Updated Initial Environmental Examination

January 2017

LAO PEOPLE'S DEMOCRATIC REPUBLIC:
WATER SUPPLY AND SANITATION SECTOR PROJECT

SUBPROJECT: PHA OUDOM DISTRICT, BOKEO PROVINCE

Prepared by the Ministry of Public Works and Transport for the Asian Development Bank. This is an updated version of the draft originally posted in July 2013 available on https://www.adb.org/projects/45301-002/main#project-documents.

CURRENCY EQUIVALENTS

(as of 31 January 2017)

Currency unit - Lao Kip (K)
K1.00 = $0.0001221
$1.00 = K 8,188

ABBREVIATIONS

ADB	-	Asian Development Bank
DONRE	-	Provincial Department of Natural Resources and Environment
EARF	-	Environmental Assessment and Review Framework
EHS	-	Environmental Health and Safety
EIA	-	Environmental Impact Assessment
EMMP	-	Environmental Management and Monitoring Plan
EPL	-	Environmental Protection Law
GRM	-	Grievance Redress Mechanism
IEE	-	Initial Environmental Examination
LACP	-	Land Acquisition and Compensation Plan
MPH	-	Ministry of Public Health
MONRE	-	Ministry of Natural Resources and Environment
MPWT	-	Ministry of Public Works and Transport
MSDS	-	Materials Safety Data Sheets
NAPA	-	National Adaptation Program of Action
NRW	-	Non-Revenue Water
PCU	-	Project Coordination Unit
PIU	-	Project Implementation Unit
PNP	-	Nam Papa
SPS	-	Safeguards Policy Statement, 2009
UXO	-	Unexploded Ordnance
VDC	-	Village Development Committee
VEI	-	Village Environmental Improvement
WSSP	-	Water Supply and Sanitation Sector Project
WTP	-	Water Treatment Plant

WEIGHTS AND MEASURE

ha	-	hectare
m	-	meter
km	-	kilometer
l/s	-	Liters per second
masl	-	Meters above sea level
mm	-	millimetre
^{o}C	-	Degree Centigrade
dBA	-	Decibel
mg/l	-	Milligram per liter

NOTE

In this report, "$" refers to US dollars.

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1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

1. The Water Supply and Sanitation Sector Project (WSSP) of the Ministry of Public Works and Transport (Executing Agency) supports the development of small district towns in Lao People's Democratic Republic (PDR) through the improvement of water supply and sanitation services. Consistent with the Government's urban water supply and sanitation sector policy and investment plan, the project aims to improve the performance of the Provincial Nam Papas (PNPs)[1] and expand access to safe piped water supply and sanitation for urban residents in small towns in Lao PDR. The project will comprise of: (i) improvements to the water supply system and (ii) enhanced community action in urban water supply and sanitation.

2. The WSSP will be implemented through a sector loan from the Asian Development Bank (ADB). The Ministry of Public Works and Transport (MPWT) and the Provincial Department of Public Works and Transport together with the Provincial Nam Papas or provincial water utilities (Implementing Agencies) will be responsible for identifying, prioritizing, appraising, selecting and approving subprojects in accordance with the Government and ADB's policies and procedures.

3. Priority subprojects have been identified during the project preparatory technical assistance phase. Feasibility studies and initial environmental examination (IEE) reports were completed for three high priority sample subprojects under Phase 1, namely: (i) New Namtha in Luang Namtha Province, (ii) Long District in Luang Namtha Province, and (iii) Pha Oudom in Bokeo Province.

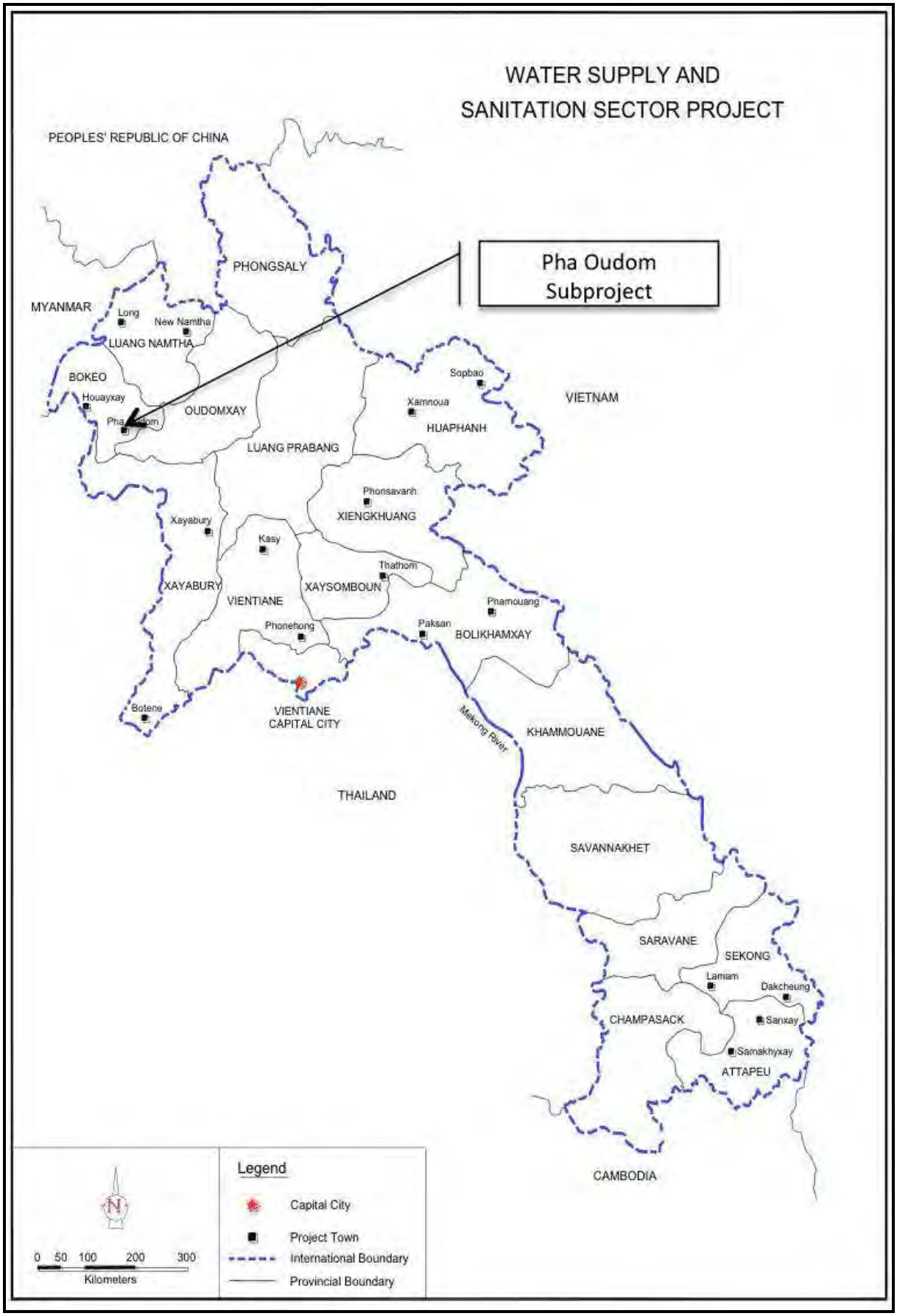
4. This updated IEE for the Pha Oudom District presents an assessment of the environmental impacts of the subproject and any modifications from the initial design components and locations that were identified during project preparation. The updated IEE also presents the detailed Environmental Management and Monitoring Plan (EMMP) of the subproject. The preparation of the updated IEE is guided by the Environmental Assessment and Review Framework (EARF) of the WSSP, ADB Safeguard Policy Statement (SPS, 2009), ADB Operational Manual Section F1/BP, Public Communications Policy (ADB PCP, 2011), World Bank Environment, Health and Safety (EHS) Guidelines, the Government of Lao PDR's Environmental Protection Law (2009), and other Government environmental laws, policies, rules and regulations applicable for water supply projects. The ADB Rapid Environmental Assessment (REA) checklist is presented in Appendix A.

