reservoir			
2-5	Training on recording the above formats			
2-6	Lecture for preparation of water distribution plan based on measured data (preparation of training materials and lecture)			
2-7	Preparation of O/M manuals for water distribution system (SOPs of pump, valve and flow meter etc., O/M schedule of transmission pump)			
2-8	Lecture and OJT training for the above manuals			
	Submission of progress report for soft component implementation		▲	
	Submission of complement report for the soft component			▲

8. DELIVERABLE

The deliverables for the soft component are shown below:

(1) Operation and maintenance

- Materials for trainings
- Various record formats (River water level and operational record of wastewater and sludge basins as well as sludge lagoon)
- Various SOPs (SOP revision; addition of wastewater and sludge basins as well as sludge lagoon)

(2) Distribution control

- Materials for trainings
- Various record formats（flow and water level of reservoir from monitoring system）
- Various SOPs（SOP revision; addition of pump, valve, flowmeter, and distribution control by using the monitoring system）

(3) Reporting

- Progress Report
- Final report

9. RESPONSINBILITY OF THE RECIPIENT COUNTRY

(1) Assignment of Staff for Training

The Lao side should assign the relevant staff from the water treatment and water supply sections to receive the training.

(2) Arrangement of Meeting Room for Training

The Lao side will provide the meeting rooms and A/V equipment for the technical sessions.

(3) Preparation and Installation of Baffle Plates

During the training on “O/M and Water Quality Management of the Namkhan WTP”, improvement in mixing intensity of the existing flocculation basin may be implemented. If so, the Lao side will install baffle plates in the flocculation basin for adjusting mixing intensity.

6. Other Relevant Data

(1) Environment Compliance Certificate (ECC)

(2) Official Letter on Heritage Impact Assessment (HIA)

(3) Records on Consulting Meeting

(4) Environmental Checklist

(5) Monitoring Form

(6) Site-specific Inspection Form

(7) Official Letter on Transferring Land Use Right

(1) Environment Compliance Certificate (ECC)

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ
*** ♣ ***

ພະແນກຊັບພະຍາກອນທຳມະຊາດ
ແລະ ສິ່ງແວດລ້ອມແຂວງ

ເລກທີ 2585 /ພຊສ-ຫຼບ
ຫລວງພະບາງ,ວັນທີ 22 NOV 2018

ໃບຢັ້ງຢືນ

- ອີງຕາມ: ກົດໝາຍ ວ່າດ້ວຍ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ ສະບັບເລກທີ 29/ສພຊ,ລົງວັນທີ 18/12/2012.
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ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ (ພຊສ) ຕົກລົງອອກ
ໃບຢັ້ງຢືນດ້ານສິ່ງແວດລ້ອມໂຄງການ ຂະຫຍາຍນ້ຳປະປາ ນະຄອນຫຼວງພະບາງ, ຂອງພະແນກໂຍທາທິການ ແລະ ຂົນສົ່ງ ເລີ່ມແຕ່ 22 ພະຈິກ (11) 2018 ຫາວັນທີ 22 ພະຈິກ (11) 2020.

1. ເຫັນດີ ຕໍ່ ໃບຢັ້ງຢືນ ຮັບຮອງ ເອົາບົດລາຍງານການປະເມີນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ, ແຜນການຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດສິ່ງແວດລ້ອມເດືອນ ພະຈິກ (11) 2018.ໂຄງການ ຂະຫຍາຍນ້ຳປະປາ ນະຄອນຫຼວງພະບາງ,ແຂວງຫຼວງພະບາງ, ຂອງພະແນກໂຍທາທິການ ແລະ ຂົນສົ່ງ, ໂດຍເຈົ້າຂອງໂຄງການປະຕິບັດຕາມເງື່ອນໄຂດັ່ງນີ້:

ກ). ຮັບຜິດຊອບໂດຍກົງ ຕໍ່ ການສຶກສາ ແລະ ຂໍ້ມູນ ທີ່ໄດ້ລະບຸໄວ້ ໃນບົດລາຍງານການປະເມີນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ທີ່ໄດ້ກຳນົດໄວ້ໃນບັນດາເອກະສານດັ່ງກ່າວ.

ຂ). ໃນກໍລະນີ ມີບັນຫາທາງດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມເກີດຂຶ້ນ ທີ່ບໍ່ໄດ້ກຳນົດໄວ້ໃນບົດລາຍງານດັ່ງກ່າວເຈົ້າຂອງໂຄງການຈະຕ້ອງໄດ້ຮັບຜິດຊອບເພີ່ມເຕີມ ໃນການສ້າງແຜນການຄຸ້ມຄອງສິ່ງແວດລ້ອມ- ສັງຄົມພ້ອມທັງມີມາດຕະ ການແກ້ໄຂບັນຫາເຫຼົ່ານັ້ນ ແລະ ຮັບປະກັນ ໃຫ້ງົບປະມານພຽງພໍ ໃນການຈັດຕັ້ງປະຕິບັດແຜນການດັ່ງກ່າວ.

ຄ). ໃຫ້ປະຕິບັດແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ແລະ ຕິດຕາມກວດກາສິ່ງແວດລ້ອມ ແລະ ພັນທະທາງດ້ານສິ່ງແວດລ້ອມ ຂອງສັນຍາສຳປະທານຢ່າງເຄັ່ງຄັດ.

ງ). ໃນໄລຍະການກໍ່ສ້າງ ແລະ ດຳເນີນງານ ຂອງໂຄງການ ຕ້ອງເອົາໃຈໃສ່ເປັນພິເສດ ຕໍ່ກັບບັນຫາການເຊາະເຈື່ອນ, ຄຸນນະພາບນ້ຳ, ການບຳບັດນ້ຳເປື້ອນ, ການນຳໃຊ້ສານເຄມີໃນຂົງເຂດໂຄງການ ໂດຍໃຫ້ສອດຄ່ອງກັບມາດຕະຖານເຕັກນິກ ດ້ານສິ່ງແວດລ້ອມແຫ່ງຊາດ ແລະ ລະບຽບການທີ່ກ່ຽວຂ້ອງ ເພື່ອຮັບປະກັນໃຫ້ມີຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມໃຫ້ໜ້ອຍທີ່ສຸດ.

ຈ). ເຮັດບົດລາຍງານປະຈຳເດືອນ,ປະຈຳໄຕມາດ ແລະ ປະຈຳປີ ກ່ຽວກັບການຕິດຕາມ ກວດກາ,ການຈັດຕັ້ງປະຕິບັດແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາ ສິ່ງແວດລ້ອມໂຄງການສົ່ງໃຫ້ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ພະແນກ ຊສ ແຂວງ ຫຼວງພະບາງ ເພື່ອຊາບ ແລະ ຕິດຕາມກວດກາ.

2.ມອບໃຫ້ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດແຂວງຫຼວງພະບາງສົມທົບກັບ ຂະແໜງການທີ່ກ່ຽວຂ້ອງແລະ ອຳນາການປົກຄອງ ເມືອງ, ບ້ານ ທີ່ກ່ຽວຂ້ອງ ເຮັດ ໜ້າທີ່ຕິດຕາມກວດກາສິ່ງແວດລ້ອມແລ້ວລາຍງານໃຫ້ການນຳແຂວງ ຫຼວງພະບາງ.

