

[資料]

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(1) 調査団員・氏名

名 前	担 当 業 務	所 属
JICA 団員		
1	荒津 有紀	団長
2	横田 義昭	技術アドバイザー
3	藤田 暁子	協力企画
4	木村 真樹子	協力企画
5	安藤 岳洋	協力企画
コンサルタント団員		
6	青木 徹	業務主任／上水道計画 1
7	男鹿 剛彦	副業務主任／上水道計画 2
8	中田 貴大	水道水源／取水施設計画、施工・調 達計画／積算
9	浅田 英紀	浄水施設計画・設計／運転維持管理
1 0	菊池 秀治	導水・送配水施設計画・設計
1 1	金田 誠	設備・機材計画
1 2	林 明	機械
1 3	後藤 真由美	環境社会配慮
1 4	西牧 宏	財務・経営

(2) 調査行程

1) 第1次現地調査 (JICA 団員、コンサルタント団員)

日時	場所	主な内容
4月22日(日)		日本からラオス(ビエンチャンへ移動)
4月23日(月) AM	DWS(MPWT)	インベション協議
4月23日(月) PM	日本大使館 (廣瀬三等書記官)	プロジェクト概要の説明
	JICA ラオス事務所 (所長、次長他)	プロジェクト概要の説明
		ビエンチャンからルアンパバーンへ移動
4月24日(火) AM	Phouphueng WTP	現地調査
	ルアンパバーン県庁	県知事表敬訪問
4月24日(火) PM	DPWT	インベション協議 (副知事、DWS(MPWT)、DPWT-LPB、WSSE-LPB、 ルアンパバーン県世界遺産室)
4月25日(水) AM	WSSE-LPB	インベション協議 (DWS(MPWT)、DPWT-LPB、WSSE-LPB)
4月25日(水) PM	ナムカン浄水場	現地調査
	Demco WTP	ヒアリングおよび現地調査
4月26日(木) AM	WSSE-LPB	インベション協議 (DWS(MPWT)、DPWT-LPB、WSSE-LPB)
4月26日(木) PM	ルアンパバーン県世 界遺産室	HIAに関する協議
4月27日(金)	Asia WTP	ヒアリングおよび現地調査
	WSSE-LPB	ミニツサイン (DWS(MPWT)、DPWT-LPB、WSSE-LPB)
		JICA 団員日本へ向けて現地出発

2) 第1次現地調査 (コンサルタント団員)

日	協議及び現地調査概要
4月30日(月)	WSSE-LPB に老朽管布設位置、給水拡張区域、配水池候補箇所、管種、収集資料の依頼
5月1日(火)	協議のための資料作成
5月2日(水)	北部・南部の拡張区域の現地確認
	社会条件調査実施のためのレター作成依頼
5月3日(木)	現地調査の資料整理、協議のための資料作成
5月4日(金)	水需要予測のための基礎データ内容の確認
	プーシー配水池への送水管布設位置確認
	南部拡張区域の現地確認

日	協議及び現地調査概要
5月7日(月)	WSSE-LPBに水需要予測のための基礎データ内容の確認
5月8日(火)	資料整理、協議のための資料作成
5月9日(水)	流量計設置箇所の現地確認
5月10日(木)	資料整理、協議のための資料作成
5月11日(金)	収集資料の確認、収集依頼事項、WSSE-LPB協議
5月14日(月)	既存管路施設の確認
5月15日(火)	ナムカン浄水場での聞き取り調査
5月16日(水)	資料整理、協議のための資料作成
5月17日(木)	資料整理、協議のための資料作成
5月18日(金)	UXO-LPB事務所への訪問 WSSE-LPBとの打ち合わせ
5月21日(月)	消防署での聞き取り調査
5月22日(火)	資料整理、協議のための資料作成
5月23日(水)	UXO-LPBとの現地立ち合い(配水池用地)
5月24日(木)	プロジェクトコンポーネントに関する協議 (WSSE-LPB、DPWT-LPB)
5月25日(金)	プロジェクトコンポーネントに関する協議 (WSSE-LPB)
5月28日(月)	調査結果の報告(出席機関:WSSE-LPB、DPWT-LPB、ルアンパバーン県世界遺産室、DPI、UXO-LPB等)
5月29日(火)	資料整理、協議のための資料作成 ルアンパバーンからビエンチャンへ移動
5月30日(水)	調査結果の報告(DWS)
5月31日(木)	調査結果の報告(JICAラオス事務所、日本国大使館)
6月4日(月)	ルアンパバーン県公共事業・運輸局道路部での聞き取り調査(公共道路の範囲確認) ルアンパバーン市農業・森林局での聞き取り調査(プロジェクト域内の保護区確認) Pakham村村長への聞き取り調査(世界遺産区ナイトマーケットの運営形態)
6月7日(木)	ルアンパバーン市廃棄物処理場(Lak 8)の位置確認
6月8日(金)	資材置き場候補地の位置確認(ナムカン浄水場内および隣接地)
6月13日(水)	Pakham村村長への聞き取り調査(2回目、世界遺産地区工事の進め方等) Pongvang村村長への事業説明および社会経済にかかる統計の入手
6月14日(木)	Phanom村村長、村役員、近隣住民への事業説明および社会経済にかかる統計の入手、ナムカン浄水場取水口周辺の川利用に係る聞き取り調査
6月15日(金)	ナムカン浄水場 水質データの入手
6月18日(月)	工事中に遺物、遺構を発見した場合の手続きの確認

日	協議及び現地調査概要
6月19日(火)	経理処理システムに関する情報収集
6月20日(水)	経理処理システムに関する情報収集
6月21日(木)	生産・販売量データ及び将来予測に関する情報収集
6月22日(金)	経営に関する情報収集
6月25日(月)	資料整理、協議のための資料作成
6月26日(火)	資料整理、協議のための資料作成
6月27日(水)	資料整理、協議のための資料作成
6月28日(木)	資料整理、協議のための資料作成
6月29日(金)	ルアンパバーン県水道公社および DPWT への環境社会配慮に係る調査の進捗報告
7月1日(日)	ルアンパバーンからビエンチャンへ移動
7月2日(月)	環境社会配慮調査の再委託先と IEE 書作成に係る打ち合わせ
7月3日(火)	コンサルタント団員日本帰国

3) DOD 協議 (JICA 団員、コンサルタント団員)

日時	場所	主な内容
11月25日(日)		日本からラオス (ルアンパバーンへ移動)
11月26日(月)	WSSE-LPB	DOD 協議
	ルアンパバーン県庁	県知事表敬訪問
11月27日(火)	WSSE-LPB	DOD 協議
		ミツサイン (DWS(MPWT)、県知事)
		JICA 団員日本へ向けて現地出発

4) 第2次現地調査 (コンサルタント団員)

日	協議及び現地調査概要
11月27日(火)	WSSE-LPB にて DOD 協議
	ミツサイン (DWS(MPWT)、県知事)
	ルアンパバーン県世界遺産室との現地確認 (消火栓および配水管布設位置))
11月28日(水)	WSSE-LPB と HIA に関する協議
11月29日(木)	ルアンパバーン県世界遺産室と HIA に関する協議
	WSSE-LPB と HIA に関する協議
	DPWT と HIA に関する協議
11月30日(金)	ルアンパバーン県世界遺産室より、HIA に関するレターの受取
	WSSE-LPB とラオス側負担事項に関する協議
	日本へ向けて現地出発
12月1日(土)	コンサルタント団員帰国

(3) 関係者（面会者）リスト

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.Saylounng 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) 討議議事録 (M/D)

下記の討議議事録を添付する。

署名日	議事録名
2018年4月27日	Minutes of Discussions on the Preparatory Survey for the Project for Expansion of Water Supply System in Luang Prabang
2018年11月27日	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 Phoupong 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 m³/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 12,000m³/day of production capacity
- Phouphueng WTP: Countermeasures for high concentration of hardness
- Monitoring System

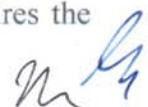
5-2. JICA will assess the feasibility of the above requested items through the survey and will report the findings to the Government of Japan. The final scope of the Project will be decided by the Government of Japan.

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.

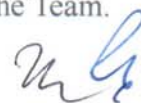
-Before Construction Work:

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)

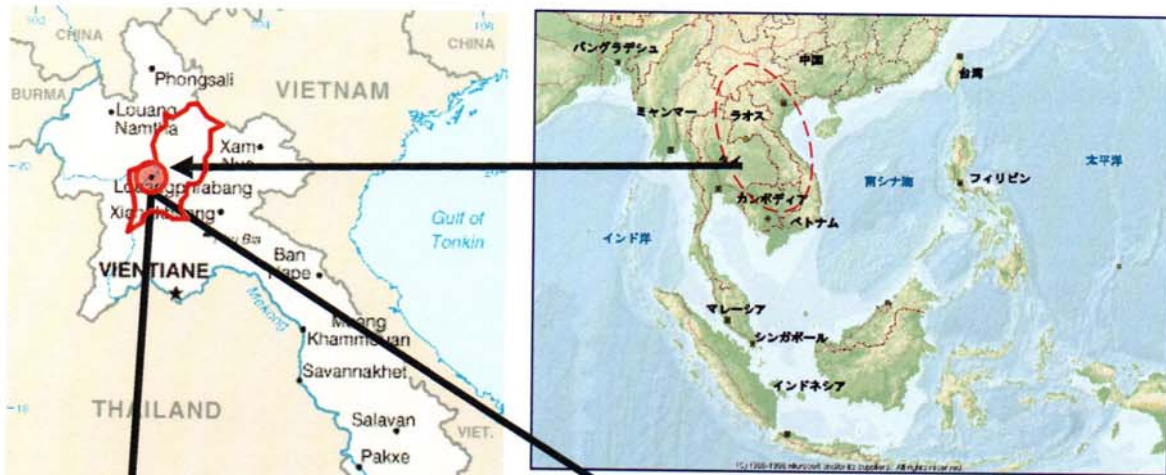
Annex 5 Major Undertakings to be taken by the Government of Lao P.D.R.