1.2 DESCRIPTION OF SUBPROJECT

5. The water supply service area will include nine core villages of Phiengkham, Thinkeo, Pahoudom, Phonxai, Somsavang, Donsavan, Namkha, Xaisavang, and Xaioudom. Figure 1 presents the location of the Pha Oudom subproject. The main components of the proposed water supply system for Pha Oudom District would consist of a siphon intake structure on the Nam Haad river, a raw water transmission pipeline, water treatment plant (WTP), a clear water reservoir, and treated water transmission and distribution pipelines. The water intake was moved about 300 meters upstream from the previously planned intake near an irrigation weir on the Nam Haad river because of technical concerns. The sanitation component consists of construction of 8 public latrines (2 rooms) at Village Meeting Halls of Phiengkham, Thinkeo, PhaOudom, Donsavanh, Phonxay, Somsavang, XayOudom, Xaysavang Villages.

[1] *Provincial Water Supply State Enterprises managing the water supply system in each Province.*

FIGURE 1. LOCATION MAP OF THE PHA OUDOM SUB-PROJECT



6. Water from the intake will feed by gravity to a sump tank and pumping station at the downstream, which will then feed the raw water to a proposed water treatment plant (WTP) located on a hill in Ban Phiengkham. Treated water will then be pumped to a treated water reservoir with capacity of 800 m^3 located at elevation 465 masl, distributed through the main transmission line which runs parallel to the Road 2201, and then to the distribution network to connect all households, businesses and institutions in the core villages in Pha Oudom. The WTP and the on-ground Reservoir were moved to a lower elevation from the original location at elevation 480 masl based on technical considerations. The WTP will have a capacity of 2,200 m^3 and will comprise of pre-sedimentation, flocculation, sedimentation, rapid gravity filtration, a backwash water tank, chlorination facilities, clear water tank, and sediment detention ponds. An office, water testing laboratory, and warehouse storage will also be constructed within the site of the WTP.

7. The subproject will also require the construction of a new 458.519 meter access road into the WTP. The new road is necessary to provide access from the main road into the WTP. It will be located in government land. The requisite consultations have been undertaken and the permission for the use of the land has been secured.

8. In addition, a small PNP branch office will be constructed in the urban area. Laboratory testing equipment will be procured as well as basic office equipment for management of the water supply system. Branch Nam Papa staff will receive training in water supply utility management, operation and maintenance and basic non-revenue water (NRW) reduction.

9. Further components of the subproject are: (i) training of Pha Oudom PNP staff on water supply utility management, operation and maintenance, and (ii) support to communities through the Village Development Committees (VDCs) for a range of activities to be agreed with the VDC. These activities will include: (i) village environmental improvements (VEIs), consisting of household and community level sanitation and drainage facilities, (ii) stakeholder consultation and public participation to raise awareness and provide organizational support required to implement the VEIs, (iii) support to district authorities in sanitation and hygiene behavioural change, and (iv) public sanitation facilities.

1.3 ENVIRONMENTAL POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

10. The law governing the protection of the environment, including the assessment and management of projects in Lao PDR is the Environmental Protection Law (EPL), which was issued in 1999 and amended in 2013. The responsibilities and procedures for environmental assessment, including the requirements for environmental monitoring of projects are set out in the Decree on Environmental Impact Assessment (EIA Decree), dated April 2010. Under the EIA Decree, investment projects are categorized according to a schedule or list of projects, such that for Category 1 or small-scale projects an IEE is required, and for Category 2 or large-scale projects, an EIA report is prepared. Under the schedule in the EIA Decree, water supply facilities (Item 3.52) fall under Category 1.

11. The Updated IEE for the Pha Oudom subproject was approved by the Bokeo Department of Natural Resources and Environment (DONRE) on 21 November 2016 as per Certificate No. 645/DONRE (see Appendix B). According to the Department of Natural Resources and Environment (DONRE) of Bokeo Province, a copy of the updated IEE should be submitted to their office for their reference during monitoring.

1.4 DESCRIPTION OF THE ENVIRONMENT

1.4.1 Physical Resources

12. Pha Oudom district is located in the southeast part of Bokeo province. It is about 70 km from the provincial capital of Houaxay. The Pha Oudom District center is located in flat to undulating terrain, at an altitude of 420 masl. The core villages are mostly situated in a flat area to the south of the Nam Haad river. The undulating terrain is situated in the eastside. The Nam Haad river flows from the east. Underlying rock is primarily marine sedimentary in origin, and soils are formed from alluvial deposits and are suitable for rice cultivation.

13. The area has a warm temperate climate that is characterized by dry winters and hot summers. The dry season occurs between November and February while the wet season occurs between May and October. The dry season is generally cooler, though temperatures rise significantly in March and April prior to the onset of the rains. Rainfall is medium, remaining above 120 mm, between April and October, peaking in August at 412 mm. The period of December to February, the rainfall drops below 25mm. The dry season in the year is pronounced and records taken over the last twelve years show no precipitation for some months in some years, and one period of two consecutive months when no rainfall occurred. Rainfall varies significantly. The temperature averages 25.3^{o}C over the year. Relative humidity varies from 38% in February and March to around 95% in July.

14. Changes in rainfall intensities and frequency have been experienced in recent years which may be a result of climate change. There is increasing frequency and severity of heavy rainfall events and longer and more severe droughts during the dry season. The National Adaptation Program of Action (NAPA) for Lao PDR was prepared by the Government to identify priority vulnerability areas which include water resources. As per the NAPA, Bokeo Province is not a priority vulnerable area. Over time, greater maximum and minimum river levels can be expected with consequently greater risks of floods and droughts.

1.4.2 Water Resources

15. The project falls within the catchment area of Nam Kha which covers an area of about 80.0 km^2 and elevation ranges between 400m and 1,400m. The Nam Haad river and the Nam Kha river are tributaries of Nam Tha river. Both rivers join the Nam Tha river about 10 km downstream from Ban Thinkeo. Flow measurements were taken on the Nam Haad in January 2016 and February 2016 which are the driest months in Pha Oudom. The results show that the Nam Haad river has a capacity of 67,392 m^3/day (February) and 93,312 m^3/day (January). Even with the existence of an irrigation weir at the downstream section of Nam Haad, there is still more than enough water in the river to meet the irrigation demand and other uses at the downstream. The villagers disclosed that there is still water in the Nam Haad even during the dry season.

1.4.3 Geology and Natural Hazards

16. Small to moderate earthquakes have occurred within Lao PDR over recorded history. Pha Oudom is one of the areas vulnerable to earthquake hazards and is rated by the Modified Mercalli Scale[2] as moderate. Lao PDR is also prone to flooding, mainly associated with the presence of large river basins. Eight rivers have been identified as being at particular risk of causing flooding throughout the country but the Nam Haad or Man Chuk is not included in the identified rivers that causes extreme flooding. There are steep hills in the

[2] *Modified Mercalli Scale is an international standard for describing earthquake risk.*

vicinity which are prone to landslides. However, the terrain within the Pha Oudom District center is considered flat or moderately undulating and is not prone to landslides.

1.4.4 Ecological Resources

17. Land use in the area includes shifting cultivation and some orchards for vegetables and fruits such as longan, mango, custard, apple, and citrus. There are intensive shifting cultivation and rice plantations in the downstream areas. The upper reaches of the Nam Haad catchment is characterized with dense forest cover. An irrigation dam that supports the rice plantations is located approximately 500 meters downstream from the proposed new intake.

18. The Nam Ha Biodiversity Conservation Area is located some 45 km from the subproject area. The conservation area is characterized with intact forest cover and is known to be a habitat of ecologically significant wildlife species. The aquatic ecosystems in the rivers in the uplands are diverse.

1.4.5 Historical and Archaeological Sites

19. There are no sites that are considered as historically or archaeologically significant that may be affected by the construction of the project components.

1.4.6 Unexploded Ordnance

20. The PNP Bokeo commissioned a survey in Pha Oudom District to verify the presence of unexploded ordnance (UXO) and it was revealed that there are no UXO remaining in the area. Local residents also reported no known occurrence of UXO in the vicinity of the town or knowledge of ground or air strikes from which UXO may remain. Appendix C presents the UXO Certification of the Pha Oudom subproject.

1.4.7 Socio-Economic Condition

21. Nine villages in Pha Oudom district have been designated as the core villages for the proposed water supply project. These include merged areas such as the three villages of Thinkeo forming one village and 57 households adjoining Somsavang in old Palau village[3]. As of 2015, the core villages in Pha Oudom subproject have a population of 8,976 people and household population of 1,673.

22. Community facilities in the core villages include three primary schools and one secondary school; three pharmacies; one 15-bed district hospital; a daily market; 47 shops; one restaurant; three guesthouses and nine garages; and one bus station. Power supply in the core villages comes from the electricity grid.