3.ໃບຢັ້ງຢືນສະບັບນີ້ ມີຜົນນຳໃຊ້ ນັບແຕ່ມື້ລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ເຈົ້າແຂວງຫຼວງພະບາງ

ຫົວໜ້າພະແນກ
ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງຫຼວງພະບາງ

ໝາຍເຫດ:

1. ຫ້າມບໍ່ໃຫ້ນຳເອົາໃບຢັ້ງຢືນນີ້ ໃຫ້ຄົນອື່ນຢືມ, ຫຼື ປອມແປງ ແລະ ຂາຍສິດໃນການນຳໃຊ້ໃບຢັ້ງຢືນສະບັບນີ້ ຫຼື ການກະທຳຢ່າງອື່ນທີ່ເປັນການຜິດກົດໝາຍຂອງ ສປປ ລາວ.
2. ຕ້ອງເອົາໃຈໃສ່ປະຕິບັດຢ່າງເຂັ້ມງວດ ຄຳສັ່ງຂອງທ່ານ ນາຍົກລັດຖະມົນຕີ, ເລກທີ 13/ນຍ, ລົງວັນທີ 11 ມິຖຸນາ 2012, ວ່າດ້ວຍການໂຈະການພິຈາລະນາ ແລະ ອະນຸຍາດໂຄງການລົງທຶນ.
3. ຖ້າອາຍຸໃບຢັ້ງຢືນໃກ້ຈະໝົດກຳນົດ ຕ້ອງໄດ້ຂໍຕໍ່ໃຫ້ທັນເວລາ, ຖ້າບໍ່ຂໍຕໍ່ຄືນໃຫ້ທັນເວລາ ແມ່ນ ຖືວ່າທຸລະກິດດັ່ງກ່າວໄດ້ຢຸດການເຄື່ອນໄຫວ ແລະ ໃບຢັ້ງຢືນດັ່ງກ່າວກໍ່ຖືວ່າໝົດອາຍຸການນຳໃຊ້ຕາມທີ່ໄດ້ກຳນົດໄວ້.

Provisional translation by English

Lao People's Democratic Republic

Peace Independence Democracy Unity Prosperity

Department of Natural Resource and Environment No. 2585/DONRE-LPB

Luangprabang Province at Luangprabang Province, Date 22 November 2018

Certificate

- According to Environmental Protection Law, no. 29/NA, dated 18/12/2012
- Referring to the agreement on organization and implementation of department of natural resources and environment, no. 3171/MONRE, dated 1st August 2017.
- Referring to the decree on compensation and resettlement of the development project, no. 84/PM, dated 5th April 2016.
- Referring to the decree on Environmental Impact Assessment, no. 112/PM, dated 16th February 2010.

The Department of Natural Resources and Environment (DONRE) agrees to issue the Environment Compliance Certificate to the Luangprabang Water Supply Expansion Project, Department Of Public Work And Transportation
The period start from 22nd November 2018 to 22nd November 2020.

1. Agree on endorsing the Initial Environmental Examination (IEE) report and Environmental Management and Monitoring Plan of the Luangprabang Water Supply Expansion Project in November (11) 2018, however the project owner shall follow the conditions below:

   a) The project owner has to responsible on the study and information written in the IEE report
   b) In the case of any incident occur during the project period that was not indicated in the EMMP, the project owner has to responsible to apply the appropriate measures to mitigate the impacts as well as assign the budget for implementation.
   c) Ensure all EMMP and obligations are strictly implemented
   d) During construction and operation of the project, the project owner has to ensure that the issues on erosion, water quality water treatment and chemical use in the project, are used and handled according to international and national technical standards.
   e) The project owner has to submit the monthly, quarterly and yearly reports on environmental management and monitoring to department of Natural resource and environment, Luangprabang for acknowledge and monitoring the project implementaion.
2. (DONRE) Assign the environmental and climate change divisions of Luangprabang and collaborate with all concerned sectors and village authorities to conduct environmental monitoring and report to the provincial leaders.
3. This certificate is effective at the date of signing

Luangprabang Governor Department of Natural resource and environment

Mr. Khamkhan Chanthavysack Mr. Chanthavong Phonnachit

Provisional translation by English

Remark:

1. Do not borrowing, Forbidding, and transferring the right of ownership of the certificate to the other than the project owner or doing anything against the Laws of Lao PDR.
2. Pay attention on implementing the order of the Prime minister of Lao PDR on rejecting the proposed investment project.
3. before expiring of the ECC validity, the project owner has to submit for expansion, if the project owner could not expanding the validity of the ECC on time, the project implementation will be subject to stop and ECC will not expanding.

(2) Letter on Heritage Impact Assessment (HIA)

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ແຂວງຫຼວງພະບາງ

ຫ້ອງການມໍລະດົກໂລກ

ເລກທີ: 640 / ຫມຫ

ລົງວັນທີ: 30 ພະຈິກ 2018

ໃບຢັ້ງຢືນການປະເມີນຜົນກະທົບທາງດ້ານມໍລະດົກ (HIA)

ໂຄງການຂະຫຍາຍລະບົບນ້ຳປະປາ ແລະ ຕິດຕັ້ງຈຸດດັບເພີງໃນເຂດອະນຸລັກມໍລະດົກໂລກ ນະຄອນຫຼວງພະບາງ

- ອີງຕາມ: ແບບແຜນຜັງ ການວາງທໍ່ນ້ຳປະປາໃໝ່ ທີ່ທາງໂຄງການໄດ້ອອກແບບໄວ້.
- ອີງຕາມ: ການລົງສຳຫຼວດກວດກາໃນພາກສະໜາມຮ່ວມກັບຄະນະຊ່ຽວຊານຈາກອົງການ JICA ແລະ ການຄົ້ນຄວ້າປຶກສາຫາລື ຂອງຄະນະວິຊາການຫ້ອງການມໍລະດົກໂລກ, ຄັ້ງວັນທີ: 28/11/2018.
- ອີງຕາມ: ໜັງສືສະເໜີຂອງທີມງານສຳຫຼວດຈາກ ອົງການ JICA, ຄັ້ງວັນທີ: 29 / 11 / 2018.

ຫ້ອງການມໍລະດົກໂລກ ໃນນາມກອງເລຂາຂອງຄະນະກຳມະການລະດັບທ້ອງຖິ່ນເພື່ອມໍລະດົກໂລກຫຼວງພະບາງ ຕໍ່ກັບການຈັດຕັ້ງປະຕິບັດໂຄງການຂະຫຍາຍນ້ຳປະປາ ນະຄອນຫຼວງພະບາງ (ສະເພາະໃນພື້ນທີ່ເຂດອະນຸລັກມໍລະດົກໂລກ). ຈາກການລົງສຳຫຼວດກວດກາແລວການວາງທໍ່ນ້ຳປະປາໃໝ່ ແລະ ການຕິດຕັ້ງຈຸດດັບເພີງຮ່ວມກັບຄະນະຊ່ຽວຊານຍີ່ປຸ່ນ. ຈຸດປະສົງ: ແມ່ນເພື່ອປ່ຽນຖ່າຍທໍ່ນ້ຳປະປາເກົ່າທີ່ມີຄວາມຊຸດໂຊມ ແລະຕິດຕັ້ງຈຸດດັບເພີງເພື່ອປ້ອງກັນການເກີດອັກຄີໄພ ຢູ່ໃນເຂດອະນຸລັກມໍລະດົກໂລກຫຼວງພະບາງ. ການວາງທໍ່ນ້ຳປະປາ ແລະ ຕິດຕັ້ງຈຸດດັບເພີງທັງໝົດນີ້ ແມ່ນກໍ່ສ້າງໃສ່ພື້ນທີ່ສາທາລະນະ. ການວາງທໍ່ສ່ວນຫຼາຍ ແມ່ນໄດ້ວາງໃສ່ພື້ນທາງຍ່າງ, ທາງລົດ, ທາງຮ່ອມ, ທາງຊອຍ ຕາມເງື່ອນໄຂຕົວຈິງ. ສ່ວນການຕິດຕັ້ງຈຸດດັບເພີງ ແມ່ນຈະຕິດຕັ້ງໃກ້ກັບອາຄານໃນບັນຊີອະນຸລັກໝາຍສີດຳ ໂດຍຈະເນັ້ນໃສ່ໜ້າວັດເປັນສ່ວນໃຫຍ່, ບາງຈຸດທີ່ມີເງື່ອນໄຂກໍ່ຈະຕິດຕັ້ງໃສ່ເທິງໜ້າດິນຂ້າງທາງຍ່າງ, ສ່ວນຈຸດທີ່ບໍ່ມີເງື່ອນໄຂ ແມ່ນຈະຕິດຕັ້ງໃສ່ພື້ນດິນ.