Annex 6 Procedures for application of tax exemption





Location map of Luang Prabang City

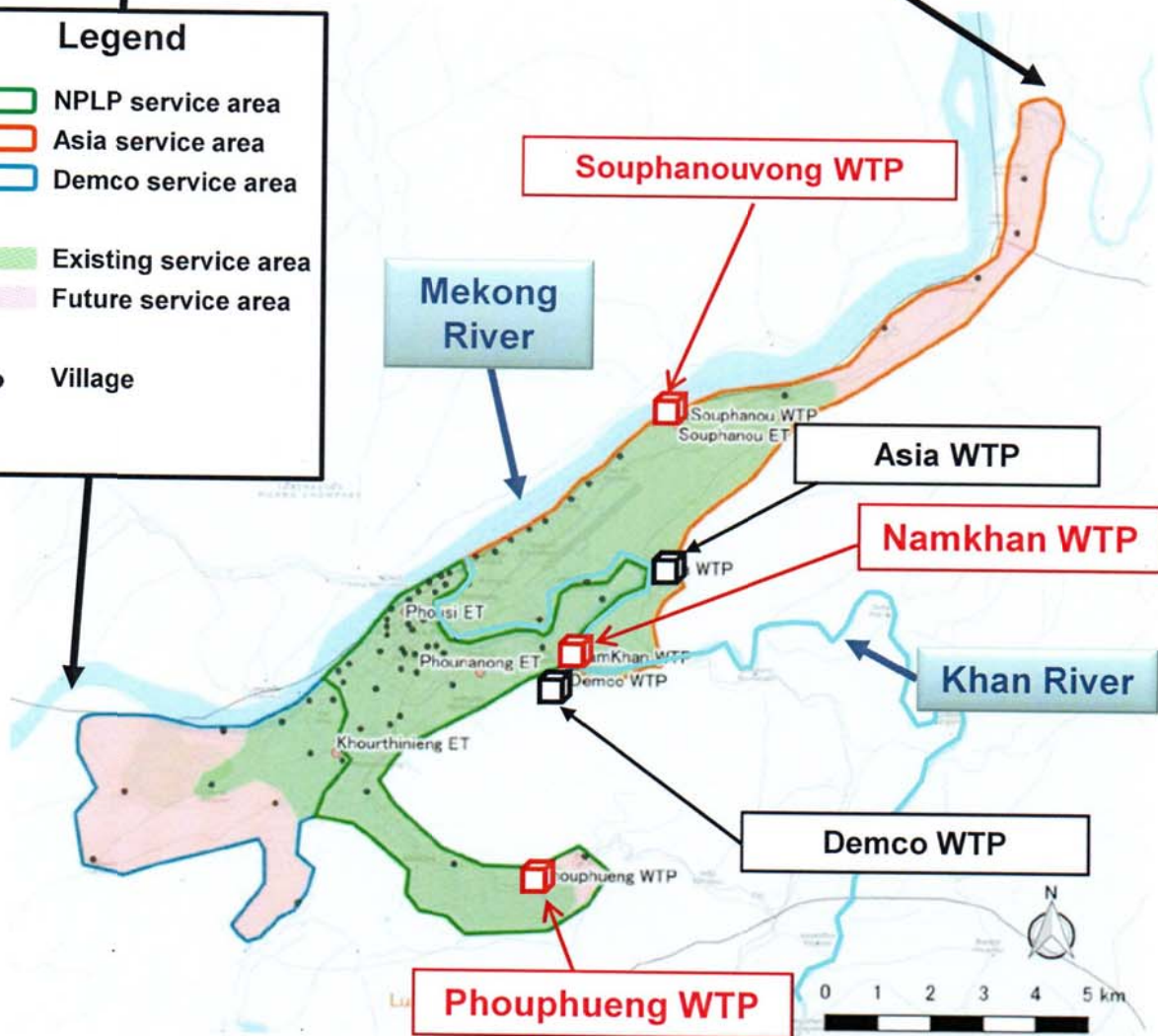


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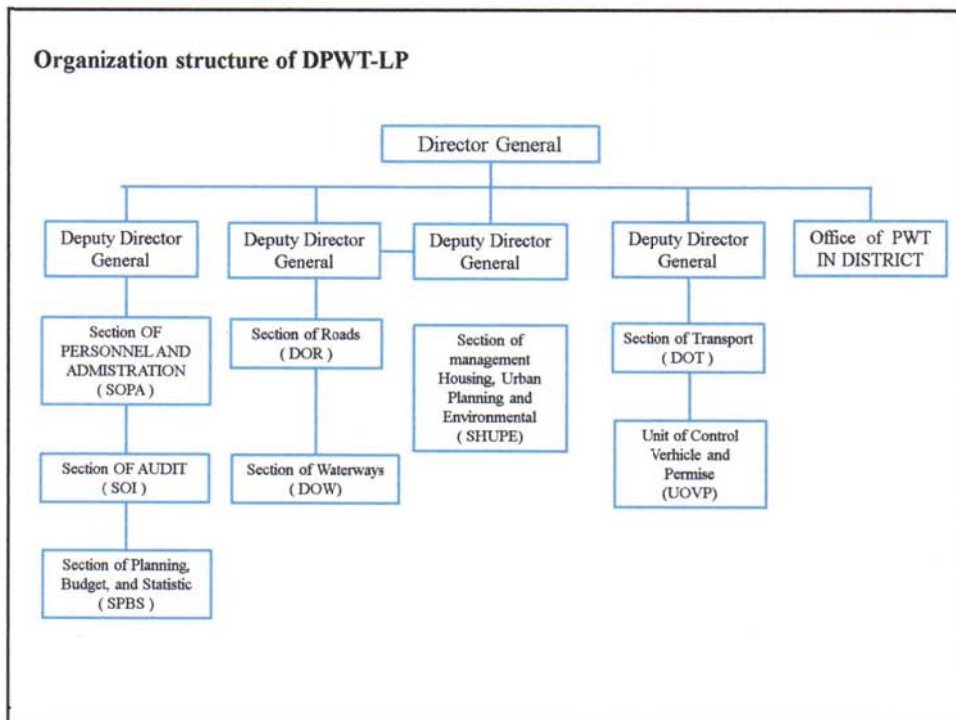
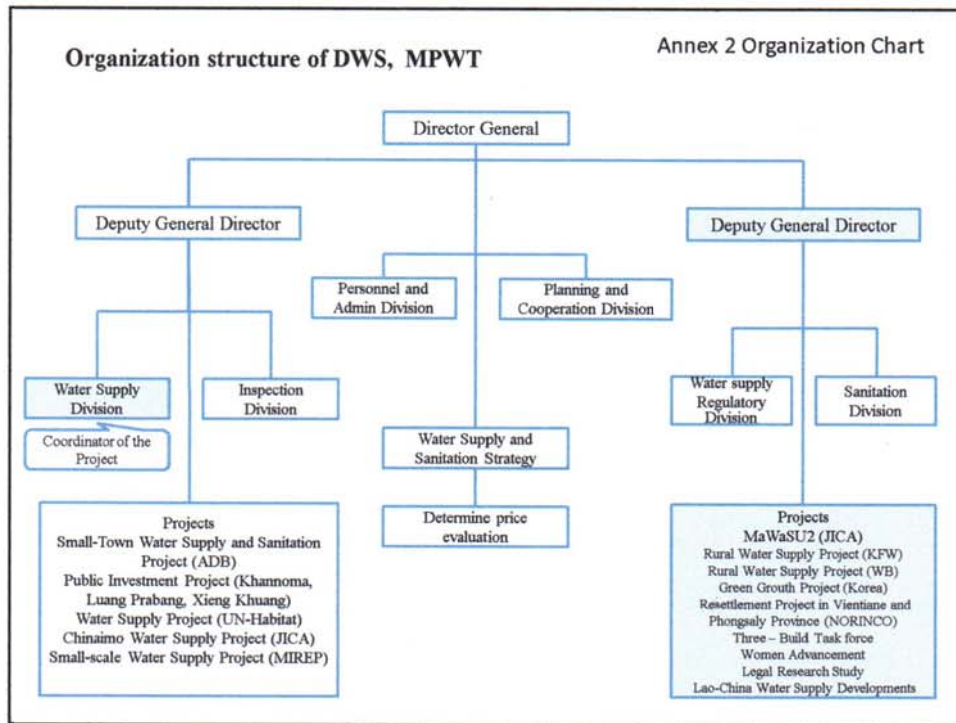
- Luang Prabang Province
- Luang Prabang City

Legend

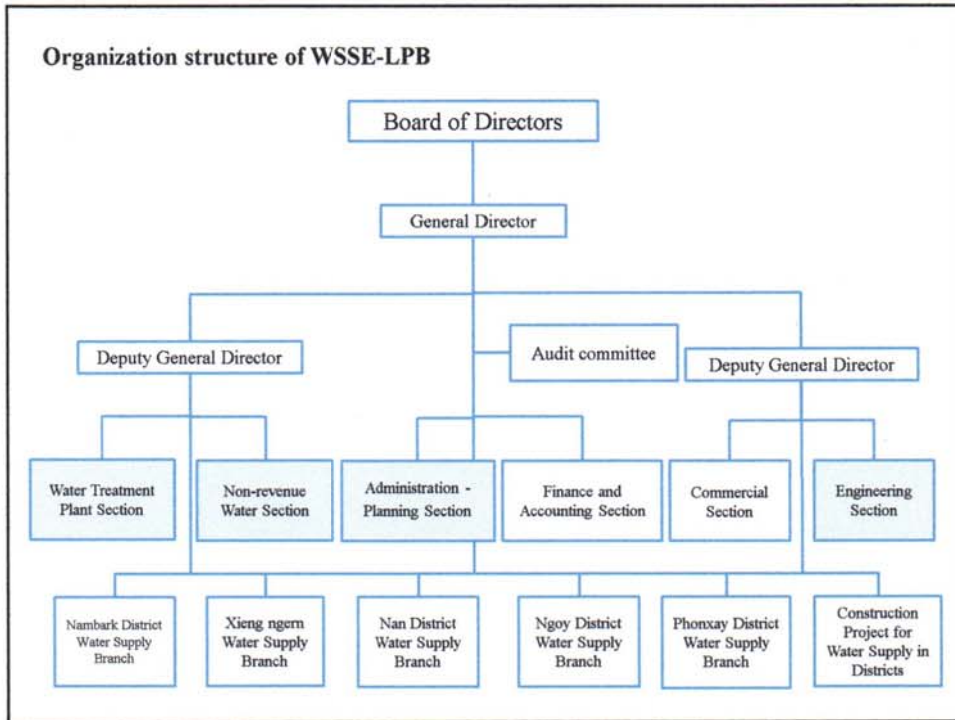
- NPLP service area
- Asia service area
- Demco service area
- Existing service area
- Future service area
- Village



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



M.G.



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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

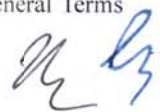
JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

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 signed 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.

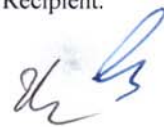
9) Construction Quality Control Meeting

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.



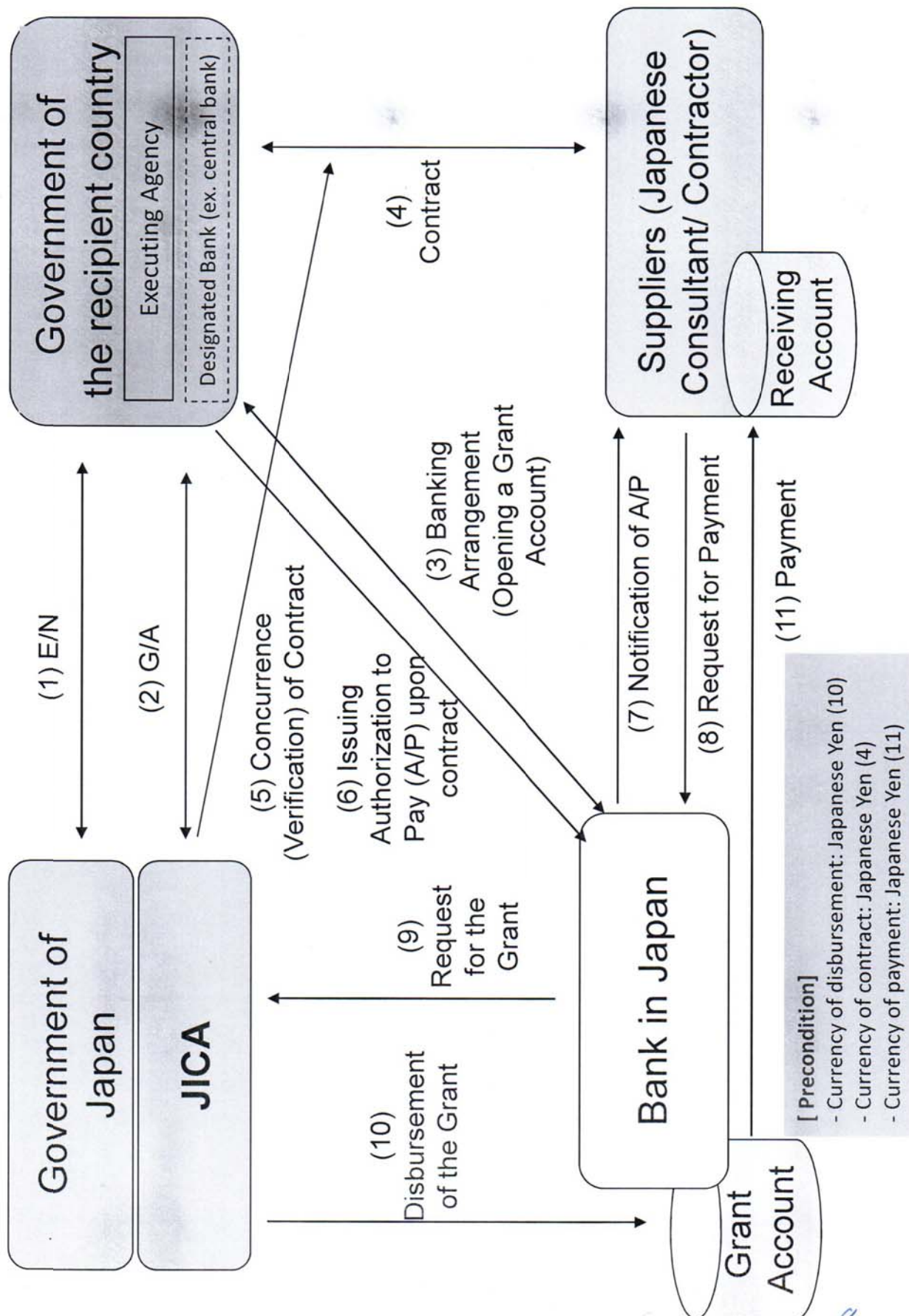
PROCEDURES OF JAPANESE GRANT

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).