23. The households source their water from wells (drilled or open dug), gravity springs and from the river. The majority of the households boil the water from the wells or springs when used for drinking. Some households purchase bottled water for drinking. The villagers reported that with the current water supply system, there are months when there is no water from the wells and gravity system while during the wet season the water becomes turbid. In terms of sanitation, majority of the households use pour flush toilet to a pit. There are still some households without appropriate toilets. The reported illnesses in Pha Oudom are diarrhoea, coughs, colds, and tuberculosis.

24. Economic activity is dominated by rice cultivation, industrial plantations (mainly banana and rubber), horticulture and trading. There are some privately owned processing

[3] *Socio-Economic Survey of Pha Oudom, 2015*

facilities such as mills and a drying plant in the town. Incomes are often supplemented by remittances from family members who are working outside of the town such as those that are engaged in the construction industry.

1.5 ENVIRONMENTAL IMPACTS

1.5.1 Benefits of the Subproject

25. There are expected beneficial impacts on health and well-being of people because of the proposed water supply project for Pha Oudom District. The principal benefits would be derived because of improved accessibility to potable and reliable water supply. There are also health benefits in the form of reduced incidence of diarrhoea, dysentery, skin rashes, and other water-borne diseases as a result of improved and safe water for the community.

1.5.2 Adverse Environmental Impacts

26. In general, the benefits of the subproject outweigh the anticipated negative environmental impacts. Most of the environmental impacts are expected to occur during the construction phase and could be mitigated through implementation of appropriate mitigating measures. The following are the expected negative impacts that have to be considered during project design and implementation.

1.5.2.1 Environmental Impacts Related to Location (Pre-Construction)

27. **Impact on land acquisition and community assets.** Limited acquisition of land will be required for the development of the project component facilities (WTP, intake, reservoir, and access roads) as well as for the temporary use of land or loss or damage to assets during pipe laying. PNP Bokeo has acquired the land for the site of the WTP and the area for the reservoir. Land where community assets will be affected or damaged is during the installation of transmission and distribution pipes and construction of the access roads to the WTP and intake. A Land Acquisition and Compensation Plan (LACP) for the subproject is prepared separately to ensure that any loss of land or damage to property is properly addressed.

28. **Impact of location of raw water intake on other water users.** Based on the measured river flows in January and February 2016 and with the proposed abstraction and treatment capacity of 2,200 m^3/day of the WTP, the proposed subproject in Pha Oudom will only abstract 1.88% (January) to 2.6% (February) of the river capacity. There is still more than enough water in the Nam Haad that will meet the irrigation demand of 0.32 m^3/s at the downstream. Environmental flow of about 38,000 m^3/day is assured after the water supply intake and irrigation weir in the Nam Haad river.

29. Surface water is the preferred option for water supply by the Government in accordance with the Water Supply Law (2009). The law allocates priority to water supply for human consumption. The Provincial Government has issued a Certification providing water supply with the highest priority on the use of the Nam Haad River. Appendix D presents the Provincial Government's Certification.

30. **Impact on natural resources and protected areas.** The location of the proposed water supply system and its components will have no impact on the Nam Ha Biodiversity and Conservation Area as it is 45 kms from the project area.

31. **Impact on historical and archaeological sites.** The proposed development will have no impact on any historical and archaeological sites as there are none existing in the project area.

32. **Unexploded ordnance.** The location of the proposed sub-project and its components will not impact any unexploded ordnance as there were no reported UXO as per the survey commissioned by the province.

1.5.2.2 Environmental Impacts During Construction

33. Most of the anticipated impacts are related to nuisances which may occur during the construction of the subproject components such as temporary disruption of access and community facilities, noise, dust and pollutant and greenhouse gas emissions. The EMMP, which is summarised in Chapter 10, includes mitigation measures and will be included as part of the bidding and contract documents, effective implementation will reduce these risks to an acceptable level.

34. **Temporary disruption of community roads, pathways, and access to properties.** During trench excavation and pipe laying works, temporary disruption of access to residential and commercial establishments, schools, and community facilities will occur. To mitigate this, temporary accesses to houses and other establishments will be built using sturdy materials. The contractor will restore any damaged sections to properties. Particular attention will also be given to ensuring safety along roads and paths normally used by school children. The contractor will be required to provide warning signs and barriers/fences at work sites.

35. Temporary closure or blockage of roads will occur during the excavation and pipe laying activities at pipe and road intersections. Information boards will be posted to provide information to the community about the temporary closure of roads, the schedule of works, and the traffic-rerouting plan. During night-time, the excavated area should be covered with plates and provided with adequate lighting to warn villagers about the open excavation. Following completion of pipe laying, good quality permanent accesse will be restored by the contractor on any damaged road and path sections.

36. **Air pollution.** The main sources of air pollution are operation of machines, excavation works, and materials transportation. An increase in dust concentration near construction areas, is expected within about 50m around the project sites. Winds may carry soil particles to nearby areas, if no preventative measures are applied. The contractor will be required to implement measures to control air emissions and dust from affected sensitive receptors like residential areas, schools, clinics and offices.

37. **Noise.** The operation of equipment such as jackhammer for the installation of water supply distribution network may cause noise nuisance to nearby residential houses and commercial buildings. There may also be a need to utilize diesel generators during the construction period. Noise levels may reach 88dBA at a distance of about 15m away from the source or operation of construction equipment. Along roads used for material transport, the average noise level will also rise because of increased truck traffic. To avoid noise nuisance, construction operations will only take place during daytime hours from 0700H to 1800H.

38. **Impact of borrow materials.** The construction activities will require aggregates like sand and gravel. Quarrying of these materials directly from the Nam Hadd River will be prohibited to avoid causing impacts on the ecological condition of the waterway. The contractor will be required to secure these materials only from Government-permitted sources or suppliers.

39. **Clearing of vegetation.** Vegetation cover at the proposed sites of the WTP, clear water reservoir, and access roads will have to be removed during construction. Impact of vegetation clearing will be minimal because the current vegetation cover at these sites only

consists of bushes and bamboo. The site where the WTP and reservoir were relocated is relatively flat ground and is not projected to contribute to erosion in the area unlike in the original location where the slope is steeper and requires major cutting of slopes. The water supply distribution network will affect some trees that have been planted by communities in front of their houses. Affected trees in private land will be compensated in cash in accordance with the Updated LACP. The total number of trees that will have to be removed, mainly for the potable water transmission main is 89 units as per the LACP prepared on November 2016.

40. **Sediment runoff.** When construction activities (particularly earthworks) are undertaken during the rainy season, sediments may erode and cause the runoff of silt into the river. To minimize the impacts of soil runoff, the contractor will be required to implement proper measures, such as the provision of silt traps, ditches, and sump pits to block the flow of silt into canals and the river. In addition, earthworks will be scheduled during the dry season to the extent practicable to avoid silt runoff.

41. **Domestic wastewater from worker's camp.** If domestic wastewater is disposed untreated, the wastewater could lead to the contamination of surface and groundwater and lead to the spread of water-borne diseases. Therefore, appropriate waste management measures should be implemented during the construction phase to prevent sanitation problems through the provision of adequate water supply and temporary pit latrines at the worker's camp.

42. **Residual chlorine during pipeline and reservoir disinfection.** Chlorinated water is retained in the completed pipe works and reservoirs for a designated period to develop sanitary conditions. The standards require 25 – 50 g/m^3 chlorine residual held for a period of time, normally 12 – 24 hours. Extra caution is needed in disposing water with excessive chlorine residual since this is toxic to fish and other aquatic life. When the chlorine concentration of the water in the pipelines and reservoirs has been reduced to less than 2 mg/l, it will be discharged into the nearest waterbody. The allowable limit for Chlorine (free residual) as per the Ministry of Public Health Drinking Water Quality Standards of 2014 is 0.1-2.0 mg/l.

43. **Generation of construction wastes.** The construction of the proposed WTP and reservoir will require cut soil and levelling of the land area. Excavated soil during pipe laying will also be generated. Excavated soil during trench excavation will be utilized to cover back the trench once the pipes have been laid out. Cut soil for the foundation of the WTP tanks and reservoir will be disposed in low-lying areas in the villages. The cut soil will be given for free to villagers as backfill material or disposed at sites approved by the village heads.