ຜ່ານການຄົ້ນຄວ້າຂອງຫ້ອງການມໍລະດົກໂລກຫຼວງພະບາງ ຢັ້ງຢືນວ່າ: ການປະເມີນເບື້ອງຕົ້ນ ໂຄງການດັ່ງກ່າວ ບໍ່ມີຜົນກະທົບຕໍ່ມໍລະດົກໂລກຫຼວງພະບາງ, ບໍ່ຈຳເປັນຕ້ອງປະຕິບັດບົດປະເມີນຜົນກະທົບຕໍ່ມໍລະດົກໂລກ(HIA), ແຕ່ສະເໜີໃຫ້ທາງໂຄງການ ເອົາໃຈໃສ່ບາງບັນຫາດັ່ງຕໍ່ໄປນີ້:

1. ໃນເວລາກໍ່ສ້າງຕົວຈິງການຂຸດເຈາະດິນເພື່ອວາງທໍ່, ຖ້າຫາກພົບເຫັນວັດຖຸບູຮານ, ສິ່ງຂອງມີຄ່າ ຕ້ອງໄດ້ປົກປັກຮັກສາໄວ້ໃຫ້ດີ, ພ້ອມທັງໂຈະກິດຈະການຊົ່ວຄາວ ແລະ ນຳສະເໜີຫາພາກສ່ວນກ່ຽວຂ້ອງ ເພື່ອທຳການສຳຫຼວດກວດກາ.
2. ຫຼີກລ້ຽງການນຳໃຊ້ກົນຈັກໜັກເຂົ້າໃນການຂຸເຈາະພື້ນເບຕົ້ງ, ຫີນທີ່ຢູ່ໃກ້ກັບອາຄານໃນບັນຊີອະນຸລັກມໍລະດົກໂລກ.
3. ພາຍຫຼັງການວາງທໍ່ນ້ຳປະປາສຳເລັດ ແມ່ນໃຫ້ສ້ອມແປງ ພື້ນຖານໂຄງລ່າງຄືນ ໃຫ້ກັບສູ່ສະພາບເດີມ.

ແຂວງຫຼວງພະບາງ, ຫ້ອງການມໍລະດົກໂລກ, ຕູ້ ປນ 993, ຫຼວງພະບາງ, ສ ປ ປ ລາວ
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ທີ່ຢູ່ ອີເມວ : dpl.lpb.heritage@gmail.com

4. ກໍລະນີຫາກມີການປ່ຽນແລວການວາງທໍ່ໃໝ່ ແມ່ນໃຫ້ປະສານກັບຫ້ອງການມໍລະດົກໂລກຄືນ.
5. ສຳລັບການຕິດຕັ້ງຈຸດດັບເພີງ ສະເໜີໃຫ້ຈັດກອງປະຊຸມສະເພາະກັບພາກສ່ວນກ່ຽວຂ້ອງເພື່ອຄົ້ນຄວ້າລາຍລະອຽດຕື່ມ ເພື່ອໃຫ້ສອດຄ່ອງກັບສະພາບຕົວຈິງ.
6. ໃນກໍລະນີຫາກພົບພໍ້ບັນຫາ ທາງຫ້ອງການມໍລະດົກໂລກ ພ້ອມທີ່ຈະສົມທົບກັບພາກສ່ວນກ່ຽວຂ້ອງ ເພື່ອແກ້ໄຂບັນຫາທີ່ນອນຢູ່ໃນເຂດມໍລະດົກໂລກຫຼວງພະບາງ ເພື່ອຊຸກຍູ້ໃຫ້ໂຄງການສາມາດຈັດຕັ້ງປະຕິບັດໄປຕາມແຜນທີ່ໄດ້ກຳນົດໄວ້.

ດັ່ງນັ້ນ, ຈຶ່ງໄດ້ເຮັດໃບຢັ້ງຢືນສະບັບນີ້ໄວ້ ເພື່ອເປັນບ່ອນອີງໃຫ້ແກ່ການດຳເນີນໂຄງການ.

ຫົວໜ້າຫ້ອງການມໍລະດົກໂລກຫຼວງພະບາງ

ກະຊວງຖະແຫຼງຂ່າວ,ວັດທະນະທຳ ແລະ ທ່ອງທ່ຽວ
ຫ້ອງການ ມໍລະດົກໂລກ ຫລວງພະບາງ
ແຂວງຫຼວງພະບາງ

ສະເຫວີຍ ສີລາວັນ

ແຂວງຫຼວງພະບາງ, ຫ້ອງການມໍລະດົກໂລກ, ຕູ້ ປນ 993, ຫຼວງພະບາງ, ສ ປ ປ ລາວ
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Provisional translation by English

Lao People's Democratic Republic

Peace Independence Democracy Unity Prosperity

Luang Prabang World Heritage Office No. 640/WHO

Luang Prabang Province

30 November 2018

Certificate for HIA (Heritage Impact Assessment)

Project for Expansion of The Water Supply System and Installation of Fire Hydrants in World Heritage Site in Luang Prabang City

- Referring to outline design drawings
- According to the joint site visits by JICA Preparatory Survey Team and internal discussions and studies by expert staffs in Luang Prabang World Heritage Office on 28th November 2018
- According to application of JICA Preparatory Survey Team on 29th November 2018

Luang Prabang World Heritage Office, who is a secretariat of protection committee of world heritage under Luang Prabang Province, has the following opinion for the implementation of the project for the expansion of the water supply system.

It was confirmed that the scope/objective of the project is renewal of aged pipelines and installation of fire hydrants for fire prevention based on the joint site visit by JICA Survey Team and staff of world heritage office to confirm the locations of pipes to be renewed and fire hydrants to be installed. The renewal of pipelines and installation of fire hydrants will be implemented under public roads. Most of pipelines are constructed under walkways, main roads and branch roads. The fire hydrants will be installed near the buildings which are registered for protection of world heritage. The installation type of the fire hydrants has above ground and underground types according to the conditions of installation locations.

Luang Prabang World Heritage Office studied the impacts on the World Heritage and concluded that there was no impacts by the project in initial stage. Therefore, implementation of HIA is not necessary. However, the project takes care of the following items for the implementation of the project.

1. When historical objects/structures are found during excavation for installing distribution pipes, stop activity immediately, protect the site carefully, and report to the institution concerned for investigation,

2. When excavating concrete or stone near historical structure in the list of World Heritage Site, avoid using heavy machinery,

3. After completion of distribution pipe installation, restore the construction site to its original state,

4. Before changing the location of distribution pipe installation from the original plan, consult with World Heritage Office,

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by English

5. Before finalization of the location of fire hydrants, discuss with institutions concerned, and

6. In case problem occurs, consult with World Heritage Office for settling the problem with institutions concerned.

Based on the above, this certificate is issued and this is the approval to implement the project.

Director

Luang Prabang World Heritage Office

Mr. Saveuy SILAVANH

(3) Records on Consulting Meeting

Village Consultation on the Project

Objectives:

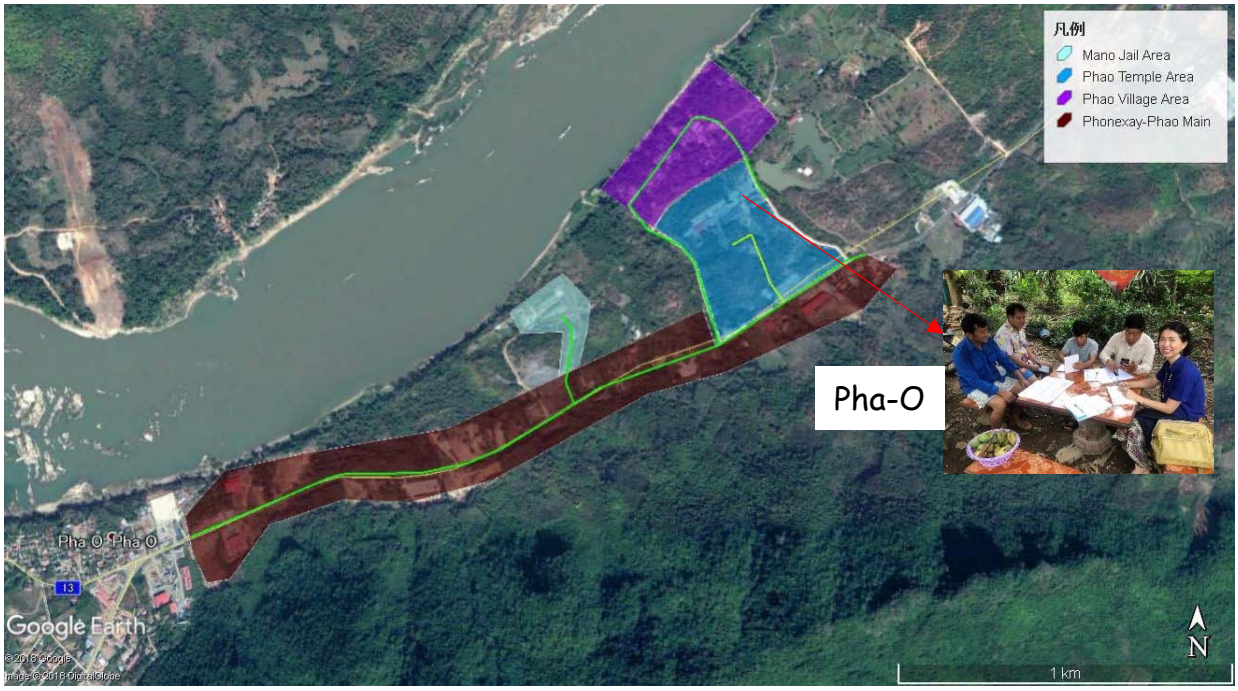
- to consultant with the village authority regarding the impact on natural and social environment resulting from the project
- to disseminate project information to the village authority
- to receive comments from village authorities

1. Ban Pha- O: (North Area)

Participants:

- Mr. Somchan Keobounyadith - Village head-
- Mr. Channasouk Panyaluck- Deputy head of village
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Venue: Head of village's house



Date: 12/06/2018

Opinion/Suggestion: *ຂໍ້ສະເໜີ ຄຳຄິດເຫັນ*

- Request to the Project to start soon as people would like to use clean water
- In the temple there are approximately 500 monks. The water demand is very high.

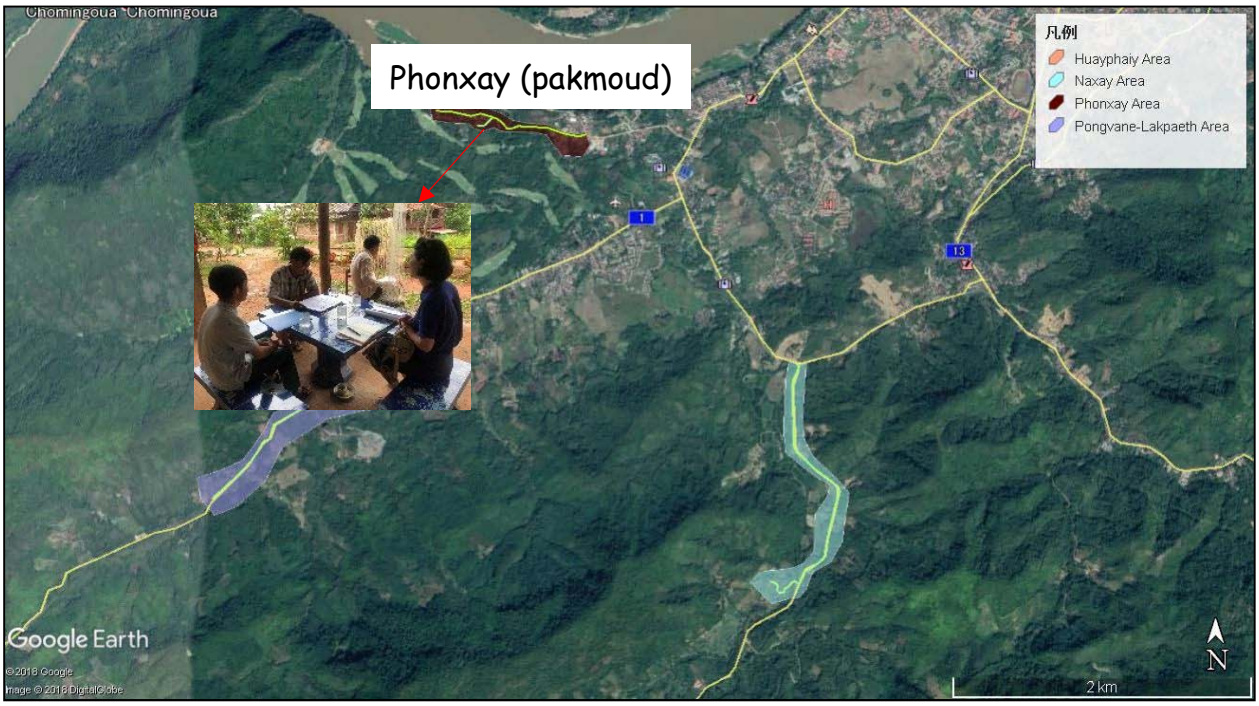
2. Ban Phonxay (Pakmoud): (South Area) ບ້ານ ໂພນໄຊ ປັກໝຸດ

Participants:

- Mr. Mr. Bounmee Amphanvilay, Village head-
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Venue: Head of village's house

Date: 12/06/2018



Opinion/Suggestion:

- If the project would like to get the contribution from village please inform us we could arrange e.g labour and etc.
- The existing water pipe is very old and it is very high leakage

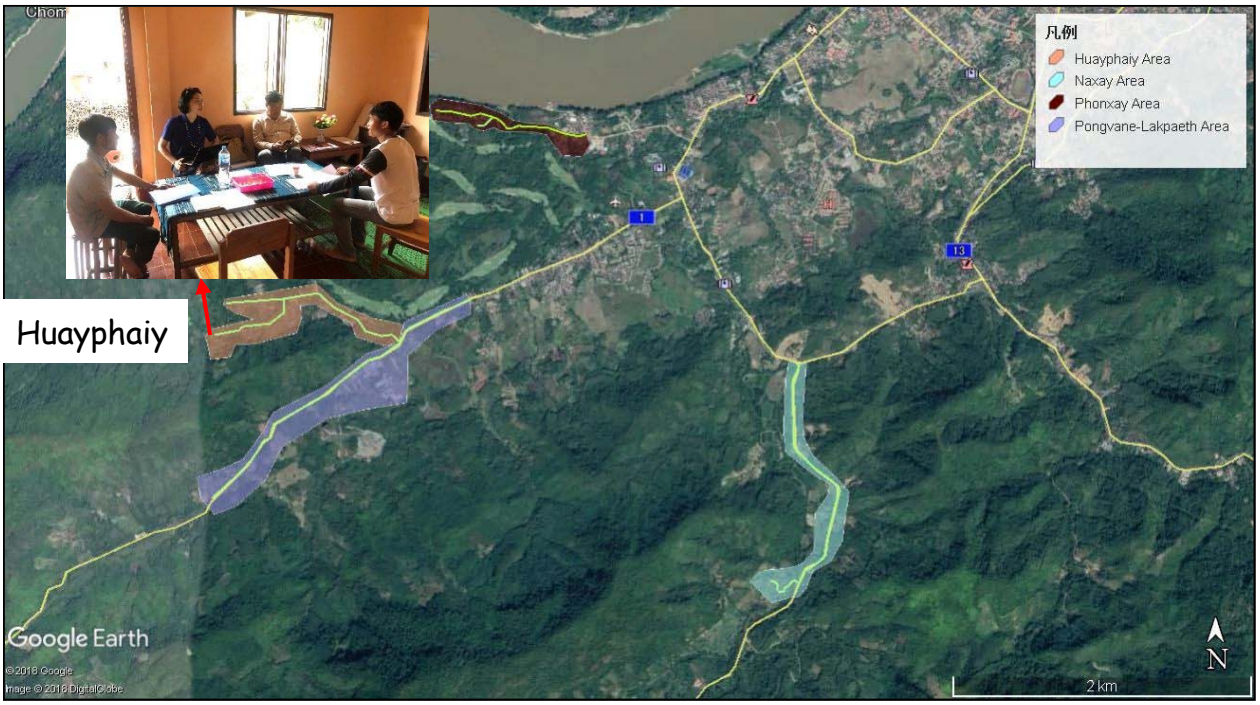
3. Ban Houayphaiy: (South Area)

Participants:

- Mr. Xed Khounchaiching, Village head-
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Revenue: Head of village's house

Date: 12/06/2018



Propose/comments:

- All households use gravity water and paid 10.000 LAK/year for maintenance.
- to receive the water supply system do people in the village has to pay or contribute any for the project or not
- During the construction period the project shall disseminate detail schedule for the villagers to understand for any inconveniences.