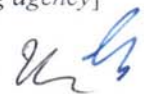
Very truly yours,

[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]

by

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 <i>(proposed in the outline design)</i>	Actual
1.		

2-2 Scope of the work

Components	Original* <i>(proposed in the outline design)</i>	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
	<i>(proposed in the outline design)</i>	<i>(at the time of signing the Grant Agreement)</i>	

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 <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^(1),2) <i>(proposed in the outline design)</i>	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 <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^(1),2) <i>(proposed in the outline design)</i>	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:
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:
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.

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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	Condition of payment 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%)	



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		



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

<p>1. Approval of Master List</p> <p>Contractor → WSSE-LPB → (DPWT) → MPWT → MOF</p> <p>WSSE-LPB : Confirm contents and attach Confirmation Letter</p> <p>(DPWT) : Confirm contents and attach Confirmation Letter</p> <p>MPWT : Confirm contents with procurement, approve by the Minister</p> <p>: Compare/collate with construction contents</p> <p>MOF : Confirm contents with Dept. of Tax & Excise, return to Contractor after approval</p>
<p>2. Approval of Shipping Invoice</p> <p>Contractor → WSSE-LPB → (DPWT) → MPWT → Customs</p> <p>WSSE-LPB : Confirm contents and attach Confirmation Letter</p> <p>(DPWT) : Confirm contents and attach Confirmation Letter</p> <p>MPWT : Check with Master List.</p> <p>Contractor : Submit to Customs office and customs clearance</p>

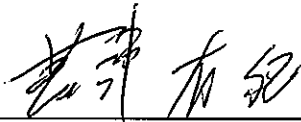


Minutes of Discussions
on the Preparatory Survey for the Project for
Expansion of the Water Supply System in Luang Prabang City
(Explanation on Draft Preparatory Survey Report)

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

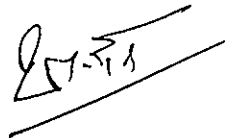


Mr. Yuki Aratsu
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan



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 approval from the Governor of Luang Prabang Province and it is expected that the approval from the Governor 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 being conducted between MPWT-DWS, WSSE-LPB and the private operator.

Both sides confirmed that Project Steering Committee 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 confirmed 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

1.06



Confidential**Project Cost Estimation**

1. Cost Estimation Borne by the Government of Japan

Item	Details	Estimated Cost (Million JPY)
Transmission and distribution pipelines	L=65.2km	/
House connection	Changeover of house connection in existing service area	
New reservoir		
Namkhan WTP (Civil)	Receiving and mixing well, flocculation basin, sedimentation basin, Wastewater & sludge basin, Lagoon etc.,	
Namkhan WTP (Equipment)	Intake pump, transmission pump for new reservoir, chemical feed facilities etc.,	
Monitoring system		
Other direct cost	Transportation and packing etc.,	
Equipment procurement	Belt conveyor	
Indirect construction cost		
General and administrative cost		
Detailed design and construction supervision		
Soft component (technical assistance)		
Contingencies		
Total		

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 <i>Clearing</i>	349.9	4.6
Access road <i>road</i> construction	897.0	11.8
Repairment, Withdrawal, 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.

(Signature)

(Signature)

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. XXXXXXXX
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		
<ul style="list-style-type: none"> - 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: 1,500m ³	
4. Transmission pipelines	L- 5.0km (OD225-400)	
5. Namkhan WTP (improvement)	Q=12,000 m ³ /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)

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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 <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	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 <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	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		305.7	
	Withdrawal of followings			

	<ul style="list-style-type: none"> - 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,	<ul style="list-style-type: none"> - 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)

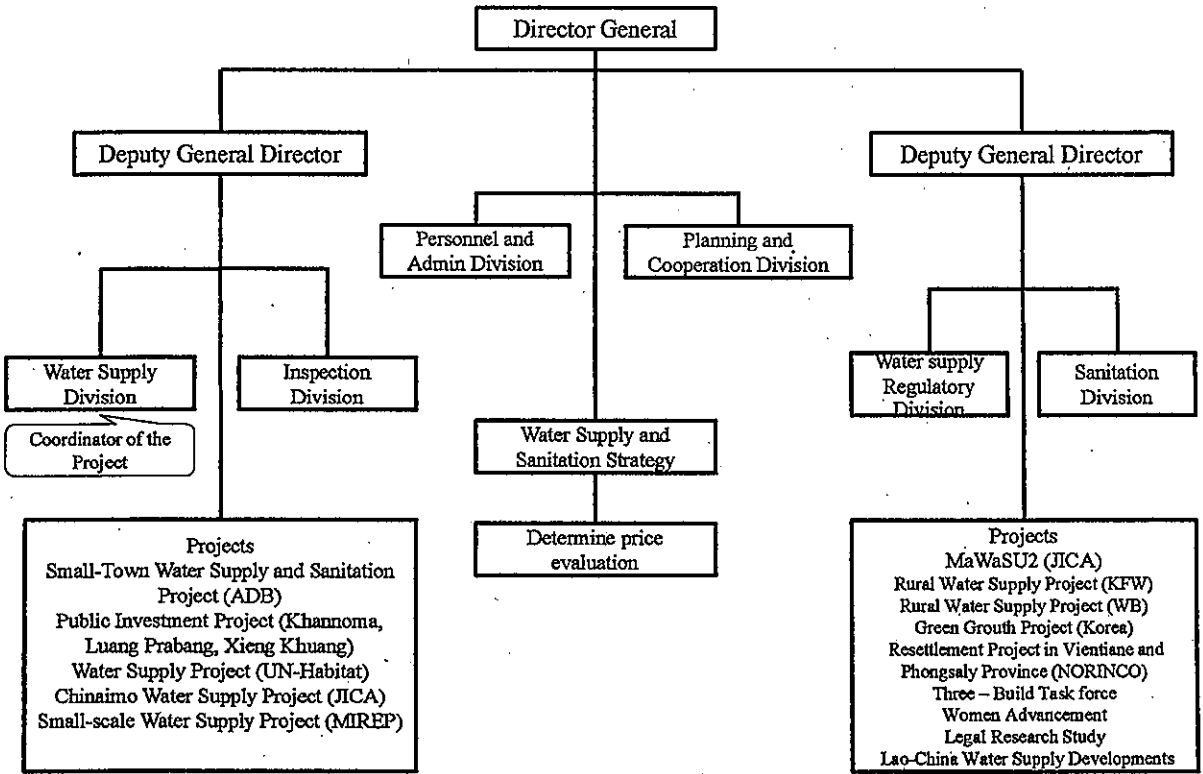
(PMR)

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

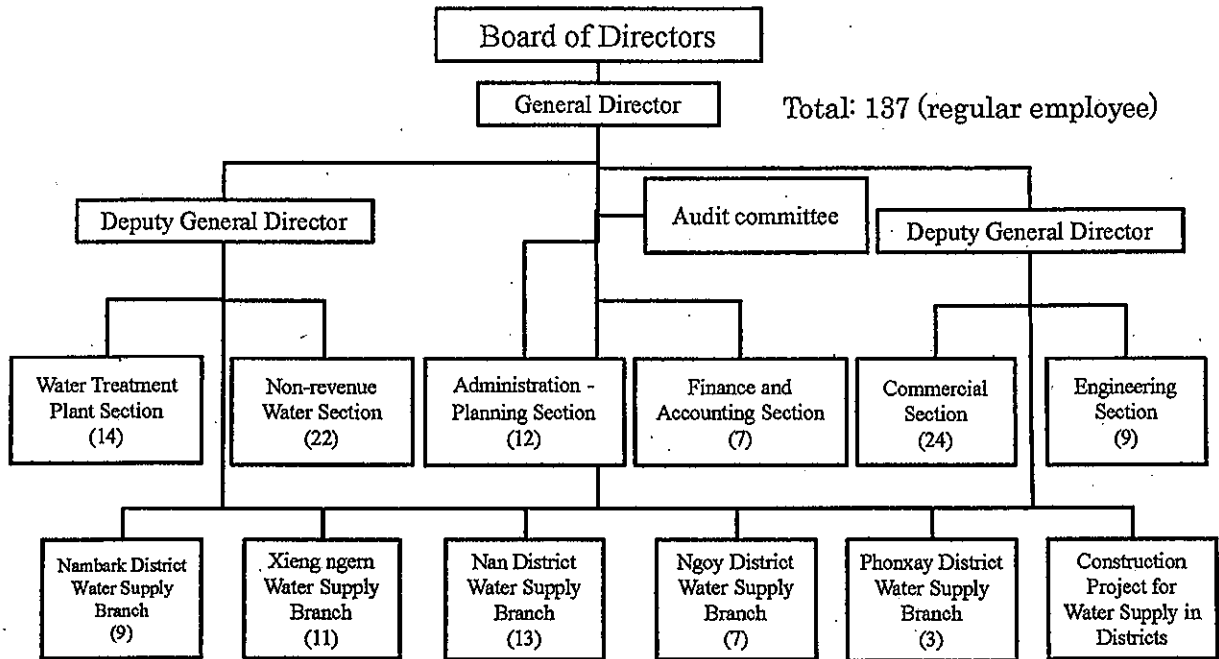
- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

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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/ <u>Low</u>
	Impact: <u>High</u> /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/ <u>Low</u>
	Impact: High/ <u>Moderate</u> /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.

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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)

1. DOK

Q

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
Item 1	●●t	●	●●	●	●	●
Item 2	●●t	●	●●	●		
Item 3						
Item 4						
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
Item 1	●	●	●			
Item 2						
Item 3						
Item 4						
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] Environmental Check List

Environmental Item	Main Check Items	Yes Y No N	Confirmation of Environmental Considerations (Reasons/Mitigation Measures)
1. Permits and Explanation	<p>(a) Have EIA reports been already prepared in official process?</p> <p>(b) Have EIA reports been approved by authorities of the host country's government?</p> <p>(c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied?</p> <p>(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?</p>	<p>(a) Y</p> <p>(b) N</p> <p>(c) -</p> <p>(d) Y</p>	<p>(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.</p> <p>(d) Approval on the construction activities in the World Heritage Site area shall be obtained from Luang Prabang Heritage Office before construction phase.</p>
<p>(2) Explanation to the Local Stakeholders</p>	<p>(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?</p> <p>(b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?</p>	<p>(a) Y</p> <p>(b) Y</p>	<p>(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.</p> <p>(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.</p>
<p>(3) Examination of Alternatives</p>	<p>(a) Have alternative plans of the project been examined with social and environmental considerations?</p>	<p>(a) Y</p>	<p>(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.</p>
2. Pollution Control			

(1) Air Quality	<p>(a) Is there a possibility that chlorine from chlorine storage facilities and chlorine injection facilities will cause air pollution? Are any mitigating measures taken?</p> <p>(b) Do chlorine concentrations within the working environments comply with the country's occupational health and safety standards?</p>	(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 regularly 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.