44. Domestic solid waste at the construction camp is not anticipated to be of a significant volume because only small temporary camps will be provided at the sites of the WTP and reservoir and none at the sites for the intake, transmission and distribution pipes. However, proper waste disposal methods should be employed to avoid pollution of land and adjacent water resources. Solid waste will be collected and properly disposed in the local disposal site of the District.

45. Hazardous wastes such as paint containers and solvents and spent batteries are generated by construction activities, but in specific sites such as the intake, WTP and reservoir, no such waste is projected to be generated. Although the quantities are anticipated to be minimal, this type of waste is detrimental to the environment and public health and as such will be segregated from the general solid waste, collected and disposed for appropriate treatment.

46. **Occupational health and safety.** The contractor through a site safety plan will address hazards during civil works. The contractor will be required to appoint a safety supervisor who will ensure that safety measures during civil works are implemented. These safety measures include the use of personnel protective clothing and equipment (PPE), installation of the requisite hazard warning signs, and excavation covers and barriers. Arrangements for prompt medical attention in the event of accidents will also be made.

47. The contractor will be required to: (i) undertake priority hiring of qualified construction workers from the villages, (ii) consult with local people to avoid conflict if migrant workers will be brought to the site, (iii) installation of suitable toilets such as pit latrines and grey water drainage facilities such as soakage pits, (iv) arrange for the proper disposal of solid wastes, (v) brief workers and the villagers on the dangers of communicable diseases, and (vi) assign a senior member of his staff to be responsible for the workers and local peoples' welfare.

48. In addition, during the disinfection of water distribution lines, only staff who have had experience and proper training and are aware of the potential health hazards associated with chlorinating agents will be involved in such activity.

1.5.2.3 Environmental Impacts During Operation

49. **Incremental wastewater generation and increased burden on drainage systems.** Households receiving new water supply connections are likely to use more water for cooking and washing. The current condition and lack of well-designed drainage system in the villages will result in small quantities of grey water or sullage forming ponds of dirty water which may provide habitats for mosquitoes and pose health hazard to the communities. This impact will be primarily addressed through the drainage improvement and public awareness raising initiatives under the Village Environmental Improvements (VEIs) component of WSSP. As a project policy, households will have free water connection if the household has an approved sanitation facility to cope with the increased wastewater generated.

50. **Conflict with other water users.** The Nam Haad river is being utilized as a source of irrigation water for the paddy fields in the downstream areas. The proposed intake source is upstream of the irrigation dam. Based on the results of flow rate measurements, there is no potential dispute in water use because adequate river flow can be measured even during the dry season. In addition, the paddy fields grow rice only during the rainy season. The Provincial Government has issued a Certification providing water supply with the highest priority on the use of the Nam Haad River (see Appendix D). The risks of over abstraction during periods of drought will be mitigated through public awareness raising activities on water conservation, including information for tourists in hotels and guesthouses.

51. **Deterioration of water quality.** The quality of the raw water may deteriorate particularly if there are human activities at the upstream catchment area that may cause contamination of raw water quality. This may affect the efficiency of the WTP and the resulting quality of the treated water. The Project Implementation Unit (PIU) and PNP will continuously coordinate with the villages and Pha Oudom District Government regarding community activities in the catchment area to check watershed activities that may cause contamination of raw water. Laboratory testing equipment and training will also be provided to allow the PNP to conduct regular monitoring of raw and treated water quality parameters.

52. **High pressure and leaks on the pipeline.** The distribution network is located on generally flat to moderately undulating terrain. There is a potential risk of high water pressure that will cause bursting of pipes although this is very low risk occurrence. As mitigation and to minimize the risk of bursting pipes from high water pressure in the mains, the following measures will be put in place: (i) the use of durable standard pipes for the main and secondary (rider mains) lines, (ii) use of pressure reducing valves for the rider mains, (iii) careful construction supervision by the Contractor to ensure that pipe laying and joining is done with the highest standard, and (v) regular inspection of the network and prompt isolation and repair when leaks occur.

53. **Generation of backwash water and sediments at the WTP.** During the operation of the WTP, back wash water and sludge removed from the sedimentation tanks contains sediments and other pollutants that have been removed from the raw water during treatment. Discharging the sludge directly into land or river may result in deterioration of the condition of the receiving environment. As mitigation to eliminate this adverse impact, detention ponds have been included in the design of the WTP.

54. **Occupational health and safety.** Water treatment will involve the use of coagulants/flocculants and chlorine that will expose WTP personnel to hazards during chemical handling. Risks associated with these chemicals will be minimized by: (i) providing secure, dry and appropriately ventilated storage facilities for hazardous chemicals, (ii) use of chemicals in powder, rather than in gaseous form, which is safer to store and handle, (iii) posting of the Materials Safety and Data Sheets (MSDS) of these chemicals in the chemical storage area and chemical mixing tank area for information of workers, and (iv) training of staff and designation of responsible person on the handling of these chemicals.

55. **Community health and safety.** The facilities that will be constructed will be properly fenced off and secured to restrict access and intrusion of unauthorized personnel, most especially the intake which is near the primary school. Watchmen/security personnel will be hired to secure the facilities on a 24 hour basis. This would eliminate the safety risks to the community and the school children who were observed swimming near the intake site.

1.6 INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

56. Public/Stakeholder consultations were held in February and March 2013 during the project preparation phase. During the Detailed Design Phase the PNP Bokeo with the Project Implementation Unit (PIU) and the Project Consultants conducted follow-up village meetings and interviews in February, June, November and December 2016. Stakeholders who participated during the public consultation process included villagers, local government officers and staff. The consultations were conducted to discuss with the stakeholders the proposed project and the modifications from the original design and also to elicit the environmental concerns/issues of the community on the proposed project. Appendix E provides the details of the public/stakeholders consultations.

57. Discussions were also undertaken with the Provincial Natural Resources and Environment Department of Bokeo to present the proposed subproject and validate the environmental requirements for the proposed project. It was agreed with DONRE that a copy of the approved updated IEE will be provided to them by the PNP for information and monitoring purposes.

58. In general, the community stakeholders were already aware of the proposed project because of previous consultations and the follow-up consultations that were conducted by the team. Consultees were of the view that the project would result in more benefits than negative impacts. The people are willing to connect to the water supply project because of the improvement in their living conditions. The villagers disclosed that they experience

turbid water during a rain event and that they hope that with the proposed project drinking water will greatly improve. However, they are concerned about the excavation and proper restoration by the contractor. It was also requested that the PIU and contractors consult with people affected by the pipe laying activities before construction starts.

59. This updated IEE will be provided to the Department of Natural Resources and Environment (DONRE) in Bokeo Province, District offices, and village officials for reference during monitoring. During project implementation, communities within the subproject impact areas will be, appropriately and in a timely manner, informed of the construction activities particularly those which are likely to cause noise and dust nuisance, disruption to roads and pathways.

1.7 GRIEVANCE REDRESS MECHANISM

60. A Grievance Redress Mechanism (GRM) was developed in compliance with the National regulations of the Government of Lao PDR (GoL) and with ADB Safeguard Policy Statement (2009). The GRM will provide the means to resolve grievance and complaints in a timely and satisfactory manner. Essential features of the GRM are: (i) resolution takes place as quickly as possible, (ii) all affected persons will be made fully aware of their rights, (iii) all persons with concerns about the environment are also entitled to lodge their complaints and seek redress, (iv) the community will be informed about the detailed grievance redress procedures through public information campaigns, (v) complaints can be made verbally or in written form, (vi) complainants will not incur administrative fees or costs of legal representation, (vii) the GRM uses existing village arbitration units, namely, the village chief and/or deputy chief, village elders and village representatives of the Lao Women's Union, Lao Front for National Construction, and the police, (viii) the arbitration unit is responsible for settling disputes between villagers through conciliation and negotiation and will be supported at district level, (ix) all complaints and resolutions will be properly documented and will be available for public review and monitoring and will be incorporated into safeguard monitoring reports. The details of the PIU, GRM Focal Contact Persons and Construction Manager will be prominently displayed in the respective construction areas for the reference of the affected communities/persons. Complaints and grievances can be directly filed, both written and verbal, to the concerned entities. This will provide alternative entry points to the village complaint system. The procedures for the GRM are outlined in Section 9 of this IEE.

1.8 ENVIRONMENTAL MANAGEMENT PLAN

61. The updated EMMP has been prepared, outlining the institutional responsibilities and management arrangements to ensure effective implementation and monitoring of mitigation measures. Throughout the construction period, the contractor will submit monthly environmental compliance progress reports to the PNP with a copy furnished to the PIU. The contractor should be able to highlight the summary of the progress of construction, activities undertaken to implement the measures outlined in the environmental management and monitoring plan, record any community complaints received and how the complaint was eventually resolved.