4. Ban Lakpeath : (South Area)

Participants:

- Mr. Chanpheng Tavavikone - Village head-
- Mr. Khamhuk Sinthasone- Deputy head of village
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Venue: Head of village's house

Date: 12/06/2018

Opinion/Suggestion:

- Our village propose to get the water supply for long time, we are very happy to hear that the water supply will be connected in our village
- If the project would like the village contribute something please let us know.

5. Ban Pongvane: (South Area)

Participants:

- Mr. Bounlieng Phonnachith, Village head-
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Venue: Head of village's house

Date: 13/06/2018

Opinion/Suggestion:

- would like to project to support on expansion the pipe to the village expansion area

- water supply is not sufficient during the peak hours (6:00 to 8:30 am and 5:00 to 8:00 pm) no water

6. Ban Naxay: (South Area)

Participants:

- Mr. Mr. Phonepaserth Padithkeo, Village head-
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Venue: Head of village's house

Date: 13/06/2018

Opinion/Suggestion:

- The village is quite big village, there are many business sector in the village and we require proper water supply to reduce our cost of buying the water bottle for consumption in the household

7. Ban Pha Nom: (reservoir and water treatment Plant)

Participants:

- Mr. Keansikeo Vilaichith, Village head-
- Mr. Phui Sysavanth, Village front
- Ms. Chanphone Vilaykeo, women union
- Mr.Phonethavy Meevongsack
- Ms. Bouaket, Lao Youth Union
- Ms. Souksakhone Davong, people
- Mr. Khamchan, people
- Mr. Phavanh, people
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office

- Mr. Mily Ly , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company
- Ms. Mayumi GOTO, JICA Expert

Venue: Village office

Date: 14/06/2018

Consultation meeting at the village office

Proposed Reservoir Area

Water treatment Plant

Information collected on Fishery and Other River Related Activities at the Intake Area:

According to the interview with village authorities and villagers, at the intake area there are several people fishing and collecting river weeds:

Fishing:

Fish catching around the intake area

- ປາ ໄນ (Pa Nai)Cyprinus carpio Linneaus,
- ປາ ໜາມ (Pa Hnam)
- ປາ ເຄິ່ງ (Pa Kkhueng)- Hemibagrus wyckioides Chaux and Fang,
- ປາ ຄິ່ງ(Pa Khing)
- ປາເປົ້າ (Pa Pao)-Tetraodon baileyi
- ປາ ຈາດ (Pa Chad)- Poropuntius laoensis, and etc.

The amount of catching is depending on season, range from less than 1 kg to more than 10kg during dry to rainy season respectively. Most high season for fishing is from June to September.

Collecting river weed:

People in the village collecting river weed during their free time, it is not the main job.

There are 2 types of river weed: dry season weed (ໄຄ Khai) and rainy season weed (ເທົ່າ Thao) The

- rainy season weed (ເຫົ້າ): can collect during March to May – amount of collect depend on their time available normally range from 1 to 20 kg. price of selling is approximately 5,000 Lak/kg.
- Dry season weed (ໄຄ): can collect during November and December- amount depend on their patient to the weather range from 1 to 20 kg. price of selling is approximately 5,000 Lak/kg.

Information collected on New Reservoir Area

The area called Phu Huanaxay:, this area is a village production forest surrounded by the private plantation land.

The village production forest is used by villagers for collecting vegetable and fire wood for consumption in the households.

Opinion/Suggestion:

- The project should identify the clear and precise the area require for the reservoir
- The village could support on disclose project information to the villagers during the construction phase
- Propose the project to support on improving the road in the village e.g. pave and drainage system.

8. Ban Pakham (night market- Heritage area):

Participants:

- Mr. Nopphavong Sysalermsack, Village head-
- Mr. Onhkeo Ngaokhamvong- head of Environmental Unit, NRE office
- Mr. Mily , technical staff, Environmental Division, DONRE
- Mr. Kathi , technical staff, Nam Papa Company

Venue: Head of village's house

Date: 13/06/2018

Information collected on the night market

The night market was manage by the night market committee, there are 4 members in the committee , the committee responsible for manage the night market as well as collect market fees with shop owners:

Marker fee includes:

- Register: 35,000 Lak/year/shop – register at the district administration office, register fee will be given to city government and 10% to the market committee for management
- Tax: 3,000 to 5,000 Lak/night depend on size of the shop, collected tax fee will be given to the city government 25,000,000 kip/month, remain is use for waste management, committee's salary and other management purposes.
- Electricity: 2000 LAK/light
- Toilet: 1000 LAK/night
- The nigh market open 4;30 pm to 10:30pm every days, there are around 320 shops in the night market.

Opinion/Suggestion:

- Propose the project to construct during the rainy season.

- The construction plan shall be divide area into small section with maximum 50 mater long, then we could manage the shop.
- The project shall demark the construction area clearly to acknowledge us to inform villagers as well as arrange the shop seller.

(4) Environmental Checklist

Environmental Checklist: 14. Water Supply（1）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) Y (b) Y (c) Y (d) Y	(a)(b) (c) IEE is requested for the Project. The IEE report including ESMMP was submitted to Department of Natural Resources and Environment (DONRE), Luang Prabang Province in October 2018 for obtaining an environmental compliance certificate (ECC). The IEE report was approved and the ECC was issued in November 2018. (d) Luang Prabang World Heritage Office issued letter on the decision that no further survey (Heritage Impact Assessment: HIA) requried in November 2018.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Through consultation meetings on the IEE of the Project, the content of project and potential impacts from the Project have been explained to villages concerned and Governmental bodies concerned at Provincial and City level. In 6 November 2018, the stakeholder meeting including affected villagers and Governmental bodies concerned at Provincial, City and Village in the Project area was organized for disseminating the result of IEE and collecting opinions on the Project. (b) The request on the construction method such as avoid construction activities in a high season of tourism in World Heritage Site area has been reflected to the Project planning.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Alternatives on the location of the treated waste water facilities in the Namkhan Water Treatment Plant (the Namkhan WTP), the location of new reservoir have been examined in the point view of environmental and social consideration.
2 Pollution Control	(1) Air Quality	(a) Is there a possibility that chlorine from chlorine storage facilities and chlorine injection facilities will cause air pollution? Are any mitigating measures taken? (b) Do chlorine concentrations within the working environments comply with the country's occupational health and safety standards?	(a) Y (b) Y	(a) (b) In carrying out the regular monitoring of the storage facilities and training for proper management, air pollution from the storage facilities are to be avoided.
	(2) Water Quality	(a) Do pollutants, such as SS, BOD, COD contained in effluents discharged by the facility operations comply with the country's effluent standards?	(a) Y	(a) Together with effluents from existing facilities, the water quality from the water treatment plant will be sampled regularity in order to comply with the country's standards.
	(3) Wastes	(a) Are wastes, such as sludge generated by the facility operations properly treated and disposed in accordance with the country's regulations?	(a) Y	(a) The waste water generated in the process of treating water in the Namkhan WTP is to be separated into sludge and supernatant by the newly constructed waste water treatment facilities. The sludge is to be collected from the facilities and disposed of at the city owned disposal site regularly.

Environmental Checklist: 14. Water Supply（2）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(4) Noise and Vibration	(a) Do noise and vibrations generated from the facilities, such as pumping stations comply with the country's standards?	(a) Y	(a) The facilities to be constructed are located in the premises of existing facilities which are not located residential areas. Accordingly, noise and vibration from these facilities are not considered to give negative impacts.
	(5) Subsidence	(a) In the case of extraction of a large volume of groundwater, is there a possibility that the extraction of groundwater will cause subsidence?	(a) N	(a) No plan to extract ground water.
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) There is no protected area located in the proposed location of facilities.