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	<p>(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?</p>	<p>(a) N (b) N (c) N (d) N</p>	<p>(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.</p>
(3) Hydrology	<p>(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?</p>	<p>(a) N</p>	<p>(a) The amount of water taken from the Namkhan river will not increase by the Project.</p>
4. Social Environment			
(1) Resettlement	<p>(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?</p>	<p>(a) N (b) Y (c) Y (d) Y (e) Y (f) - (g) - (h) - (i) - (j) Y</p>	<p>(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</p>

	<p>(g) Are agreements with the affected people obtained prior to resettlement?</p> <p>(h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>(i) Are any plans developed to monitor the impacts of resettlement?</p> <p>(j) Is the grievance redress mechanism established?</p>		compensation disbursement.
(2) Living and Livelihood	<p>(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?</p>	(a) N (b) N	<p>(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.</p>
(3) Heritage	<p>(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?</p>	(a) N	<p>(a) Construction activities in the World Heritage Sites 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:</p> <ol style="list-style-type: none"> 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	<p>(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?</p>	(a) N	<p>(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.</p>
(5) Ethnic Minorities and Indigenous	<p>(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples?</p> <p>(b) Are all of the rights of ethnic minorities and indigenous peoples in</p>	(a) - (b) N	<p>(a)(b) The project will not give negative impacts on the ethnic minorities.</p>

Peoples	relation to land and resources respected?		
(6) Working Conditions	<p>(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?</p> <p>(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?</p> <p>(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.?</p> <p>(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?</p>	<p>(a) N</p> <p>(b) Y</p> <p>(c) Y</p> <p>(d) Y</p>	<p>(a) There is no violation of laws or ordinances on the working conditions due to the project.</p> <p>(b)(c) (d) Safety for individuals involved in the project will be considered by conducting regular monitoring and providing instructions.</p>
5. Others			
(1) Impacts during Construction	<p>(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>(b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p> <p>(d) If the construction activities might cause traffic congestion, are adequate measures considered to reduce such impacts?</p>	<p>(a) Y</p> <p>(b) N</p> <p>(c) Y</p> <p>(d) Y</p>	<p>(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.</p> <p>(b) No negative impact is expected.</p> <p>(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</p> <p>(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.</p>

<p>(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?</p>	<p>(a) Y(b) Y(c) Y(d) Y</p>	<p>(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.</p>
<p>6 Note</p>		
<p>(1) Reference to Checklist of Other Sectors</p>	<p>(a) N</p>	<p>(a) Where necessary, pertinent items described in the Dam and River Projects checklist should also be checked.</p>
<p>(2) Note on Using Environmental Checklist</p>	<p>(a) N</p>	<p>(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).</p>

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. Nature and 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 temporarily 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 workers 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
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
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

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【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 - Water sampling (BOD≤30mg/l, Turbidity, Temperature, Color)	Construction contractor's camp - Discharge point to the Khan River	Monthly	PIU(DPWT/WSSE-LPB)
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 workers 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	
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- 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 , e: New Reservoir
 b: Disposal Area f: Fire Hydrants
 c: Namkhan Water Treatment Plant
 d: Transmission/Distribution Pipe

[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) ソフトコンポーネント計画書

ラオス国

ルアンパバーン市上水道拡張計画準備調査

ソフトコンポーネント計画書（案）

2019年1月

株 式 会 社 日 水 コ ン
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ラオス国
ルアンパバーン市上水道拡張計画準備調査

ソフトコンポーネント計画書（案）

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1. ソフトコンポーネントを計画する背景

(1) 本プロジェクトの背景

『ラオス国ルアンパバーン市上水道拡張計画』は、①ナムカン浄水場の機能改善（着水井・薬品混合池・フロック形成池・沈澱池を 6,000m³/日増設）、②ルアンパバーン市中心部の既存給水区域における送配水管網の更新、③南部・北部給水区域への配水管新設による給水区域の拡張、④世界遺産地区への消火栓設置、⑤モニタリングシステムの導入等からなっている。これらの水道施設を持続的に運転維持管理していくために、ルアンパバーン県水道公社（WSSE-LPB）に所属するナムカン浄水場の運転維持管理（O&M）を担当する職員および水運用を担当する職員が、本プロジェクトで導入する施設及び設備を適切に運用できる能力を身に付ける必要がある。

ソフトコンポーネントの対象部署は、以下の通りとする。

運転維持管理：Water Treatment Plant Division の担当者

配水量管理：Administration Planning Division 及び

Finance and Accounting Division の担当者

本プロジェクトでは、次の二つの分野に対するソフトコンポーネントの実施を計画している。

1. ナムカン浄水場の運転管理および水質管理（取水の流量制御方法及びそれに伴う薬品注入率の設定、新たに整備される排水処理施設の運転管理）
2. モニタリングシステムの活用（モニタリングシステムの概要を以下に示す。）

本プロジェクトで計画しているモニタリングシステムの概要図を図 1.1 に、計測対象項目を表 1.1 に示す。

本モニタリングシステムでは、水道公社本部事務所、ナムカン浄水場、プープン浄水場にて計測対象項目をパソコン画面で確認することが可能となる。

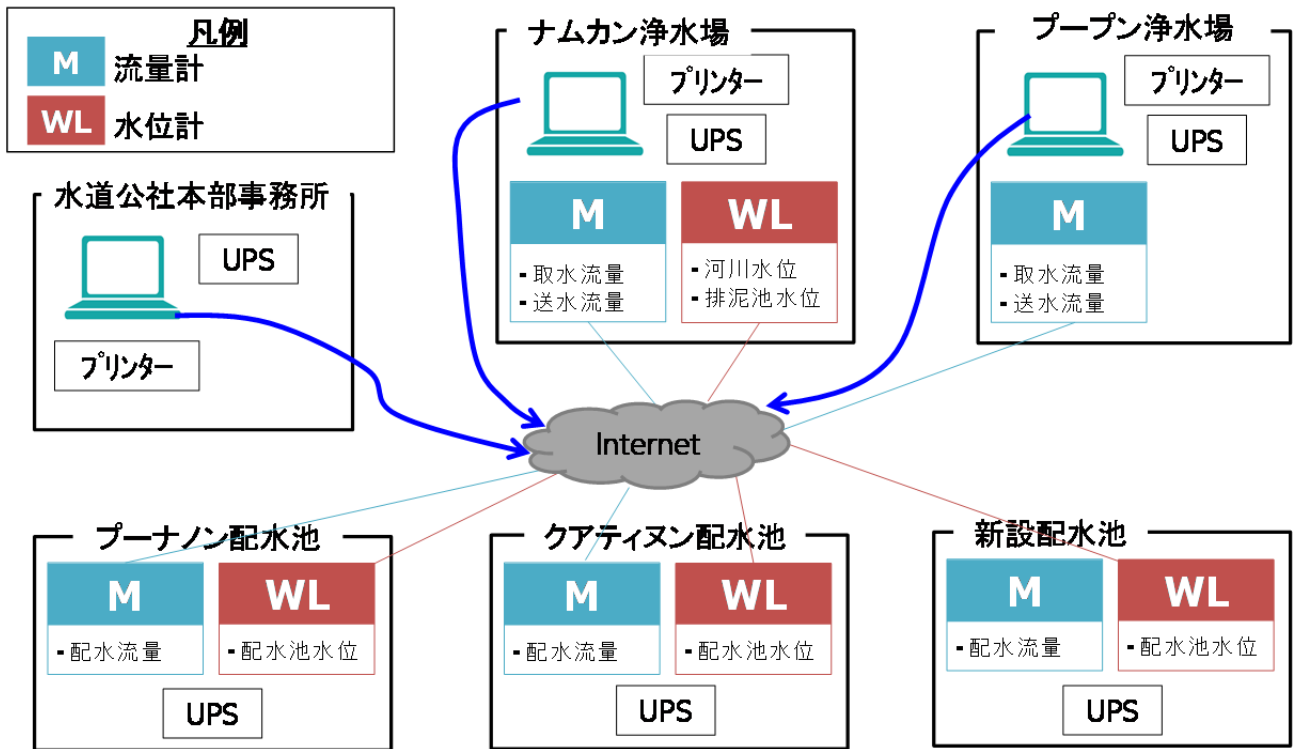


図 1.1 モニタリングシステムの概要図

表 1.1 モニタリングシステムによる計測対象項目

施設	計測対象項目
ナムカン浄水場	- 流量（取水、送水） - 水位（河川水位、排泥池）
プーポン浄水場	- 流量（取水、送水）
プーナノン配水池	- 流量（配水） - 水位（配水池）
クアティヌン配水池	- 流量（配水） - 水位（配水池）
新設配水池	- 流量（配水） - 水位（配水池）

(2) ソフトコンポーネントの必要性

支援対象となるルアンパバーン市では、表 1.2 に示す技術協力プロジェクト及び草の根技術協力事業が実施されている。

表 1.2 ルアンパバーン市で実施されている技術協力プロジェクト及び草の根技術協力事業

No	プロジェクト名	期間 (予定含)	日本側 専門家	主なカウンターパート	備考
1	水道公社事業管理 能力向上プロジェクト (MaWaSU)	2012年8月～ 2017年8月	さいたま市、 埼玉県、横 浜市、川崎 市、	・公共事業運輸省水道課 ・公共事業運輸局(ビエンチャン、 ルアンパバーン、カムアン) ・水道公社(ビエンチャン、ル アンパバーン、カムアン)	・技術協力プロジェク ト
2	水道事業管理 運営能力向上 プロジェクト (MaWaSU2)	2018年5月～ 2023年5月	さいたま市、 埼玉県、横 浜市、川崎 市、	・公共事業運輸省水道課 ・公共事業運輸局(ビエンチャン、 ルアンパバーン、カムアン) ・水道公社(ビエンチャン、ル アンパバーン、カムアン)	・技術協力プロジェク ト ・ <u>MaWaSU プロジェク トのフェーズ 2</u>
3	水道公社における 浄水場運転・維持管理 能力向上支援事業	2016年1月～ 2019年1月	埼玉県	・公共事業運輸省水道課 ・水道公社(ビエンチャン、ル アンパバーン、カムアン)	・草の根技術協力 ・ <u>ナムカン浄水場 の運転管理指導 含む</u>
4	水道公社における 上水道管路維持管理 能力向上支援事業	2018年～ 2021年予定	さいたま市	・公共事業運輸省水道課 ・水道公社(ビエンチャン、ル アンパバーン、カムアン)	・草の根技術協力 ・配水管、給水管 の施工能力向上

上記プロジェクトでは、本プロジェクトで対象としているナムカン浄水場に係わる支援が実施されている。これら技術協力プロジェクト及び草の根技術協力事業について、ナムカン浄水場に係わる活動内容等を表 1.3 に示す。

表 1.3 技術協力プロジェクト、草の根技術協力事業及び本ソフトコンポーネントの主な活動内容

No	プロジェクト	主な活動内容	主な成果等
1	水道公社事業管理能力向上プロジェクト (MaWaSU)	浄水場運転管理及び水質管理に係わる主な活動として下記が実施された。 <ul style="list-style-type: none"> ・水質測定項目及び測定頻度の設定 ・水質測定箇所の設定(浄水場内の複数箇所を設定) ・水質記録の作成(毎日、毎週、毎月、毎年の測定頻度別) ・水質機器リストの作成 ・浄水場施設のデータ整備(資産リスト、電気及び薬品の使用状況(運転費用)、補修情報) 	浄水場施設の現況の運転状況が分かるデータが整備された。
2	水道事業管理運営能力向上プロジェクト (MaWaSU2)	浄水場に関する活動については、下記が計画されている。 <ul style="list-style-type: none"> ・施設設計及び建設に必要となる技術基準の作成 (①全ラオス水道遵守義務、水道施設が最低限確保すべき規定(性能基準)を定めた設計施工・資機材等の技術基準となる省令/施行規則の作成支援、②技術基準遵守に関する判断基準となる具体的内容を規定する設計施工に関する指針の作成支援) 	浄水場施設の設計・建設基準が作成される予定である。
3	水道公社における浄水場運転・維持管理能力向上支援事業 (埼玉県)	専門家指導の下、ナムカン浄水場の運転管理について主に下記が実施された。 <ul style="list-style-type: none"> ・ろ過池洗浄マニュアルの整備及び運用 ・薬品注入率設定表の整備及び運用 ・日常水質記録表の整備及び運用 ・日常点検用チェックリストの整備 ・機器性能表の整備 	既存浄水場施設の運転管理方法の向上及びマニュアル作成等の活動が実施された。
4	水道公社における上水道管路維持管理能力向上支援事業 (さいたま市)	下記成果達成のための活動が実施される。 <ul style="list-style-type: none"> ・配水管、給水管の施工管理体制の改善 ・配水管、給水管の施工基準改善 ・配水管、給水管材料選択の適正化 ・配水管、給水管材料の管理の適正化 	管路施設に関する活動が実施される予定である。
5	本プロジェクト (ソフトコンポーネント)	本プロジェクトで新たに導入する施設により、運転方法が変わる部分についての技術指導を行う。 <ul style="list-style-type: none"> ・取水水量に対する流量制御弁導入に伴う、浄水水質管理方法 ・汚泥処理施設新設に伴う、汚泥処理施設の運転方法 	新たに導入される施設に対する運転管理能力の向上