62. The PIU will consolidate the results of the monthly environmental monitoring through a quarterly progress report that will be submitted to the Project Coordination Unit (PCU) which is based at the Department of Water Supply and Sanitation of the MPWT. The quarterly report will (i) summarize the significant findings and measures undertaken to address identified adverse environmental impacts during the works, (ii) discuss any unanticipated environmental impacts encountered during the subject monitoring period and (iii) recommend remedial actions to address these unanticipated environmental impacts. Copies of the quarterly progress report prepared by the PIU will given to the members of the

Provincial Project Steering Committee and the District Governor. PCU will consolidate information from quarterly progress reports, compile and submit integrated safeguards monitoring report semi-annually to ADB. Appendix H presents the Semi-Annual Integrated Safeguards Monitoring Report.

63. The EMMP monitoring during the operational phase of the subproject will be undertaken by the PNP, with verification by the PCU who will report to ADB the project's adherence to the EMMP, information on project implementation, and environmental compliance through semi-annual integrated safeguards monitoring reports. The monitoring parameter during the operational phase, as outlined in the EMMP, includes monitoring of water quality at the inlet of the WTP and of the treated water.

64. **Conclusion and Recommendation.** This updated IEE for the Pha Oudom District subproject was undertaken to determine the environmental issues and concerns on the proposed water supply system subproject following modifications from the initial plans that were presented during project preparation. The modification on the location of the intake, WTP and reservoir from its originally identified location in the feasibility study is considered more suitable in terms of ensuring better raw water quality and quantity and in avoiding impacts to downstream ecosystems. This updated assessment confirms that the subproject is classified as **Category B for environment** based on **ADB Safeguards Policy Statement (SPS, 2009)**.

65. In general, the subproject will result in beneficial impacts on health and well-being of the people because of improved accessibility to potable and reliable water supply. There are also health benefits in the form of reduced incidences of water-related diseases as a result of hygiene promotion activities and improved access to safe water for the community.

66. Most of the adverse environmental impacts are expected to occur during the construction phase of the implementation of the subproject. However, these environmental impacts are not projected to cause irreversible and significant adverse environmental impacts and can be readily managed by the establishment of appropriate and conventional mitigation measures. Based on the assessment of environmental impacts, the anticipated impacts during project implementation are related to nuisances which may occur during the construction of the subproject components such as temporary disruption of access and of community facilities, noise, sediment runoff, generation of excavated/surplus material and release of dust and engine gas emissions. Environmental mitigation and monitoring measures have been designed to address any adverse impacts during the various phases of project implementation. The EMMP will be included in the bid and contract requirements for contractors. Effective implementation of the EMMP and monitoring and inspection of construction work sites and during operation will reduce potential environmental risks to an acceptable level.

67. The EMMP also presents the institutional responsibilities for implementing the mitigation and monitoring measures during construction and operation. The IEE concludes that the subproject combined with available information on affected environment is sufficient to identify the scope of environmental impacts of the subproject. No further environmental assessment is therefore required.

2 INTRODUCTION

68. The Water Supply and Sanitation Sector Project (WSSP) aims to improve the performance of provincial Nam Papas (PNPs) and expand access to safe piped water supply and sanitation for urban residents in small towns of Lao PDR. The project is consistent with the Government's urban water supply and sanitation sector policy and investment plan and supports the country's targets for piped water supply for urban population. The WSSP will be implemented through a sector loan from the Asian Development Bank (ADB) which was approved in 2013. The Ministry of Public Works and Transport (MPWT) and the Provincial Department of Public Works and Transport, as Executing Agency together with the Provincial Nam Papas or provincial water utilities (Implementing Agency), will be responsible for identifying, prioritizing, apprising, selecting, and approving subprojects in accordance with the Government and ADB's policies and procedures.

69. Pha Oudom District has been selected as one of the three subprojects under the WSSP under Phase 1.[4] During project preparation, an initial environmental examination (IEE) of the Pha Oudom District subproject was undertaken in compliance with the ADB Safeguards Policy Statement (SPS, 2009) and the EIA Decree of April 2010. Following changes in the Pha Oudom subproject design of the component facilities, this updated IEE (IEE) is prepared to consider the modifications in the project design and validate potential impacts to the environment. An updated Environmental Management and Monitoring Plan (EMMP) is also included in this document.

2.1 METHODOLOGY

70. This updated IEE is prepared according to the Environmental Assessment and Review Framework (EARF) of the WSSP, ADB Safeguard Policy Statement (SPS, 2009), ADB Operations Manual Section F1/BP, Public Communications Policy (ADB PCP, 2011), International Finance Corporation - World Bank Environment, Health and Safety (EHS) Guidelines, and the GoL Environmental Protection Law (2009), and other environmental laws, policies, rules and regulations applicable for water supply projects.

71. The potential impacts have been analyzed and mitigation measures identified following site visits to the locations of the subproject component facilities and service area in February and October 2016. The visits included an assessment of the proposed sites, discussions with Provincial and District officials and village representatives.

2.2 PROJECT CATEGORY

72. The requisite screening was carried out during the preparation phase of the WSSP using the ADB Rapid Environmental Assessment (REA) checklist. The WSSP was classified Environment Category B requiring the preparation of IEE and EMP. This update of the IEE confirms the subproject remains Category B. The potential adverse environmental impacts are site-specific, reversible, and can be readily mitigated via an environmental management and monitoring plan (EMMP).

[4] *Priority subprojects were identified during the project preparatory technical assistance phase. Feasibility studies and initial environmental examination (IEE) reports were completed for three high priority sample subprojects under Phase 1, namely: (i) New Namtha in Luang Namtha Province, (ii) Long in Luang Namtha Province, and (iii) Pha Oudom in Bokeo Province.*

3 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 ENVIRONMENTAL SAFEGUARDS POLICIES, ADB

73. The environment safeguards requirements of ADB are presented in the following:

- Safeguard Policy Statement (2009);
- Operations Manual Section F1/BP[5]; and
- Public Communications Policy (2011).

74. The Safeguard Policy Statement (SPS, 2009) of the Bank governs the environmental and social safeguards of ADB's operations. When a project has been identified for ADB financing, it is screened and categorized to determine the following:

- Significance of potential impacts or risks of the project to the environment;
- Level of assessment and institutional resources required to address the safeguard issues; and
- Information disclosure and consultation requirements.

75. The SPS outlines the environmental safeguard requirements that borrowers/clients have to comply with. These requirements include assessing impacts, planning and managing impact mitigations, preparing environmental assessment reports, disclosing information and undertaking stakeholder consultations, establishing a grievance redress mechanism, and monitoring and reporting. It also includes specific environmental safeguard requirements pertaining to biodiversity conservation and sustainable management of natural resources, pollution prevention and abatement, occupational and community health and safety, and conservation of physical cultural resources. Consideration of associated facilities, that are not funded as part of the project, and whose viability and existence depend on the project is also required.

76. ADB requires meaningful consultation with affected persons and concerned stakeholders and public information disclosure for Category A and B projects. For Category B, the draft IEE report should be available to interested stakeholders before project approval and posted on the ADB's website upon Board approval of a project in accordance with the Operations Manual and Public Communications Policy (2011).

3.2 LEGAL AND INSTITUTIONAL FRAMEWORK ON ENVIRONMENTAL MANAGEMENT IN LAO PEOPLE'S DEMOCRATIC REPUBLIC

3.2.1 Environmental Impact Assessment

77. The law governing the protection of the environment, including the assessment and management of projects in Lao PDR is the Environmental Protection Law (EPL), which was issued in 1999 and amended in 2013. This includes the including the Lao IEE Instruction of 2013. Responsibilities and procedures for environmental assessment, together with requirements for environmental monitoring of projects are stipulated in the Decree on Environmental Impact Assessment (EIA Decree) dated April 2010. Under the EIA Decree, investment projects are categorized according to a schedule or list of projects such that for Category 1 or small-scale projects, an IEE is required and for Category 2 or large-scale projects, an EIA report is prepared. Under the schedule in the EIA Decree, water supply facilities (Item 3.52) fall under Category 1, so an IEE is required by GoL.