Environmental Checklist: 14. Water Supply（3）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
3 Natural Environment	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site or discharge area encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by project will adversely affect aquatic environments, such as rivers? Are adequate measures taken to reduce the impacts on aquatic environments, such as aquatic organisms?	(a) N (b) N (c) N (d) N	(a) No primeval forest, tropical rain forests or ecologically valuable habitats confirmed in the project area. (b) No protected habitats of endangered species confirmed in the project area. (c) Not applicable (d) There is no plan to increase the amount of in taking water at the Namkhan WTP.
	(3) Hydrology	(a) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by the project will adversely affect surface water and groundwater flows?	(a) N	(a) The amount of water taken from the Namkhan river will not increase by the Project.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement? (b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement? (c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement? (d) Is the compensations going to be paid prior to the resettlement? (e) Is the compensation policies prepared in document? (f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples? (g) Are agreements with the affected people obtained prior to resettlement? (h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan? (i) Are any plans developed to monitor the impacts of resettlement? (j) Is the grievance redress mechanism established?	(a) N (b) Y (c) Y (d) Y (e) Y (f) - (g) - (h) - (i) - (j) Y	(a) No involuntary resettlement is planned by the Project. (b) Consultation with affected people from land acquisition to be carried out before finalizing compensation price. (c) Compensation price will be set based on the Decree on Compensation and Resettlement (No.86 2016) (d) Compensation will be disbursed before the commencement of construction phase (e) The compensation policy is addressed in Environmental and Social Management Plan (EMSP) and it will be approved together with the IEE report by DONRE Luang Prabang Province. (f) (g) (h) (i) Not applicable. There is no resettlement. (j) The Project's steering committee will play a role for the grievance redress mechanism on the compensation and it will monitor the process of compensation disbursement.

Environmental Checklist: 14. Water Supply（4）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? (b) Is there a possibility that the amount of water used (e.g., surface water, groundwater) by the project will adversely affect the existing water uses and water area uses?	(a) N (b) N	(a) (b) No negative impact is anticipated. On the contrary, the expansion of water supply coverage in the project area will contribute to increase living standard.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) Construction activities in the World Heritage Sits area would damage unknown historical objects underground at the time of excavating public road for installation of distribution pipes. However, it will be avoided by applying mitigation measures such as Instruct all construction contractor's employees regarding the proper handling of historical object/structure discovered during construction activity, Stop construction activity immediately and report to the steering committee for further instruction.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) No adverse impact is anticipated. Because the proposed facilities will be located either in the premises of existing facilities or under public road.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a) - (b) N	(a)(b) The project will not give negative impacts on the ethnic minorities.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) N (b) Y (c) Y (d) Y	(a) There is no violation of laws or ordinances on the working conditions due to the project. (b)(c) (d)Safety for individuals involved in the project will be considered by conducting regular monitoring and providing instructions.

Environmental Checklist: 14. Water Supply（5）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts? (d) If the construction activities might cause traffic congestion, are adequate measures considered to reduce such impacts?	(a) Y (b) N (c) Y (d) Y	(a) Environmental and social management and monitoring plan (ESMMP) has been developed as a part of IEE. Negative impacted resulting from construction activities including air pollution, water pollution, noise will be minimized in applying mitigation measures addressed in the ESMMP. (b) No negative impact is expected. (c) The Project's steering committee will play a role for the grievance redress mechanism Any complain will be dealt with the committee via environmental and social staff assigned in the project implementation unit (d) In the congested traffic area, it is required in the ESMMP that the Contractor shall assign a staff for dealing with smooth traffic flow.

Environmental Checklist: 14. Water Supply（6）

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
5 Others	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) Y (c) Y (d) Y	(a) (b) (c) It was developed in the environmental and social management plan (ESMMP) as a part of IEE. In the ESMMP, mitigation measures and monitoring items, implementation frequencies of the mitigation measures and the monitoring, institutional responsibility for implementing mitigation measures and monitoring the mitigation activities and the budget for monitoring activities are addressed. Dust , water quality, waste, noise, disturbance to locals along the road, traffic, health and safety of workers and locals will be managed daily by the Contractors and monitored monthly by the environmental and social staff in the project implementation unit in inspecting the construction sites and reviewing the result of water quality and noise level from the construction sites. (d) The result of site inspection and the result of water quality will be report to DONRE Luang Prabang Province quarterly.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Dam and River Projects checklist should also be checked.	(a) N	(a) Not applicable
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) Not applicable

1) Regarding the term “Country’s Standards” mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.
In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience
2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

(5) Monitoring Form

MONITORING FORM

-If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

-When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

１． Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring item	Monitoring results during report period
Responses/Actions to Comments and Guidance from Government Authorities	

２． Mitigation Measures

[Construction Phase]

- Air Quality（Emission Gas / Ambient Air Quality）

Monitoring item	Measurement point	Monitoring Frequency	Implementation Schedule	Monitoring result during report period
Maintain vehicle in good condition to minimize exhaust emissions	ⓑⓒⓓⓔⓕ	Monthly	Throughout construction stage	
Use fuel and lubricants of good quality in compliance with national standards	ⓑⓒⓓⓔⓕ	Monthly	Throughout construction stage	
Spray water at the construction site on unpaved road and adjacent to restaurant/shops during dry conditions	ⓒⓓⓔⓕ	Monthly	Throughout construction works	
Implement traffic control to reduce congestion	ⓓⓕ	Monthly	Throughout construction works	
Cover load-carrying platforms properly when carrying earth/sand	ⓒⓔ	Monthly	Throughout construction works	

- Water Quality

Monitoring item	Measurement point	Monitoring Frequency	Implementation Schedule	Monitoring result during report period
Ensure good sanitation especially in kitchens and latrines and install good drainage and install treatment pond for the wastewater from kitchen and bathing and septic tanks	ⓐ	Monthly	Throughout construction stage	

- Water Sampling

Item	Unit	Measured Value	Country's Standards*	(International Standard**)	Remarks (Measurement Point, Frequency, Method, etc.)**
BOD^5	mg/l		≦30	(≦120**)	Monthly, ⓐ

*Waste water control Category C Discharge from building, National Environmental Standards, No.823, 2017 MONRE

** National Minimum Effluent Standards, Water Pollution Prevention Act 1970, Japan

Note>There is no standards standing in the same ground in Lao PDR and Japan nor situation fit for this sampling (temporary camp for construction employees). The standard in Lao PDR focuses on the discharged water from buildings such as hotels or business compound. The standard in Japan focuses on the effluent water in general. In the case of this project, the standard in Lao PDR will be applied.

- Waste

Monitoring item	Measurement	Frequency	Implementation	Monitoring result during

	point		phase	report period
(Domestic waste) Designate temporary locations for garbage collection in the contractor's camp for transportation to city government owned disposal site	ⓐⓒⓓⓔⓕ	Monthly	Throughout construction stage	
(Construction waste) Designate waste disposal point at the construction site for transportation to city government owned disposal site	ⓒⓔ	Monthly	Throughout construction stage	

- Noise and Vibration

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Minimize construction activities during business hours and peak tourist season as much as possible	ⓓⓕ	Monthly	Throughout construction stage	

- Ecosystem

Monitoring item	Measurement point	Monitoring Frequency	Implementation Schedule	Monitoring result during report period
Instruct the Construction workers not to hunt or collect wood in the forest	ⓔ	Monthly	Throughout construction stage	

-Local Economy, Employment, Livelihood

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Schedule construction activities to avoid business hours, peak tourism season as much as possible	ⓓⓕ	Monthly	Throughout construction works	
Provide detail information on construction schedule and location to Phakam village authority so that they can make arrangement to temporarily relocate affected stalls during construction	ⓓ	Weekly	Throughout construction works	