ナムカン浄水場に係わる活動については、特に No.1 及び No.3 のプロジェクトにより支援が実施されている状況である。

No.1 プロジェクトにより、浄水場施設の運転状況が分かるデータが整備され、そのうえで No.3 プロジェクトにより、マニュアル類の作成及び運用により浄水場の運転管理能力の向上が図られている。

これら No.1 及び No.3 プロジェクトにより、ナムカン浄水場の現況施設における運転管理能力が向上している状況であるため、ソフトコンポーネントでは、本プロジェクトの実施により運転方法が変更になる部分に対して技術指導を行う必要がある。

上記を踏まえ、ソフトコンポーネントの必要性を表 1.4 の通り整理した。

表 1.4 ソフトコンポーネントの必要性

項目	現況	本プロジェクトの概要	ソフトコンポーネントの必要性
ナムカン浄水場の運転管理および水質管理	<p>現施設には原水流量制御装置が無く、カン川の水位変動により取水量が変動するため、凝集剤注入量の制御が難しく、浄水処理水質に影響を及ぼす事が考えられる。</p> <p>現状の沈澱池では上澄み水排水設備が無く、且つ排水池及び排泥池も無く、沈澱汚泥が未処理のまままで放流されている。</p>	<p>取水ポンプの運転水位を把握するため、カン川の河川水位計を新設する。また、取水流量計下流側に流量制御弁を設置する。水位計と流量制御弁により取水量を一定に制御し、凝集剤注入量を一定に保つことにより、浄水水質の安定化を図る。</p> <p>上澄み排水装置、排水処理施設(排水・排泥池およびラグーン)を新設する。</p>	<p>水位計やバルブ等の個々の機器の操作については、施設建設を担当するコントラクターにより施設の引渡し時に説明が行われる。しかし、水位計の観測結果を用いた取水の流量制御方法については、コントラクターの業務範囲外であり、コンサルタントによる指導が必要である。また、取水量が一定となることにより凝集剤注入量も一定とすることで、浄水水質の安定化を図るよう指導する。</p>
モニタリングシステムの活用	<p>ルアンパバーンにおいて、既存浄水場は4箇所があり、造水コストは240～2,000kip/m³と、浄水場により大きく異なる。また、既存流量計の多くが故障中であり、経済的水運用が実施されていない。</p>	<p>ナムカン浄水場、プーブン浄水場、プーナン配水池、クアティヌン配水池、新配水池の運転状況、水位、流量をモニタリングする。</p> <p>水道公社本部事務所、ナムカン浄水場、プーブン浄水場のモニタリング機器によりモニタリングのできるようになる。</p>	<p>新設する施設の運転維持管理に関する訓練をせずにスムーズに十分な排水・排泥処理および汚泥処分までの一連の作業を実施することは難しいと考えられる。</p> <p>また、排水処理施設は新たに導入される施設のため、技術協力プロジェクト等で取り上げられていない内容である。</p> <p>水位計や流量計等の個々の機器の操作については、施設建設を担当するコントラクターにより施設の引渡し時に説明が行われる。ただし、モニタリングシステムを活用した経済的な水運用の実施手法についての説明は行われない。</p> <p>モニタリングシステムは、新たに導入されるため、これまでの技術協力プロジェクト等では取り上げられていない内容である。</p> <p>上記より、モニタリングシステムの活用方法について、ソフトコンポーネントにおいて技術指導が必要である。</p>

2. ソフトコンポーネントの目標

本プロジェクトにおけるソフトコンポーネントの目標は、「ルアンパバーン県水道公社の関係職員が、ナムカン浄水場の運転・維持管理を適切に行うことにより水質基準を満たす水を住民に供給すること、ならびに新たに導入するモニタリングシステムを活用することで、安定した水質、水量管理を実施すること」である。

3. ソフトコンポーネントの成果

本プロジェクトで導入される各機器の操作説明は、コントラクターより実施される。ソフトコンポーネントでは、それを前提として各機器の組み合わせによる運転を行う必要があるものを対象とする。

上記を踏まえ、本ソフトコンポーネントの成果を以下に示す。

(1) ナムカン浄水場の運転管理および水質管理

ナムカン浄水場の技術系職員が、本プロジェクトの浄水システムを理解し、改訂されたマニュアルや SOP に基づき、拡張された配水区域内にも水質基準を満たす水を安定的に生産・供給できるようになる。

(2) モニタリングシステムの活用

ルアンパバーン県水道公社の Administration Planning Division に所属する職員、および関係する各浄水場の職員が、モニタリングシステムを活用して効率的な水運用を実施できるようになる。

4. 成果達成度の確認方法

本ソフトコンポーネントについて、各分野・成果ごとの達成度の確認方法および達成指標を表 4.1 以下に示す。

表 4.1 ソフトコンポーネント各分野・成果ごとの達成度の確認方法

分野	成果	達成度の確認項目	達成指標
ナムカン 浄水場の 運転管理 及び水質 管理	ナムカン浄水場の職員が作成されたマニュアルや SOP に基づき、水質基準を満たす浄水を安定的に生産・供給できるようになる。	1. 河川水位計の観測結果を用いて取水流量を制御し、それに合わせた適切な薬品注入を行い、安定した水質の浄水を生産できるか。	<ul style="list-style-type: none"> 本プロジェクトの実施により運転方法が変わる部分について、SOP が適切に改訂されていることを確認 河川水位に依らず、取水流量を一定に制御できていることを確認 制御した取水流量に対する適切な薬品注入率に設定できていることを確認¹(埼玉県草の根技協の支援により作成された薬品注入率設定表を活用) 運転記録フォーマットに適切にデータが入力されていることを確認²(機器の日常点検、運転操作及び水位、流量等の入力) 現場での作業状況を確認
		2. 下記操作を連動して行い、新設された排水処理施設で適切に排水を処理できるか。 <ul style="list-style-type: none"> 既設沈澱池に新たに導入される上澄み排水装置を適切に操作する。 排水・排泥池に収集した排水・汚泥をラグーンに収集し汚泥の脱水を行う。 排水・排泥池およびラグーンの上澄水をカン川に放流する。 	<ul style="list-style-type: none"> 新たに導入される排水処理施設に関する SOP が適切に作成されていることを確認 排水処理施設に関する運転記録フォーマット(機器の日常点検、運転操作及び水位等の入力)が作成されていることを確認 運転記録フォーマットに適切にデータが入力されていることを確認 現場での作業状況を確認
モニタリングシステム の活用	ルアンパバーン県水道公社の職員が効率的な水運用を実施できるようになる。	1. 送配水実績に基づき、効率的な水運用を実施することができるか。	<ul style="list-style-type: none"> 送配水量記録フォーマットに適切に流量データおよび配水池水位データが入力されていることを確認 上記データを基に、送配水量の現状を把握できていることを確認 送配水量の現状から、各浄水場の生産水量の計画を適切に策定できていることを確認

¹ 本プロジェクトでは、取水流量制御弁を設置する。これにより、取水流量を一定に制御でき、薬品注入量も一定で運転することが可能となり、安定した浄水水質を得ることが期待できる。これまでに、草の根技協において薬品注入率設定表を整備・運用しているため、取水流量を一定に制御した条件下において、その薬品注入率設定表を活用して適切な薬品注入率を設定できるかを確認する。これにより、取水流量制御弁の導入による安定した水質の浄水を供給することが可能となる。

² 水位計や取水流量制御弁等の新たに導入される施設により、運転管理フォーマットに入力する項目が追加される。これら新規に入力されるべき情報入力欄をフォーマットに追加し、それらが適切に入力されているかを確認する。

5. ソフトコンポーネントの活動（投入計画）

本ソフトコンポーネントの活動（投入計画）の詳細を表 5.1 に示す。「7. ソフトコンポーネントの実施工程」で述べるとおり、2 名の本邦専門家の現地業務をそれぞれ 2 回に分けて合計 2.94 M/M を派遣する。

本邦専門家は、同時期に現地調査を行う計画としているが、以下の理由からそれぞれの専門家に対して通訳/支援を配置する。

- ・ 基本的に英語が通じないため、通訳不在では活動が実施できない。
- ・ 両専門家の活動は異なるため、各活動に対して通訳/支援が必要となる。

表 5.1 ソフトコンポーネントの活動（投入計画）

分野	成果	活動	必要な投入量
ナムカン浄水場の運転管理及び水質管理	ナムカン浄水場の職員が作成されたマニュアルや SOP に基づき、水質基準を満たす浄水を安定的に生産・供給できるようになる。	<ol style="list-style-type: none"> 1. 本プロジェクトによるナムカン浄水場の改良点に関する講義（資料作成と講義） 2. 現在の浄水場関連記録の確認 3. 薬品混和⇒フロック形成⇒沈澱⇒ろ過の各プロセスのパフォーマンスの評価とモニタリング方法の講義・実習（既設および新設フロック形成池のパフォーマンスの比較と既設の改善が必要な場合、その改善方法の検討と改善指導³を含む。） 4. 沈澱池およびろ過池からの排水・排泥処理プロセスの運転管理方法の講義・実習 5. 情報伝達フローを考慮しつつ、水量（取水、送水）、薬品注入量、逆流洗浄、排水・排泥、ポンプ運転台数・稼動時間等の浄水場運転記録フォーマットの改定版作成⁴ 6. 上記フォーマットの記載方法指導 7. 浄水場運転管理マニュアルおよび標準作業手順書（SOP）の改定版作成⁴ 8. 上記マニュアルや SOP の講義・実地指導 	浄水場運転維持管理専門家（本邦コンサルタント）： 1名×1.47M/M （1.試運転期間中、 2.施設引き渡し後 1 カ月後の 2 回に分けて派遣） 通訳・支援（現地技術者）： 1名×1.47M/M
モニタリングシステムの活用	ルアンパバーン県水道公社の職員が効率的な水運用を実施できるようになる。	<ol style="list-style-type: none"> 1. 本プロジェクトで導入するモニタリングシステムとその活用方法（配水量管理）に関する講義（資料作成と講義） 2. 既存 4 浄水場の送配水量のデータ確認 3. 上記送配水量データに基づく水運用方法に関する講義（資料作成と講義） 4. 流量データおよび各配水池の水位データ等の記録フォーマットの改定版作成⁴ 5. 上記フォーマットの記載方法指導 6. データに基づく水運用プラン作成に関する講義（資料作成と講義） 7. 送配水システム運転維持管理マニュアル（ポンプ・バルブ・流量計類操作手順、送水ポンプ運転・維持管理スケジュール）の作成 8. 上記マニュアルの講義・実地指導 	配水量管理専門家（本邦コンサルタント）： 1名×1.47M/M （1.試運転期間中、 2.施設引き渡し後 1 カ月後の 2 回に分けて派遣） 通訳・支援（現地技術者）： 1名×1.47M/M

³ 角落しのそ流板追加による混和強度の調整を想定しており、ソフトコンポーネントの講習を受けた水道公社職員が対応する。2 回目の現地調査時にコンサルタントが確認する。

⁴ 運転記録フォーマットおよび SOP の改定版については、これまでの支援（主に草根の技協）で作成されたものを基に、本プロジェクトの実施により新たに追加および変更が必要な部分を改定する。

現地での活動を2回に分ける計画としており、第1回目および第2回目渡航の目的は大きく以下としている。

(1) 第1回目渡航での主な活動内容

施設引き渡し前の施設試運転時に活動を実施する。最初に座学により基本的な知識を身に付け、その後実際に施設を動かしながら施設の運転方法を指導する。また、帰国直前に、技術指導対象者に対して各種フォーマットへの記載や SOP に記載すべき内容の検討等の課題を与えることを計画している。

(2) 第2回目渡航での主な活動内容

第2回目渡航は、施設を引き渡し後、実際に水道公社のみで運転を実施した後の期間に計画している。これにより、実際の運転で生じる疑問や課題等を踏まえて、それに対する助言・指導を行う。また、それらを踏まえて、フォーマット記載状況の確認やそのフォローアップ、および実際の施設運転を通して分かる必要事項を標準作業手順書（SOP）に加える等の活動を実施する。