[5] *Operations Manual Bank Policies (BP) issued on 1 October 2013, based on ADB Safeguard Policy Statement, 2009.*

78. The EIA Decree states that all investment projects that may create adverse environmental and social impacts are to be designed with the correct and appropriate environmental and social impact prevention and mitigation measures or environmental management and monitoring plans (EMMP) and social management and monitoring plans (SMMP) (Article 1). According to the decree, the primary responsibility for undertaking environmental assessment of projects is with the project developer, which for this subproject, is the Department of Water Supply and Sanitation. The Ministry of Natural Resources and Environment (MONRE), acting through the Department of Natural Resources and Environment (DONRE), is responsible for the review and approval of environmental assessment reports, coordination of monitoring and evaluation, and issuance of the requisite environmental compliance certificates (ECC). Public participation and discussion with local administrations is required throughout the environmental assessment process.

79. The Updated IEE for the Pha Oudom subproject was approved by the Bokeo Department of Natural Resources and Environment (DONRE) on 21 November 2016 as per Certificate No. 645/DONRE (see Appendix B). According to the Department of Natural Resources and Environment (DONRE) of Bokeo Province, a copy of the updated IEE should be submitted to their office for their reference during monitoring.

3.3 DRINKING WATER QUALITY STANDARDS

80. The Ministry of Public Health (MOH) has issued the Water Quality Standard for Management for Drinking and Domestic Use in March 2014 in accordance with Decision 561/MOH, 2014. The MOH has the responsibility of overseeing and monitoring drinking water quality in Lao PDR. The PNPs and Nam Saats[6] are required to monitor drinking water quality in order to ensure water safety and protect consumer health through the conduct of regular water quality sampling and laboratory analysis of the gathered samples.

81. As stipulated in the MOH Drinking Water Quality Standards, 2014, the PNPs are required to conduct regular water quality monitoring and testing of 23 water quality parameters. The standards specify that up to 7 parameters must be tested weekly and an additional two parameters tested on a monthly basis. There are an additional 14 parameters to be tested on an annual basis. The list of monitoring parameters is listed in Table 3 of the guideline.

82. At this stage of their development, the PNPs do not have the resources and capacity to comply with this requirement so the intent is to develop a database of three key indicators of health parameters (chlorine residual, pH, and turbidity) and progressively move towards meeting the MOH requirements. Appendix F presents the MOH Drinking Water Quality Standards (2014).

3.3.1 Discharge Standards

83. The Agreement on National Environmental Standards 2010[7], Water Resources and Environment Administration (WREA) of 2009, defines the discharge standards for industrial wastewater discharges from manufacturing facilities which covers a comprehensive range of parameters, including biochemical oxygen demand (BOD) of 40 mg/l and total suspended solids (TSS) of 40 mg/l.

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[6] *Nam Saat systems are domestic water supply systems that provide water to rural areas or to urban areas not connected to a Nam Papa system. These systems include: protected dug wells, boreholes with motorized pumps or hand pumps, gravity fed systems, protected spring water, rainwater collection system, water carts or water tankers.*

[7] *The Agreement on the National Environmental Standards stipulates the allowable limits for Air Quality and Ambient Noise Levels and will be the guidance during all the phases of project implementation.*

4 DESCRIPTION OF THE PROJECT

84. The subproject in Pha Oudom District covers nine core villages in and around the District Center. Pha Oudom District lies to the southeast of Bokeo province and is approximately 70 km from the provincial capital of Huoaxay. The proposed subproject will include the development of new water supply systems and enhanced community actions in urban water supply and sanitation. Further outputs under WSSP that will be provided at sector level are: (i) improved sector coordination and policy implementation, (ii) improved non-revenue water management and water supply development in small towns, and (iii) strengthened capacity for project implementation, operation, and maintenance (O and M).

4.1 EXPANDED AND REHABILITATED WATER SUPPLY SYSTEMS

4.1.1 Existing Water Supply and Sanitation Facilities

85. The households in Pha Oudom are reliant on shallow wells, some gravity fed systems distributing water from wells and bottled water, and river water during the dry season when the wells dry up. The wells are problematic, only some yield water that is considered potable. These water sources have poor protection, usually open earthen dug wells and a rudimentary roof which are sometimes hazardous to small children[8]. Water from other wells is turbid and used for washing and bathing. One deep borehole provides cleaner water which is filtered, disinfected by chlorine, bottled and then sold.

86. Collecting water is usually borne by women and older children of a household. Since the water source is located outside of the house, women and older children have to carry heavy loads of water inside the house.

87. Majority of the houses (77.7%) have sanitation facilities, usually water-sealed pit latrines. Difficulty is experienced during the dry season and household members resort to open defecation. Support is being provided by NGOs to provide improved, affordable toilets, either using soakaways or septic tanks, based on components readily available in Pha Oudom. NGO support has also been provided to schools.

4.1.2 Proposed New Water Supply System

88. The water supply service area will include nine core villages of Phiengkham, Thinkeo, Pahoudom, Phonxai, Somsavang, Donsavan, Namkha, Xaisavang, and Xaioudom. The main components of the proposed water supply system for Pha Oudom District would consist of a siphon intake structure on the Nam Haad river, a raw water transmission pipeline, water treatment plant (WTP), a clear water reservoir, and treated water transmission and distribution pipelines. Figures 2 to 8 presents the general layout of the proposed system, the proposed associated facilities namely the WTP, the 60m^3 transfer tank, the 420m^3 transfer tank, the proposed Intake on Nam Haad River and the 458.519 meter access road to the WTP. Figure 9 shows the locations. The sanitation component consists of construction of 8 public latrines (2 rooms) at Village Meeting Halls of Phiengkham, Thinkeo, PhaOudom, Donsavanh, Phonxay, Somsavang, XayOudom, Xaysavang Villages..

89. The water intake was moved about 300 meters upstream from the previously planned intake near an irrigation weir on the Nam Haad River because of concerns about turbidity and water quality. Water from the intake will be fed by gravity to a sump tank and pumping station at the downstream, which will then feed the raw water to a proposed WTP located on a hill in Ban Phiengkham. Treated water will then be pumped to a treated water

[8] *A drowning incident occurred in 2012 in one of the open earthen dug wells.*

reservoir with capacity of 800 m^3 located at elevation 458 masl, distributed through the main transmission line which runs parallel to the Road 2201, and then to the distribution network to connect all households, businesses and institutions in the core villages in Pha Oudom.

90. The original location of the tank was 150 m uphill from the current location at elevation 485 masl but due to issues with the static pressure, it was decided that the tank be transferred to a more suitable site. The WTP will have a capacity of 2,200 m^3 and will comprise of pre-sedimentation, flocculation, sedimentation, rapid gravity filtration, a backwash water tank, chlorination facilities, clear water tank, and sediment detention ponds. An office, water testing laboratory, and warehouse storage will also be constructed within the site of the WTP. The subproject will also require the construction of a new 458.519 meter access road into the WTP. The new road is necessary to provide access from the main road into the WTP. It will be located in government land. The requisite consultations have been undertaken and the permission for the use of the land has been secured.

91. In addition, a small PNP branch office will be constructed in the urban area. Laboratory testing equipment will be procured as well as basic office equipment for management of the water supply system. Branch Nam Papa staff will receive training in water supply utility management, operation and maintenance and basic non-revenue water (NRW) reduction.

92. Further components of the subproject are: (i) training of Pha Oudom PNP staff on water supply utility management, operation and maintenance, and (ii) support to communities through the Village Development Committees (VDCs) for a range of activities to be agreed with the VDC. These activities will include: (i) village environmental improvements (VEIs), consisting of household and community level sanitation and drainage facilities, (ii) stakeholder consultation and public participation to raise awareness and provide organizational support required to implement the VEIs, (iii) support to district authorities in sanitation and hygiene behavior change, and (iv) public sanitation facilities consisting of 8 units of 2 room type at Village Meeting Halls of Phiengkham, Thinkeo, PhaOudom, Donsavanh, Phonxay, Somsavang, XayOudom, Xaysavang Villages.

4.1.3 Enhanced Community Action in Urban Water Supply and Sanitation

93. Support will be provided to the communities through elected Village Development Committees (VDCs) for a range of activities to be agreed with. This will include among others (i) village environmental improvements (VEIs) consisting of household and community level sanitation and drainage facilities, (ii) stakeholder consultation/town hall gatherings and public participation to raise awareness and provide organization support required to implement the VEIs, (iii) support to District authorities in sanitation and hygiene behavioural change and (iv) public sanitation facilities.