- Existing Social Infrastructures and Services

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Provide temporary pedestrian walk way and assign worker to control traffic where is not enough space for pedestrian walkway	ⓓⓕ	Monthly	Throughout construction works	
Provide detail information on construction schedule and location to the village authorities in WHS for prohibiting the parking along the construction site temporally	ⓓⓕ	Weekly	Throughout construction works	
Provide detail information on construction schedule and location to Pakham village authority so that they can relocate affected stalls inside the night market area	ⓓ	Weekly	Throughout construction works	

- Cultural Heritage

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Instruct all workers on proper handling of historical objects/structures discovered during construction	ⓓⓕ	Monthly	Throughout construction works	
Inform all workers regarding the exact location and proper method of	ⓓⓕ	Monthly	Throughout construction works	

excavation (no excess digging)				
Suspend construction activities when historical objects/structures are found and report to the project steering committee for instruction	ⓓⓕ	Monthly	Throughout construction works	

- Landscape

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Schedule construction in WHS during off season (rainy season) to avoid peak tourist season	ⓓⓕ	Monthly	Throughout construction works	

- Communal Diseases

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Conduct information ,education and communication (IEC) campaigns to all the site staff and labor (including all the contractor's employees, all subcontractors)	ⓐ	Every 6 Months	Throughout construction stage	

-Health and Safety

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Prepare safety plan and safe construction plan	ⓒⓓⓔⓕ	Monthly	Throughout construction stage	
Provide personal protective equipment to workers	ⓒⓓⓔⓕ	Monthly	Throughout construction stage	
Give instruction on health and safety to workers regularly	ⓒⓓⓔⓕ	Monthly	Throughout construction stage	

-Accident

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Fencing around the construction site	ⓓⓕ	Monthly	Throughout construction stage	
Assign traffic control person on site	ⓓⓕ	Monthly	Throughout construction stage	

-UXO

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
UXO survey before access road construction	ⓔ	Monthly	Before construction	
Deeper ground investigation for UXO at reservoir construction site as needed	ⓔ	Monthly	Before construction	

-Restoration to the Original Condition

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Restoration State	ⓐⓑⓓⓕ	Once	On completion of construction activities	

Note:

ⓐ: Contractor's Office/Contractor's Employees' Camp
ⓑ: Disposal Area
ⓒ: Namkhan Water Treatment Plant
ⓓ: Transmission/Distribution Pipe
ⓔ: New Reservoir
ⓕ: Fire Hydrants

[Operation Phase] (Draft)*

*Monitoring plan in the operation phase shall be finalized prior to the commencement of the operation phase

-Waste

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Scrape and collect the sludge to transport to dispose at the city government owned disposal site	ⓒ	To be finalized	Throughout operation stage	

- Offensive Odor

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Ensure proper handling procedure of chlorine chemicals	ⓒ	To be finalized	Throughout operation stage	

- Water Quality

Monitoring item	Measurement point	Frequency	Implementation phase	Monitoring result during report period
Scrape and collect the sludge to transport to dispose at the city government owned disposal site and only supernatant to discharge to the Khan River	ⓒ	To be finalized	Throughout operation stage	
Dilute the washing water before discharge when the Calcium hypochlorite solution tank is washed	ⓒ	To be finalized		

- Land Acquisition

Activities	Total	Unit	Progress	Progress (%)	Completed	Responsible Organization
Progress of Land Acquisition		ha				PIU
		Number of Project Affected Person				PIU

-Complain resulting from the Project

Number of Complain	Content of Complain	Action Taken and Result
Ensure proper handling procedure of liquid gas chlorine		

(6) Site-specific Inspection Form

Site-specific Inspection Form

Inspection Result on (Date, Month Year)_____

Inspected by _____

Monitoring Items	Monitoring Methods	Frequency	Yes ☐ No ☐	Remarks
Contractor's Office/ Employees' Camp				
Water Quality -Ensure good sanitation especially in kitchens and latrines and install good drainage and install treatment pond for the waste water from kitchen and bathing and septic tanks	-Visual inspection on site	Monthly	☐ ☐	
Water Quality Water Sampling: BOD5 (mg/l)	Sampling at discharged point ≤ 30 (mg/l)	Monthly	☐ ☐	
Waste Management - (Domestic waste) Designate temporary locations for garbage collection in the contractor's camp for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Communal Diseases -Conduct Information, Education and Communication (IEC) campaigns to all the Site staff and worker and to the immediate local communities concerning the risks, dangers and impact, and appropriate avoidance behavior with respect to, of Sexually Transmitted Diseases (STD) – or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular	-Check the record of IEC	Every 6 months	☐ ☐	
Restorations to the Original Condition - Restoration State	- Visual Inspection on site	On completion of construction activities	☐ ☐	
Disposal Area				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	☐ ☐	
Restorations to the Original Condition - Restoration State	- Visual Inspection on site	On completion of construction activities	☐ ☐	

Monitoring Items	Monitoring Methods	Frequency	Yes ☐ No ☐	Remarks
Namkhan Water Treatment Plant				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Cover load-carrying platforms properly when carrying earth/sand	-Visual inspection on site	Monthly	☐ ☐	
Waste Management - (Domestic waste) Designate temporary locations for garbage collection in the contractor's camp for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Waste Management - (Construction waste) Designate waste disposal points at the construction site for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Health and Safety - Provide personal protective equipment to workers	-Visual inspection on site	Monthly	☐ ☐	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	- Check the record	Monthly	☐ ☐	
Transmission/Distribution Pipe				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Implement traffic control to reduce congestion	-Visual inspection on site	Monthly	☐ ☐	
Waste Management - (Domestic waste) Designate temporary locations for garbage collection in the contractor's camp for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Noise and Vibration/Local Economy, Employment, Livelihood - Minimize construction activities during business operation hours and peak tourist season as much as possible	- Confirm the number of complain at PIU	Monthly	☐ ☐	

Monitoring Items	Monitoring Methods	Frequency	Yes ☐ No ☐	Remarks
Local Economy, Employment, Livelihood/Existing Social Infrastructures and Services - Provide detail information on construction schedule and location to Phakam village authority so that they can make arrangement to temporarily relocate affected stalls during construction	- Confirm the number of complain at PIU	At the time of construction at Night Market Weekly	☐ ☐	
Existing Social Infrastructures and Services - Provide temporary pedestrian walkway and assign worker to control traffic where is not enough space for pedestrian walkway	-Visual inspection on site	Monthly	☐ ☐	
Existing Social Infrastructures and Services - Provide detail information on construction schedule and location to the village authorities in WHS so that they can deal with temporary parking prohibition during construction	- Confirm the number of complain at PIU	At the time of construction in WHS Weekly	☐ ☐	
Cultural Heritage - Instruct all workers on proper handling of historical objects/structures discovered during construction	- Confirm the number of incident at PIU	At the time of construction in WHS Monthly	☐ ☐	
Cultural Heritage - Inform all workers regarding the exact location and proper method of excavation (no excess digging)	- Confirm the number of incident at PIU	At the time of construction in WHS Monthly	☐ ☐	
Cultural Heritage - Suspend construction activities when historical objects/structures are found and report to the project steering committee for instruction	- Confirm the number of incident at PIU	At the time of construction in WHS Monthly	☐ ☐	
Landscape - Schedule construction in WHS during off season (rainy reason) to avoid peak tourist season construction schedule at off season of tourism (rainy season) in WHS	-Visual inspection on site	At the time of construction in WHS Monthly	☐ ☐	
Health and Safety - Provide personal protective equipment to workers	-Visual inspection on site	Monthly	☐ ☐	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	- Check the record	Monthly	☐ ☐	
Accident - Fencing around temporary construction site	-Visual inspection on site	Monthly	☐ ☐	
Accident -Assign traffic control person on site	-Visual inspection on site	Monthly	☐ ☐	
Restorations to the Original Condition - Restoration State	-Visual inspection on site	On completion of construction activities	☐ ☐	