本ソフトコンポーネントの要員配置計画を表 5.2 に、現地作業の想定スケジュールを表 5.3 及び表 5.4 に示す。

表 5.2 ソフトコンポーネントの要員配置計画

	担 当	2022年						人/月			
		3月	4月	5月	6月	7月	8月	小計		計	
								現地	国内	現地	国内
本邦技術者	浄水場 運転維持管理 専門家			1.0		0.47		1.47	0.00	1.47	0.00
	配水量管理 専門家			1.0		0.47		1.47	0.00	1.47	0.00
								2.94	0.00	2.94	0.00
現地技術者	通訳/支援1 (浄水場運転維持管理)			1.0		0.47		1.47	0.00	1.47	0.00
	通訳/支援2 (配水量管理)			1.0		0.47		1.47	0.00	1.47	0.00
								2.94	0.00	2.94	0.00
報告書											

表 5.3 ソフトコンポーネント詳細実施日程表（浄水場運転維持管理専門家）

日程	曜日	1回目	日程	曜日	2回目
1日目	木	日本→ルアンパバーン	1日目	日	日本→ルアンパバーン
2日目	金	運転管理マニュアル、標準作業手順書、ナムカン浄水場の既設と事業後の違いについて（座学及び	2日目	月	渡航1回目で実施した維持管理内容の再確認、改善要望確認、フォローアップ
3日目	土		3日目	火	維持管理方法がマニュアル、手順書通りに行われているか再確認及び改善要望確認
4日目	日		4日目	水	現場での運転実施及び確認
5日目	月	取水施設の運転方法について（座学及び現地）	5日目	木	現場での運転実施及び確認
6日目	火	取水施設の運転方法について（現地）	6日目	金	現場での運転実施及び確認、運転維持管理記録の確認
7日目	水	薬品注入設備の運転方法について（座学及び現地）	7日目	土	
8日目	木	薬品注入設備の運転方法について（現地）	8日目	日	
9日目	金	取水施設と薬品注入設備の運転について（現地）	9日目	月	維持管理方法がマニュアル、手順書通りに行われているか再確認及び改善要望確認
10日目	土		10日目	火	現場での運転実施及び確認
11日目	日		11日目	水	現場での運転実施及び確認
12日目	月	浄水施設の運転方法について（座学及び現地）	12日目	木	現場での運転実施及び確認
13日目	火	浄水施設の運転方法について（現地）	13日目	金	現場での運転実施及び確認、運転維持管理記録の確認
14日目	水	送水施設の運転方法について（座学及び現地）	14日目	土	ルアンパバーン→日本
15日目	木	送水施設の運転方法について（現地）			
16日目	金	浄水施設と送水施設の運転について（現地）			
17日目	土				
18日目	日				
19日目	月	運転維持管理記録について（座学及び現地）			
20日目	火	運転維持管理記録について（現地）			
21日目	水	現場での運転実施及び確認、座学による運転管理方法の再確認			
22日目	木	現場での運転実施及び確認			
23日目	金	現場での運転実施及び確認、運転維持管理に対する改善要望確認			
24日目	土				
25日目	日				
26日目	月	現場での運転実施及び確認、座学による運転管理方法の再確認			
27日目	火	現場での運転実施及び確認			
28日目	水	現場での運転実施及び確認			
29日目	木	現場での運転実施及び確認、運転維持管理に対する改善要望確認			
30日目	金	ルアンパバーン→日本			
MM		30/30=1.0MM	MM		14/30=0.47MM

※1 渡航1回目は、施設の試運転期間中に実施する予定としている。

※2 渡航2回目は、施設引き渡し後に水道公社自身で運転実施した1カ月後に実施する計画としている。水道公社で運転を行い、それにより出てきた課題等も含めて対応することを計画している。それらを踏まえて、マニュアルの更新も実施する。

表 5.4 ソフトコンポーネント詳細実施日程表（配水量管理専門家）

日程	曜日	1回目	日程	曜日	2回目
1日目	木	移動：日本→ルアンパバーン	1日目	日	日本→ルアンパバーン
2日目	金	送配水システム運転維持管理マニュアル、標準作業手順書、ナムカン浄水場の既設と事業後の違い	2日目	月	1回目で実施した配水量管理内容の再確認、改善要望確認、フォローアップ
3日目	土		3日目	火	管理方法がマニュアル、手順書通りに行われているか再確認及び改善要望確認
4日目	日		4日目	水	現場での管理実施及び確認
5日目	月	配水池の管理方法について（座学）	5日目	木	現場での管理実施及び確認
6日目	火	配水池の管理方法について（現地）	6日目	金	現場での管理実施及び確認、配水量管理記録の確認
7日目	水	配水量管理について（座学）	7日目	土	
8日目	木	配水量管理について（現地）	8日目	日	
9日目	金	配水池、配水量の管理について（現地）	9日目	月	管理方法がマニュアル、手順書通りに行われているか再確認及び改善要望確認
10日目	土		10日目	火	現場での管理実施及び確認
11日目	日		11日目	水	現場での管理実施及び確認
12日目	月	配水量管理記録、モニタリングシステムについて（座学）	12日目	木	現場での管理実施及び確認
13日目	火	配水量管理記録、モニタリングシステムについて（配水池現地）	13日目	金	現場での管理実施及び確認、配水量管理記録の確認
14日目	水	配水量管理記録、モニタリングシステムについて（メータステーション現地）	14日目	土	ルアンパバーン→日本
15日目	木	配水量管理記録、モニタリングシステムについて（メータステーション現地）			
16日目	金	配水量管理記録、モニタリングシステムについて（現地）			
17日目	土				
18日目	日				
19日目	月	現場での管理実施及び確認、座学による配水量管理の再確認			
20日目	火	現場での管理実施及び確認			
21日目	水	現場での管理実施及び確認			
22日目	木	現場での管理実施及び確認			
23日目	金	現場での管理実施及び確認、配水量管理に対する改善要望確認			
24日目	土				
25日目	日				
26日目	月	現場での管理実施及び確認、座学による配水量管理の再確認			
27日目	火	現場での管理実施及び確認			
28日目	水	現場での管理実施及び確認			
29日目	木	現場での管理実施及び確認、配水量管理に対する改善要望確認			
30日目	金	ルアンパバーン→日本			
MM		30/30=1.0MM	MM		14/30=0.47MM

※1 渡航1回目は、施設の試運転期間中に実施する予定としている。

※2 渡航2回目は、施設引き渡し後に水道公社自身で運転実施した1カ月後に実施する計画としている。水道公社で運転を行い、それにより出てきた課題等も含めて対応することを計画している。それらを踏まえて、マニュアルの更新も実施する。

6. ソフトコンポーネント実施リソースの調達方法

本ソフトコンポーネントでは、以下の(1)～(2)に示す 2 名の技術者を現地に派遣する。ソフトコンポーネントの目標は、ナムカン浄水場の運転・維持管理を適切に行うことにより水質基準を満たす水を安定的に市民に供給すること、ならびに新たに導入するモニタリングシステムを活用することで、効率的な水運用を実施することである。現地事情から判断してローカルリソースでは対応が困難であることから、本邦コンサルタントの活用が望ましい。そこで、本ソフトコンポーネントは、本邦コンサルタント直接支援型とする。

(1) 浄水場運転維持管理専門家

浄水場の運転管理全般に精通している本邦コンサルタントを 1 名派遣する。コントラクターが実施する個々の機械・電気設備の運転方法の指導ではなく、浄水処理をシステムとして効果的に行うべく、取水ポンプ場内の流量調節、浄水場内の薬品注入量の連携操作、汚泥処理等を適切に行うための指導およびマニュアル作成、関係記録の蓄積・活用等ができるようにするための支援である。

(2) 配水量管理専門家

送配水システムの運転管理に精通している本邦コンサルタントを 1 名派遣する。コントラクターが実施する個々の機械・電気設備の運転方法の指導ではなく、水道システムとして浄水場からの送水量・配水池からの配水量を適正に運用するために、把握すべき情報の理解、それら情報に基づく経済的な水運用方法ができるようにするための支援である。

7. ソフトコンポーネントの実施工程

全体実施工程計画（案）を表 7.1 に示す。

浄水場運転維持管理専門家および配水量管理専門家の現地派遣を 2 回に分ける。現地 1 回目は、施設引き渡し前の試運転時に実施する。現地 1 回目帰国前に、対象者に対して各種フォーマットへの記載や SOP に記載すべき内容の検討等の課題を与えることを計画している。

現地 2 回目は、施設引き渡し後に水道公社が本格的な運転を実施した 1 カ月後に実施し、実際の運転で生じてくる課題等への対応も行う。それらを踏まえて、フォーマット記載状況のフォローアップと SOP 改定等の追加指導を行う。

8. ソフトコンポーネントの成果品

ソフトコンポーネントの成果品を活動項目別に以下に示す。

なお、各種記録フォーマットおよび運転維持管理マニュアルについては、草の根技協で作成されたものを活用し、本プロジェクトで修正及び追加が必要な部分の改訂を行う。

(1) 浄水場運転維持管理

- 講義資料
- 各種記録フォーマット（河川水位、排水処理施設（排水・排泥池およびラグーン）の運転管理に係る部分の追加）
- 浄水場運転維持管理マニュアル・SOP（排水排泥池、ラグーンに関する部分の追加）

(2) 配水量管理

- 講義資料
- 各種記録フォーマット（モニタリングシステムから抽出される流量・配水池水位情報の記録フォーマット）
- 送配水システム運転維持管理マニュアル（ポンプ、バルブ、流量計等の運転維持管理及びモニタリングシステムを活用した配水量管理）

(3) 全体

ソフトコンポーネントの報告書として、下記の成果品を作成する。

- ソフトコンポーネント実施状況報告書
- ソフトコンポーネント完了報告書

これらの報告書は、「独立行政法人国際協力機構（2010年）ソフトコンポーネント・ガイドライン（第3版）」に準じて作成する。ソフトコンポーネント完了報告書には、実施した指導事項（活動実績）、その結果（成果の達成状況、今後の課題・提言等）を含めるものとする。

9. ソフトコンポーネントの概算事業費

本ソフトコンポーネントの投入は、本邦コンサルタントは2名の合計2.94M/M、通訳の現地スタッフ2名で合計2.94M/Mであり、概算事業費はに表9.1示すように約12.2百万円である。

表 9.1 ソフトコンポーネント概算事業費(百万円)

直接人件費	2.7
直接経費	3.8
間接費	5.7
ソフトコンポーネント計	12.2

10. 相手国側の責務

(1) 関連職員の配置

ターゲットである浄水場施設課と給水課の関連する職員が本ソフトコンポーネントに積極的に参加する必要がある。ラオス側は本ソフトコンポーネントのカウンターパートとして該当する職員を指名する。

(2) 会議室等の利用

技術指導を実施する場合、会議室を用いて実施することを想定しているため、会議室（プロジェクター利用可）の利用について場所を提供してもらう必要がある。

(3) 阻流壁の準備および設置

「ナムカン浄水場の運転管理および水質管理」の指導において、既存フロック形成池の攪拌強度を改善することを実施する。この場合、角落しへの阻流板の追加が必要になるため、これに関する阻流板の準備及び設置作業をラオス側で実施してもらう必要がある。

(6) 参考資料

- 1) 環境遵守証 (ECC)
- 2) 世界遺産への影響評価 (HIA : Heritage Impact Assessment) に関するレター
- 3) ステークホルダー協議結果
- 4) 環境チェックリスト
- 5) モニタリングフォーム
- 6) サイト別モニタリングフォーム
- 7) 土地利用権の移譲に関するレター

1) 環境遵守証 (ECC)



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

ພະແນກຊັບພະຍາກອນທຳມະຊາດ
ແລະ ສິ່ງແວດລ້ອມແຂວງ

ເລກທີ 2885/ພຊສ-ຫຼບ
ຫລວງພະບາງ, ວັນທີ 22 NOV 2018

ໃບຢັ້ງຢືນ

- ອີງຕາມ: ກົດໝາຍ ວ່າດ້ວຍການປົກປັກຮັກສາສິ່ງແວດລ້ອມ ສະບັບເລກທີ 29/ສພຊ, ລົງວັນທີ 18/12/2012.
- ອີງຕາມ: ຂໍ້ຕົກລົງ ວ່າດ້ວຍການຈັດຕັ້ງ ແລະ ການເຄື່ອນໄຫວຂອງພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ສະບັບເລກ ທີ 3171/ກຊສ, ລົງວັນທີ 01 ສິງຫາ 2017.
- ອີງຕາມ: ດຳລັດ ວ່າດ້ວຍ ການທົດແທນຄຳເສຍຫາຍ ແລະ ການຍົກຍ້າຍຈັດສັນປະຊາຊົນ ຈາກໂຄງການພັດທະນາ, ສະບັບເລກທີ 84/ນຍ, ລົງວັນທີ 05 ເມສາ 2016 .
- ອີງຕາມ: ດຳລັດວ່າດ້ວຍ ການປະເມີນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ, ສະບັບເລກທີ 112/ນຍ ລົງວັນທີ 16 ກຸມພາ 2010.

**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 ສິ່ງແວດລ້ອມໂຄງການສິ່ງໃຫ້ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ, ພະແນກ ຊສ ແຂວງຫຼວງພະບາງ ເພື່ອຊາບ ແລະ ຕິດຕາມກວດກາ.
2. ມອບໃຫ້ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດແຂວງຫຼວງພະບາງສົມທົບກັບ ຂະແໜງການທີ່ກ່ຽວຂ້ອງແລະ ອຳນາການປົກຄອງ ເມືອງ, ບ້ານ ທີ່ກ່ຽວຂ້ອງ ເຮັດ ໜ້າທີ່ຕິດຕາມກວດກາສິ່ງແວດລ້ອມແລ້ວລາຍງານໃຫ້ການນຳແຂວງ ຫຼວງພະບາງ.
3. ໃບຢັ້ງຢືນສະບັບນີ້ ມີຜົນນຳໃຊ້ ນັບແຕ່ມີລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ເຈົ້າຂອງຫຼວງພະບາງ

ຫົວໜ້າພະແນກ
ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງຫຼວງພະບາງ

ໝາຍເຫດ:

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



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

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) 世界遺産への影響評価（HIA : Heritage Impact Assessment）に関するレター



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ

ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ແຂວງຫຼວງພະບາງ

ຫ້ອງການມໍລະດົກໂລກ

ເລກທີ: 640 / ຫມຫຼ

ລົງວັນທີ: 30 ພະຈິກ 2018

ໃບຢັ້ງຢືນການປະເມີນຜົນກະທົບທາງດ້ານມໍລະດົກ (HIA)

ໂຄງການຂະຫຍາຍລະບົບນໍ້າປະປາ ແລະ ຕິດຕັ້ງຈຸດດັບເພີງໃນເຂດອະນຸລັກມໍລະດົກໂລກ ນະຄອນຫຼວງພະບາງ

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

ຫ້ອງການມໍລະດົກໂລກ ໃນນາມກອງເລຂາຂອງຄະນະກຳມະການລະດັບທ້ອງຖິ່ນເພື່ອມໍລະດົກໂລກຫຼວງພະບາງ ຕໍ່ກັບການຈັດຕັ້ງປະຕິບັດໂຄງການຂະຫຍາຍນໍ້າປະປາ ນະຄອນຫຼວງພະບາງ (ສະເພາະໃນພື້ນທີ່ເຂດອະນຸລັກມໍລະດົກໂລກ). ຈາກການລົງສໍາຫຼວດກວດກາແລວການວາງທໍ່ນໍ້າປະປາໃໝ່ ແລະ ການຕິດຕັ້ງຈຸດດັບເພີງຮ່ວມກັບຄະນະຊ່ຽວຊານຍີ່ປຸ່ນ. ຈຸດປະສົງ: ແມ່ນເພື່ອປ່ຽນຖ່າຍທໍ່ນໍ້າປະປາເກົ່າທີ່ມີຄວາມຊຸດໂຊມ ແລະຕິດຕັ້ງຈຸດດັບເພີງເພື່ອປ້ອງກັນການເກີດອັກຄີໄພ ຢູ່ໃນເຂດອະນຸລັກມໍລະດົກໂລກຫຼວງພະບາງ. ການວາງທໍ່ນໍ້າປະປາ ແລະ ຕິດຕັ້ງຈຸດດັບເພີງທັງໝົດນີ້ແມ່ນກໍ່ສ້າງໃສ່ພື້ນທີ່ສາທາລະນະ. 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. ຫຼີກລ້ຽງການນໍາໃຊ້ກົນຈັກໜັກເຂົ້າໃນການຊີເຈາະພື້ນເບຕົງ, ຫີນທີ່ຢູ່ໃກ້ກັບອາຄານໃນບັນຊີອະນຸລັກມໍລະດົກໂລກ.
3. ພາຍຫຼັງການວາງທໍ່ນໍ້າປະປາສໍາເລັດ ແມ່ນໃຫ້ສ້ອມແປງ ພື້ນຖານໂຄງລ່າງຄືນ ໃຫ້ກັບສູ່ສະພາບເດີມ.

ແຂວງຫຼວງພະບາງ, ຫ້ອງການມໍລະດົກໂລກ, ຕູ້ປ່າ 993, ຫຼວງພະບາງ, ສປປ ລາວ
 ໂທລະສັບ : (856 71) 212 912 / ແຟັກ : (856 71) 252 250
 ທີ່ຢູ່ອີເມວ : dpl.lpb.heritage@gmail.com

4. ກໍລະນີຫາກມີການປ່ຽນແລວການວາງທໍ່ໃໝ່ ແມ່ນໃຫ້ປະສານກັບຫ້ອງການມໍລະດົກໂລກຄືນ.
5. ສໍາລັບການຕິດຕັ້ງຈຸດດັບເພີງ ສະເໜີໃຫ້ຈັດກອງປະຊຸມສະເພາະກັບພາກສ່ວນກ່ຽວຂ້ອງເພື່ອຄົ້ນຄວ້າລາຍລະອຽດ ຕື່ມ ເພື່ອໃຫ້ສອດຄ່ອງກັບສະພາບຕົວຈິງ.
6. ໃນກໍລະນີຫາກພົບພໍ້ບັນຫາ ທາງຫ້ອງການມໍລະດົກໂລກ ພ້ອມທີ່ຈະສົມທົບກັບພາກສ່ວນກ່ຽວຂ້ອງ ເພື່ອແກ້ໄຂ ບັນຫາທີ່ນອນຢູ່ໃນເຂດມໍລະດົກໂລກຫຼວງພະບາງ ເພື່ອຊຸກຍູ້ໃຫ້ໂຄງການສາມາດຈັດຕັ້ງປະຕິບັດໄປຕາມແຜນທີ່ໄດ້ ກໍານົດໄວ້.

ດັ່ງນັ້ນ, ຈຶ່ງໄດ້ເຮັດໃບຢັ້ງຢືນສະບັບນີ້ໄວ້ ເພື່ອເປັນບ່ອນອີງໃຫ້ແກ່ການດໍາເນີນໂຄງການ.

ຫົວໜ້າຫ້ອງການມໍລະດົກໂລກຫຼວງພະບາງ



ສະເຫວີບ ສິລາວັນ

Luangprabang 県
世界遺産事務所

No: 640/WHO

2018/11/30

遺産影響評価証明書 (HIA)

Luangprabang市世界遺産地域における上水拡張計画及び消火栓設置の事業

- 事業の概略設計図に基づき、
- JICAの調査団との共同現場確認及び2018年11月28日付け、世界遺産事務所専門スタッフらの検討結果に基づき、
- 2018年11月29日付け、JICAの調査団からの申請書に基づき、

Luangprabang県地域レベル世界遺産保護委員会の事務局としての世界遺産事務所は、Luangprabang市（特に世界遺産保護地域）における上水拡張計画事業の実施に対する見解を以下のとおりに示す。

新水道管の敷設位置・ルート及び消火栓設置の位置を、JICA調査団との共同現場確認を行った結果に基づき、事業の目的は、Luangprabang市世界遺産地域における老朽管の更新及び防災の為の消火栓設置であり、水道管の敷設及び消火栓の設置の工事は、公共地域で行われる。水道管の多くは、歩道、幹線道路、支線道路の下に敷設される。消火栓は、世界遺産保護リストに黒マークされている建築物の近くに設置され、多くは、お寺の前に設置される。設置場所の条件に応じ、地上式又は地下式の消火栓が設置される。

Luangprabang世界遺産事務所が検討を行った結果、初期段階の評価においては、事業による世界遺産への影響がないことを確認した。世界遺産影響評価 (HIA) の実施を行う必要がないが、事業を実施する際には、以下のとおりに、注意を行う。

1. 管敷設の為の掘削の際に、遺構・遺品を見つけた場合、慎重に保護すると共に、一時的に工事を中断し、調査の為の関係機関への通知を行うこと。
2. 世界遺産保護リストの建築物の近くに、コンクリートや石の地面を掘削する際には、重機使用を避けること。
3. 水道管の敷設の工事完成後には、インフラの原状回復工事を行うこと。
4. 水道管の敷設ルートを変更する際には、世界遺産事務所への相談を行うこと。

5. 消火栓の設置位置については、事情に適した位置の検討を行う為の関係機関の会議を行うよう、提言する。
6. 問題が発生した場合、世界遺産事務所は、関係機関との調整を行い、計画のとおり事業を実施できるように、世界遺産地域における問題解決を行う。

従って、本証明書を発行し、事業実施の為の根拠とする。

世界遺産事務所長
サイン及び公印

3) ステークホルダー協議結果

Village Consultation on the Project

Objectives:

- to consult 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: ຂໍສະເໜີ 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.

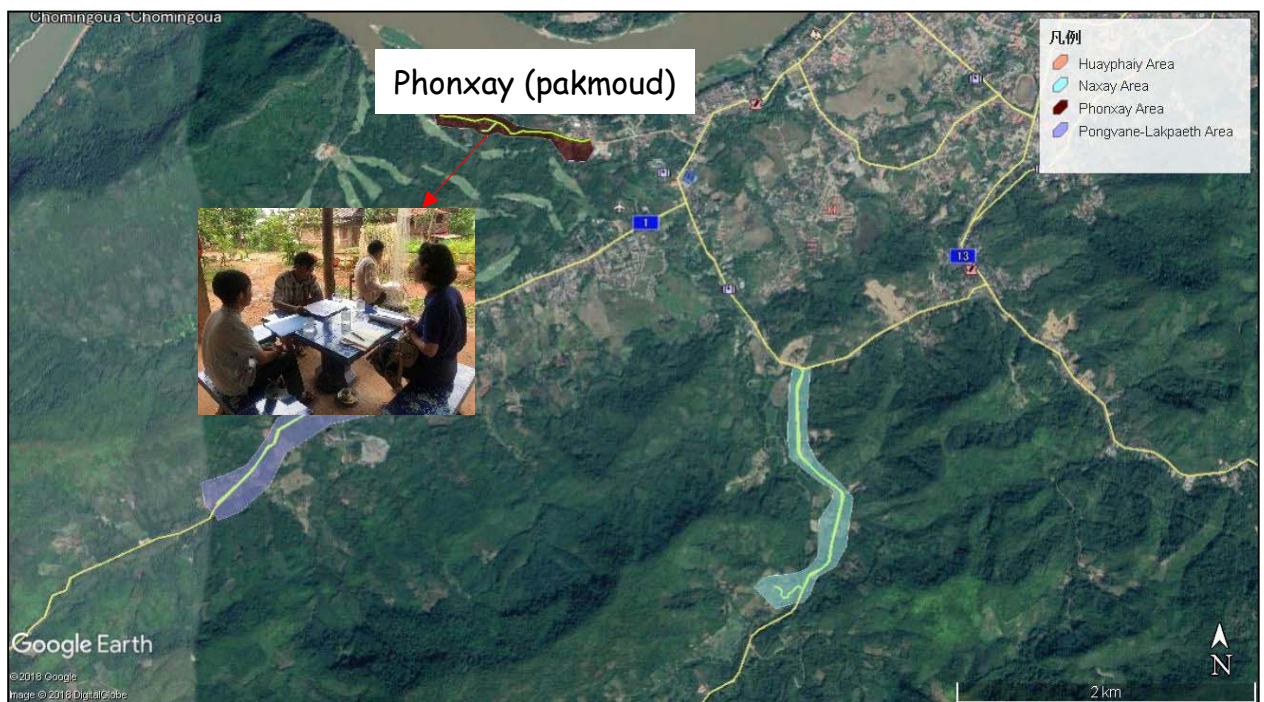
2. Ban Phonxay (Pakmoud): (South Area) ບ້ານ ໂພນໄຊ ປັກໝູດ