Monitoring Items	Monitoring Methods	Frequency	Yes ☐ No ☐	Remarks
New Reservoir				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Cover load-carrying platforms properly when carrying earth/sand	-Visual inspection on site	Monthly	☐ ☐	
Waste Management - (Domestic waste) Designate temporary locations for garbage collection in the contractor's camp for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Waste Management - (Construction waste) Designate waste disposal points at the construction site for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Health and Safety - Provide personal protective equipment to workers	-Visual inspection on site	Monthly	☐ ☐	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	-Check the record	Monthly	☐ ☐	
UXO - UXO survey before access road construction	- Check the record	Before construction	☐ ☐	
UXO - Deeper ground investigation for UXOs as needed	- Check the record	Before construction	☐ ☐	
Fire Hydrants				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	-Visual inspection on site	Monthly	☐ ☐	
Air Quality - Implement traffic control to reduce congestion	-Visual inspection on site	Monthly	☐ ☐	

Monitoring Items	Monitoring Methods	Frequency	Yes ☐ No ☐	Remarks
Waste Management - (Domestic waste) Designate temporary locations for garbage collection in the contractor's camp for transportation to city government owned disposal site	-Visual inspection on site	Monthly	☐ ☐	
Noise and Vibration/Local Economy, Employment, Livelihood - Minimize construction activities during business operation hours and peak tourist season as much as possible	- Confirm the number of complain at PIU	Monthly	☐ ☐	
Existing Social Infrastructures and Services - Provide temporary pedestrian walkway and assign worker to control traffic where is not enough space for pedestrian walkway	-Visual inspection on site	Monthly	☐ ☐	
Existing Social Infrastructures and Services - Provide detail information on construction schedule and location to the village authorities in WHS so that they can deal with temporary parking prohibition during construction	- Confirm the number of complain at PIU	At the time of construction in WHS Weekly	☐ ☐	
Cultural Heritage - Instruct all workers on proper handling of historical objects/structures discovered during construction	- Confirm the number of incident at PIU	At the time of construction in WHS Monthly	☐ ☐	
Cultural Heritage - Inform all workers regarding the exact location and proper method of excavation (no excess digging)	- Confirm the number of incident at PIU	At the time of construction in WHS Monthly	☐ ☐	
Cultural Heritage - Suspend construction activities when historical objects/structures are found and report to the project steering committee for instruction	- Confirm the number of incident at PIU	At the time of construction in WHS Monthly	☐ ☐	
Landscape - Schedule construction in WHS during off season (rainy reason) to avoid peak tourist season construction schedule at off season of tourism (rainy season) in WHS	-Visual inspection on site	At the time of construction in WHS Monthly	☐ ☐	
Health and Safety - Provide personal protective equipment to workers	-Visual inspection on site	Monthly	☐ ☐	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	-Check the record	Monthly	☐ ☐	
Accident - Fencing around temporary construction site	-Visual inspection on site	Monthly	☐ ☐	
Accident -Assign traffic control person on site	-Visual inspection on site	Monthly	☐ ☐	

Monitoring Items	Monitoring Methods	Frequency	Yes ☐ No ☐	Remarks
Restorations to the Original Condition - Restoration State	-Visual inspection on site	On completion of construction activities	☐ ☐	

(7) Official Letter on Transferring Land Use Right

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ເຈົ້າແຂວງຫຼວງພະບາງ

ເລກທີ.152.../ຈຂ.ຫຼບ
ລົງວັນທີ..25....ທັນວາ(12) 2018

ຂໍ້ຕົກລົງ

ວ່າດ້ວຍການມອບດິນລັດຄຸ້ມຄອງຢູ່ບ້ານຜານົມ, ນະຄອນ ຫຼວງພະບາງ ໃຫ້ລັດວິສາຫະກິດ ນ້ຳປະປາ ແຂວງຫຼວງພະບາງ ຄຸ້ມຄອງນຳໃຊ້ ເພື່ອກໍ່ສ້າງອ່ຽງເກັບນ້ຳສູງ

- ອີງຕາມ ບົດລາຍງານຂອງພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ, ສະບັບ ເລກທີ 2757/ພຊສ.ຫຼບ, ລົງວັນທີ 14/12/2018.

ເຈົ້າແຂວງຫຼວງພະບາງຕົກລົງ:

ມາດຕາ 1. ມອບດິນລັດຄຸ້ມຄອງ ຢູ່ບ້ານຜານົມ, ນະຄອນ ຫຼວງພະບາງ, ແຂວງຫຼວງພະບາງ ໃຫ້ລັດວິສາຫະກິດ ນ້ຳປະປາ ແຂວງຫຼວງພະບາງ ຄຸ້ມຄອງນຳໃຊ້ ເພື່ອກໍ່ສ້າງອ່ຽງເກັບນ້ຳສູງ ເຊິ່ງມີລາຍລະອຽດດັ່ງນີ້:

- ທິດເໜືອຕິດກັບດິນ ທ. ເຮືອນ + ນ. ແກ້ວ+ ນ. ສົມຈິດ	ໄລຍະ	51.00 ແມັດ
- ທິດໃຕ້ຕິດກັບດິນລວມບ້ານ	ໄລຍະ	51.80 ແມັດ
- ທິດຕາເວັນອອກຕິດກັບ ນ. ຄຳພັນ	ໄລຍະ	103.50 ແມັດ
- ທິດຕາເວັນຕົກຕິດກັບ ນ. ບົວສີ	ໄລຍະ	106.00 ແມັດ

ເນື້ອທີ່: 5.383 ຕາແມັດ

ມາດຕາ 2. ເນື້ອທີ່ດິນຕອນດັ່ງກ່າວ ແມ່ນເຫັນດີໃຫ້ສ້າງອ່ຽງເກັບນ້ຳສູງ ເທົ່ານັ້ນ ແລະ ຫ້າມແບ່ງໃຫ້ບຸນຄົນ, ເອກະຊົນ ຄຸ້ມຄອງນຳໃຊ້ຢ່າງເດັດຂາດ.

ມາດຕາ 3. ມອບໃຫ້ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ ສົມທົບກັບພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ພ້ອມກັນຈັດຕັ້ງປະຕິບັດໃຫ້ຖືກຕ້ອງຕາມລະບຽບການ.

ມາດຕາ 4. ຂໍ້ຕົກລົງສະບັບນີ້ມີຜົນສັກສິດນັບແຕ່ມື້ລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ເຈົ້າແຂວງຫຼວງພະບາງ

ຄຳຂັນ ຈັນທະວິສຸກ

+ ບ່ອນນຳສົ່ງ :
- ພະແນກ ຊສ ແຂວງ 01 ສະບັບ
- ລັດວິສາຫະກິດ ນ້ຳປະປາ ແຂວງ 01 ສະບັບ
- ສຳເນົາ 02 ສະບັບ

ຫ້ອງວ່າການປົກຄອງແຂວງຫຼວງພະບາງ, ໂທ:(071)900015, 212126 ແຟັກ:(071)212407
BUREAU deL' ADMINISTRATION PROVINCIALE de LUANGPRABANG (K.Y) 21/12/2018.

Provisional translation by English

Lao People's Democratic Republic

Peace Independence Democracy Unity Prosperity

Luangprabang governor

No. 152/LPB-Gov

Date 25 December 2018

Agreement

On transferring land right at Ban Phanom, Luangprabang city to water state enterprise of Luangprabang (NPNP-LPB)for constructing of new reservoir

- According to the report from department of natural resource and environment of LPB (DoNRE-LPB), dated 14/12/2018

The governor of LPB agreed on:

Article 1: Giving the land right of Ban Phanom, LPB city, Luangprabang province to NPNP- LPB for construction of new reservoir, which details as following:

- At the North bordered by the land of Mr. Hien+Ms.Keo+Ms.Somchit with 51.00 meters length.
- At the South bordered by the village land with 51.00 meters length.
- At the East bordered by the land of Ms. Khamphan with 103.50 meters length
- At the West bordered by the land of Ms. Bouasy with 106.00 meters length

The Total Area is 5,383 square meters

Article 2: the land is given for constructing the new reservoir only, not allow to transferring the land right to private sector

Artivle3: assign DONRE-LPB co-ordinate with all concerned sectors to implementation according to the regulations.

Article 4: the agreement is effectived at the day of singing

Provisional translation by English

LPB- Governor

Mr. Khamkhan Chanthavysouk