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

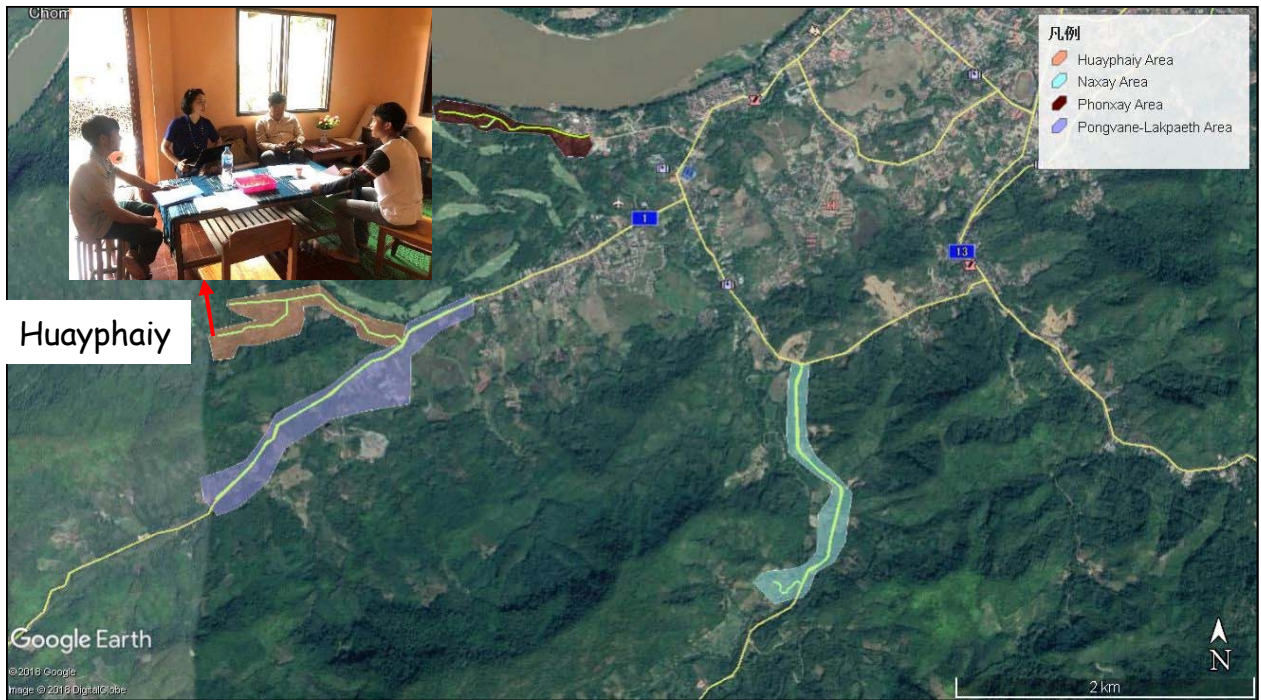
3. Ban Houayphaiy: (South Area)

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 ເຄິງ (Pa Kkhueng)- Hemibagrus wyckioides Chaux and Fang,
- ປາ ຄິງ (Pa Khing)
- ປາ ເປ້ົ້າ (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 (ໄຄ່ Khai) and rainy season weed (ເຫົາ Thao) The

- rainy season weed (ເຜີ້): 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 (ໄຮ່): 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 Sysalerm sack, 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 managed by the night market committee, there are 4 members in the committee, the committee responsible for managing the night market as well as collecting market fees with shop owners:

Market 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 used for waste management, committee’s salary and other management purposes.
- Electricity: 2000 LAK/light
- Toilet: 1000 LAK/night
- The night market open 4:30 pm to 10:30pm every day, there are around 320 shops in the night market.

Opinion/Suggestion:

- Propose the project to be constructed 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) 環境チェックリスト

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 ESMP 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) required 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.
	(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 Pollution Control	(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 regularly 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)
3 Natural Environment	(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.
	(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 Sites 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?	(a) N	(a) There is no violation of laws or ordinances on the working conditions due to 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?	(b) Y (c) Y (d) Y	(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	<p>(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>(b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p> <p>(d) If the construction activities might cause traffic congestion, are adequate measures considered to reduce such impacts?</p>	<p>(a) Y (b) N (c) Y (d) Y</p>	<p>(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.</p> <p>(b) No negative impact is expected.</p> <p>(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</p> <p>(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.</p>

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 Note on Using Environmental Checklist	(a) Where necessary, pertinent items described in the Dam and River Projects checklist should also be checked. (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) N	(a) Not applicable (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) モニタリングフォーム

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	(b) (c) (d) (e) (f)	Monthly	Throughout construction stage	
Use fuel and lubricants of good quality in compliance with national standards	(b) (c) (d) (e) (f)	Monthly	Throughout construction stage	
Spray water at the construction site on unpaved road and adjacent to restaurant/shops during dry conditions	(c) (d) (e) (f)	Monthly	Throughout construction works	
Implement traffic control to reduce congestion	(d) (f)	Monthly	Throughout construction works	
Cover load-carrying platforms 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 especially in kitchens and latrines and install good drainage and install treatment pond for the wastewater from kitchen and bathing and septic tanks	(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	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 temporarily	Ⓓ Ⓕ	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 Ⓔ: New Reservoir
 Ⓑ: Disposal Area Ⓕ: Fire Hydrants
 Ⓒ: Namkhan Water Treatment Plant
 Ⓓ: Transmission/Distribution Pipe

[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	㉔	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	㉔	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	㉔	To be finalized	Throughout operation stage	
Dilute the washing water before discharge when the Calcium hypochlorite solution tank is washed	㉔	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) サイト別モニタリングフォーム

Site-specific Inspection Form

Inspection Result on (Date, Month Year) _____

Inspected by _____

Monitoring Items	Monitoring Methods	Frequency	Yes <input type="checkbox"/> No <input type="checkbox"/>	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	<input type="checkbox"/> <input type="checkbox"/>	
Water Quality Water Sampling: BOD5 (mg/l)	Sampling at discharged point ≤ 30 (mg/l)	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
Restorations to the Original Condition - Restoration State	- Visual Inspection on site	On completion of construction activities	<input type="checkbox"/> <input type="checkbox"/>	
Disposal Area				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Restorations to the Original Condition - Restoration State	- Visual Inspection on site	On completion of construction activities	<input type="checkbox"/> <input type="checkbox"/>	

Monitoring Items	Monitoring Methods	Frequency	Yes <input type="checkbox"/> No <input type="checkbox"/>	Remarks
Namkhan Water Treatment Plant				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Cover load-carrying platforms properly when carrying earth/sand	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Provide personal protective equipment to workers	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	- Check the record	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Transmission/Distribution Pipe				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Implement traffic control to reduce congestion	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	

Monitoring Items	Monitoring Methods	Frequency	Yes <input type="checkbox"/> No <input type="checkbox"/>	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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Provide personal protective equipment to workers	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	- Check the record	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Accident - Fencing around temporary construction site	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Accident - Assign traffic control person on site	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Restorations to the Original Condition - Restoration State	- Visual inspection on site	On completion of construction activities	<input type="checkbox"/> <input type="checkbox"/>	

Monitoring Items	Monitoring Methods	Frequency	Yes <input type="checkbox"/> No <input type="checkbox"/>	Remarks
New Reservoir				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Cover load-carrying platforms properly when carrying earth/sand	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Provide personal protective equipment to workers	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	-Check the record	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
UXO - UXO survey before access road construction	- Check the record	Before construction	<input type="checkbox"/> <input type="checkbox"/>	
UXO - Deeper ground investigation for UXOs as needed	- Check the record	Before construction	<input type="checkbox"/> <input type="checkbox"/>	
Fire Hydrants				
Air Quality -Maintain vehicle in good condition to minimize exhaust emission	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Spray water at the construction site on unpaved roads and adjacent to restaurant/shops during dry condition	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Air Quality - Implement traffic control to reduce congestion	-Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	

Monitoring Items	Monitoring Methods	Frequency	Yes <input type="checkbox"/> No <input type="checkbox"/>	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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
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	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Provide personal protective equipment to workers	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Health and Safety - Give instructions on health and safety to workers regularly throughout construction phase	- Check the record	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Accident - Fencing around temporary construction site	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	
Accident - Assign traffic control person on site	- Visual inspection on site	Monthly	<input type="checkbox"/> <input type="checkbox"/>	

Monitoring Items	Monitoring Methods	Frequency	Yes No	Remarks
Restorations to the Original Condition - Restoration State	-Visual inspection on site	On completion of construction activities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

7) 土地利用権の移譲に関するレター



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ເຈົ້າແຂວງຫຼວງພະບາງ

ເລກທີ 159/ຈຂ.ຫຼບ
ລົງວັນທີ 12/12/2018

ຂໍ້ຕົກລົງ

ວ່າດ້ວຍການມອບດິນລັດຄຸ້ມຄອງຢູ່ບ້ານຜານິມ, ນະຄອນ ຫຼວງພະບາງ
ໃຫ້ລັດວິສາຫະກິດ ນ້ຳປະປາ ແຂວງຫຼວງພະບາງ ຄຸ້ມຄອງນຳໃຊ້ ເພື່ອກໍ່ສ້າງອຸ່ງເກັບນ້ຳສູງ

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

ເຈົ້າແຂວງຫຼວງພະບາງຕົກລົງ:

ມາດຕາ 1. ມອບດິນລັດຄຸ້ມຄອງ ຢູ່ບ້ານຜານິມ, ນະຄອນ ຫຼວງພະບາງ, ແຂວງຫຼວງພະບາງ ໃຫ້ລັດວິສາຫະ
ກິດ ນ້ຳປະປາ ແຂວງຫຼວງພະບາງ ຄຸ້ມຄອງນຳໃຊ້ ເພື່ອກໍ່ສ້າງອຸ່ງເກັບນ້ຳສູງ 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. ປົວສີ	ໄລຍະ	106.00 ແມັດ

ເນື້ອທີ່: 5.383 ຕາແມັດ

ມາດຕາ 2. ເນື້ອທີ່ດິນຕອນດັ່ງກ່າວ ແມ່ນເຫັນດີໃຫ້ສ້າງອຸ່ງເກັບນ້ຳສູງ ເທົ່ານັ້ນ ແລະ ຫ້າມແບ່ງໃຫ້ບຸນຄົນ, ເອ
ກະຊົນ ຄຸ້ມຄອງນຳໃຊ້ຢ່າງເດັດຂາດ.

ມາດຕາ 3. ມອບໃຫ້ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ ສົມທົບກັບພາກສ່ວນທີ່
ກ່ຽວຂ້ອງ ພ້ອມກັນຈັດຕັ້ງປະຕິບັດໃຫ້ຖືກຕ້ອງຕາມລະບຽບການ.

ມາດຕາ 4. ຂໍ້ຕົກລົງສະບັບນີ້ມີຜົນສັກສິດນັບແຕ່ມີລົງລາຍເຊັນເປັນຕົ້ນໄປ

+ ບ່ອນໂກສິ່ງ:

- ພະແນກ ຊສ ແຂວງ 01 ສະບັບ
- ລັດວິສາຫະກິດ ນ້ຳປະປາ ແຂວງ 01 ສະບັບ
- ສຳເນົາ 02 ສະບັບ

ເຈົ້າແຂວງຫຼວງພະບາງ

ຄຳຂັນ ຈັນທະວິສຸກ

ຫ້ອງວ່າການປົກຄອງແຂວງຫຼວງພະບາງ, ໂທ:(071)900015, 212126 ແຟັກ:(071)212407

BUREAU de l' ADMINISTRATION PROVINCIALE de LUANGPRABANG. (K. Y) 21/12/2018.

英文仮訳



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

Article 3: 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 signing

英文仮訳

LPB- Governor

Mr. Khamkhan Chanthavysouk