5 DESCRIPTION OF THE ENVIRONMENT

94. The succeeding sections will discuss in detail the environmental conditions prevailing at the site of the components of the subproject and the service area in Pha Oudom District.

5.1 PHYSICAL RESOURCES

95. Pha Oudom district is located in the southeast part of Bokeo province. It is about 70 km from the provincial capital of Houaxay. The Pha Oudom District center is located in flat to undulating terrain, at an altitude of 420 masl. The core villages are mostly situated in a flat area to the south of the Nam Haad river. The terrain on the eastside is undulating. The Nam Haad river flows from the east. Figure 9 shows the general topography of the sub-project area while Plate 1 presents photographs of the proposed sites of the subproject..

FIGURE 2. GENERAL LAYOUT OF THE PROPOSED SYSTEM, PHA OUDOM DISTRICT

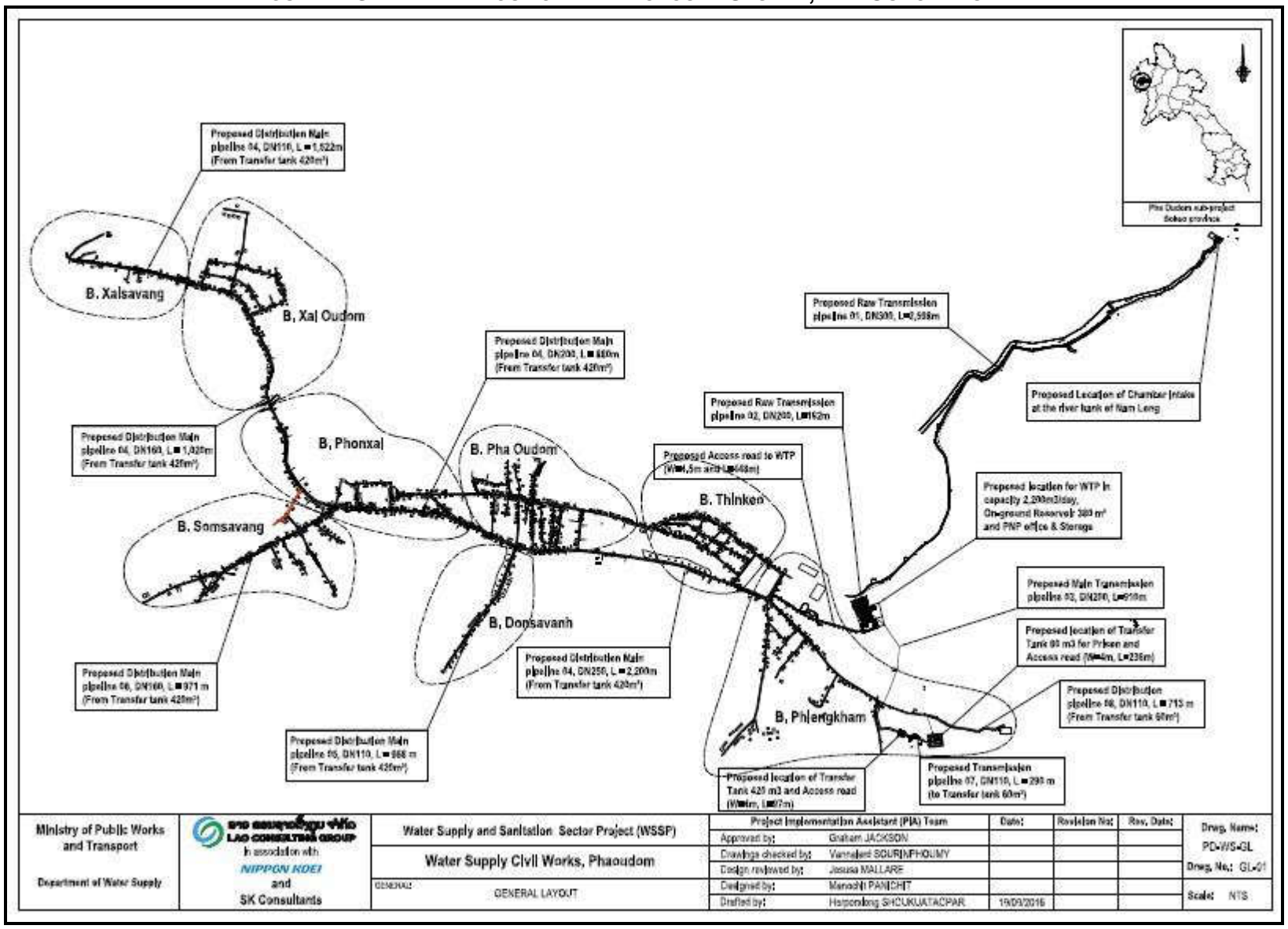


FIGURE 3. GENERAL LAYOUT OF THE PROPOSED INTAKE AT NAM HAAD RIVER, PHA OUDOM DISTRICT

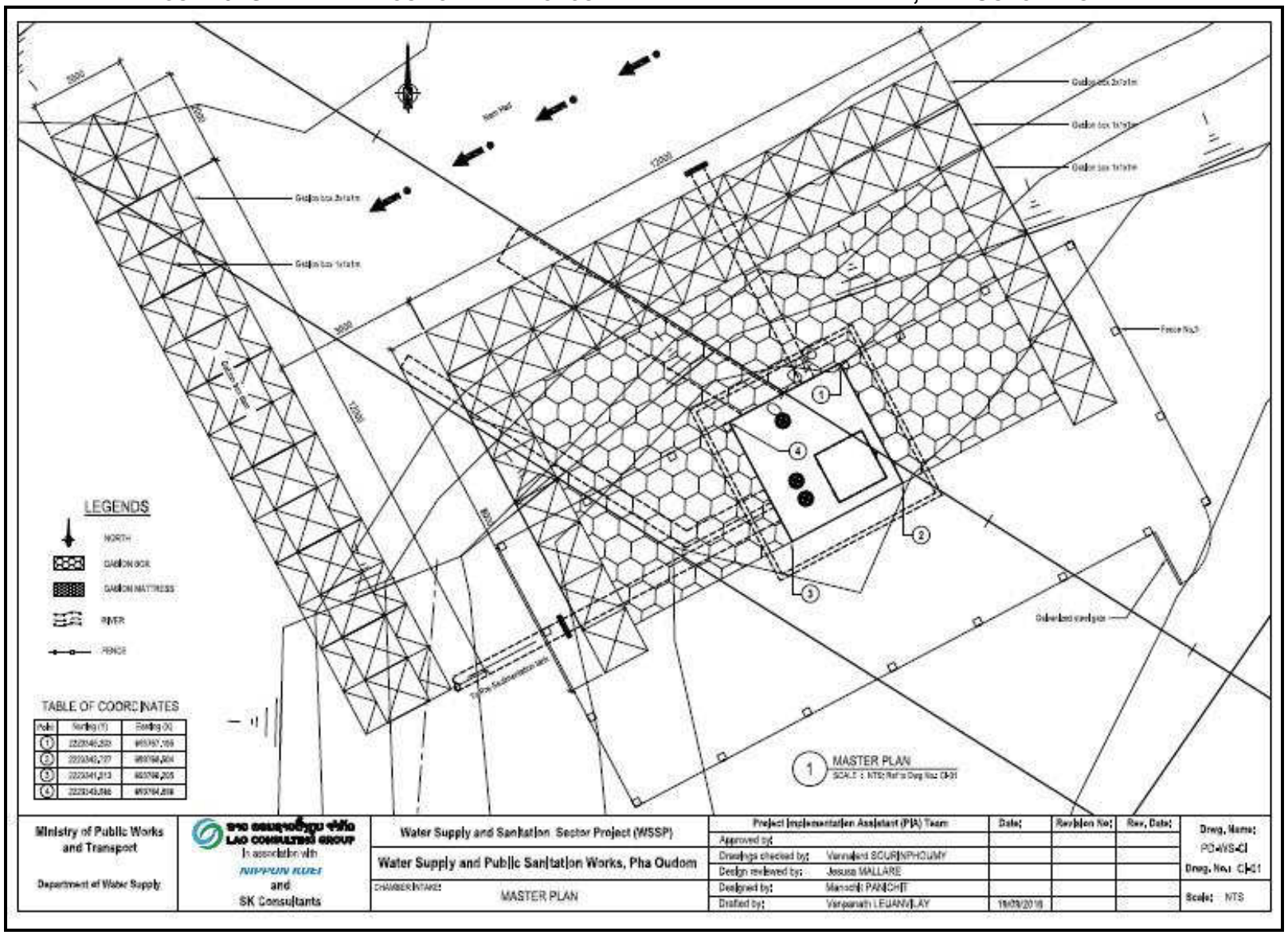


FIGURE 4. GENERAL LAYOUT OF THE PROPOSED WTP, PHA OUDOM DISTRICT

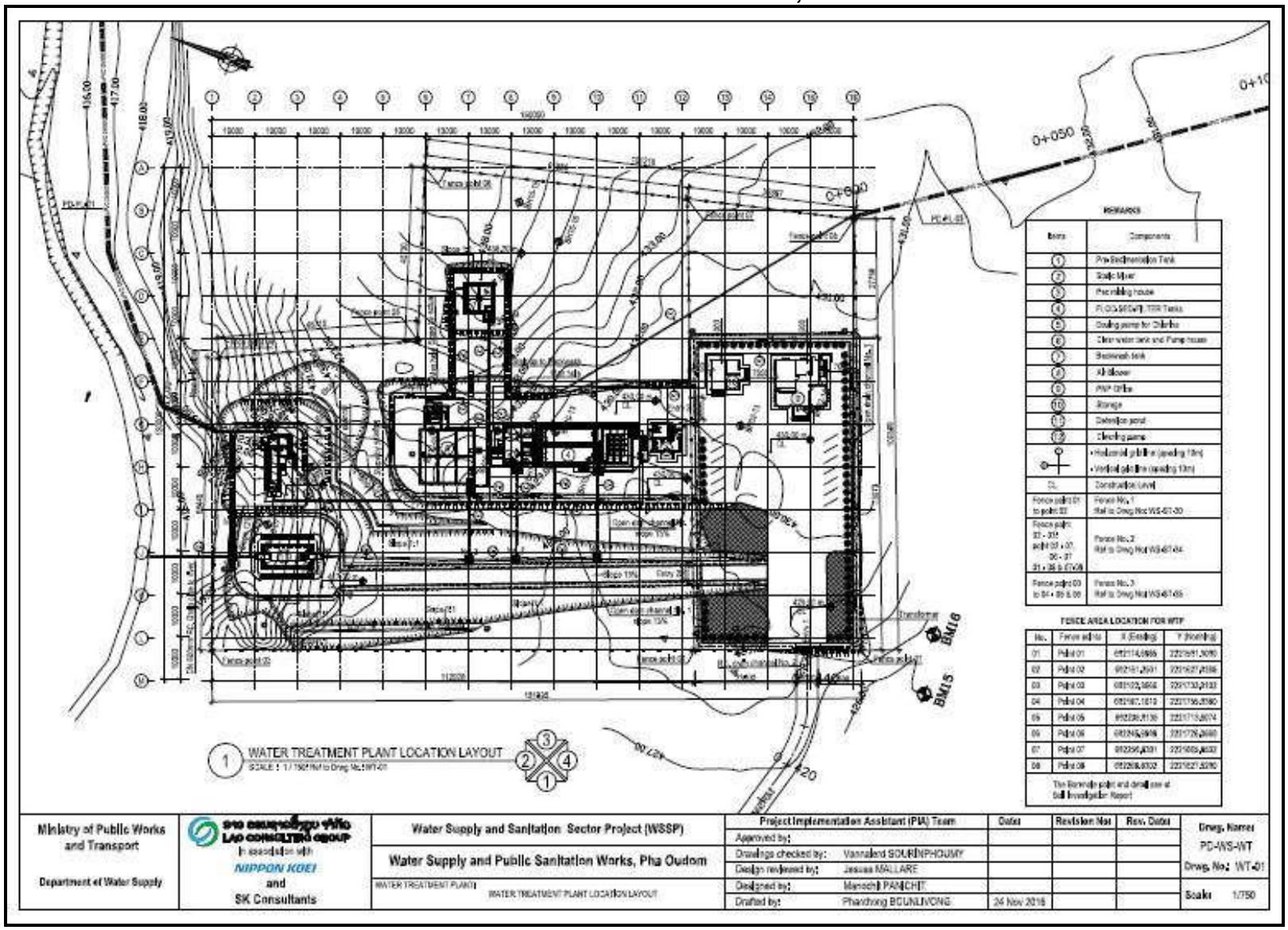


FIGURE 5. GENERAL LAYOUT OF THE PROPOSED TRANSFER TANK 420M^3, PHA OUDOM DISTRICT

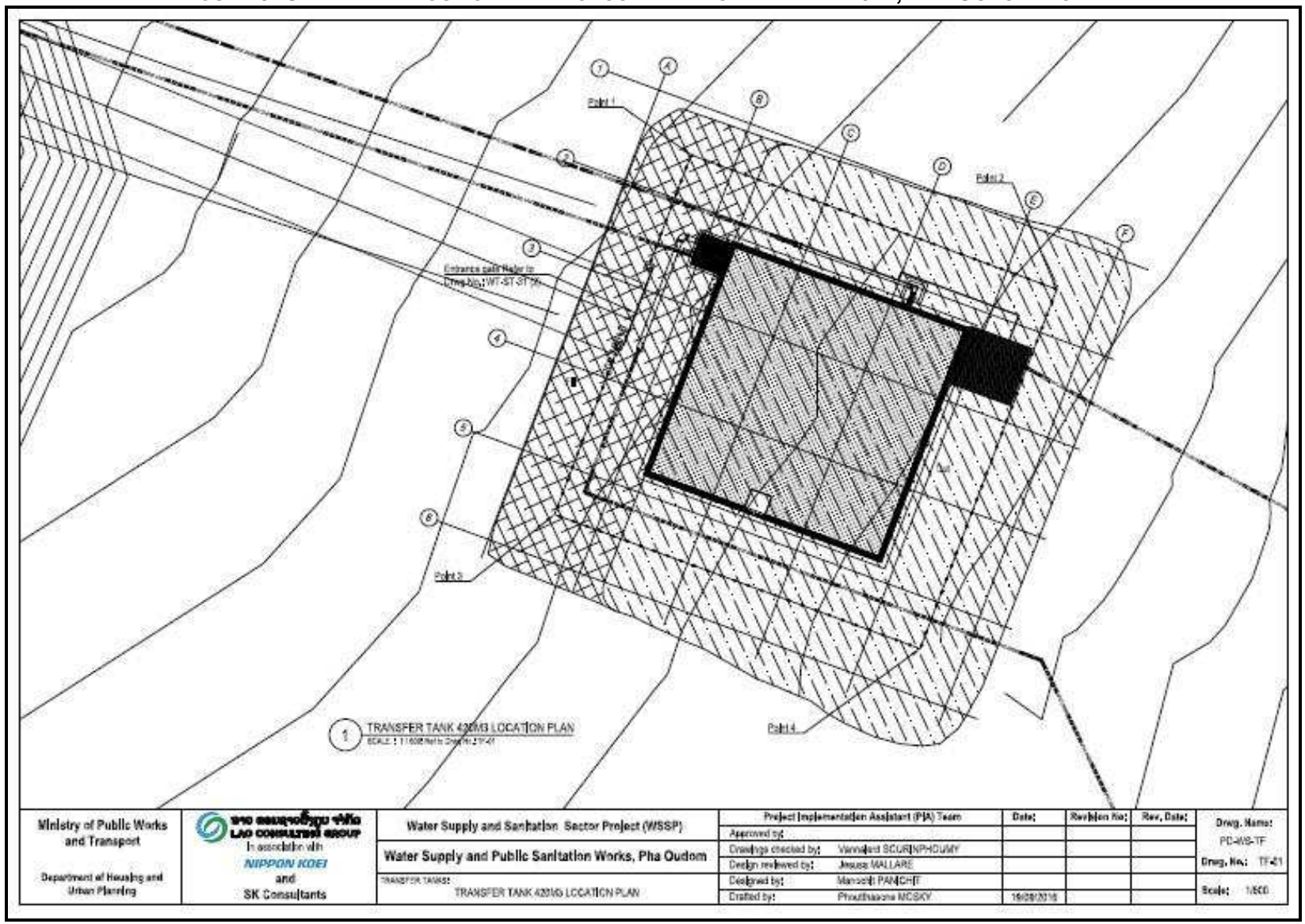


FIGURE 6. GENERAL LAYOUT OF THE PROPOSED TRANSFER TANK 60M^3, PHA OUDOM DISTRICT

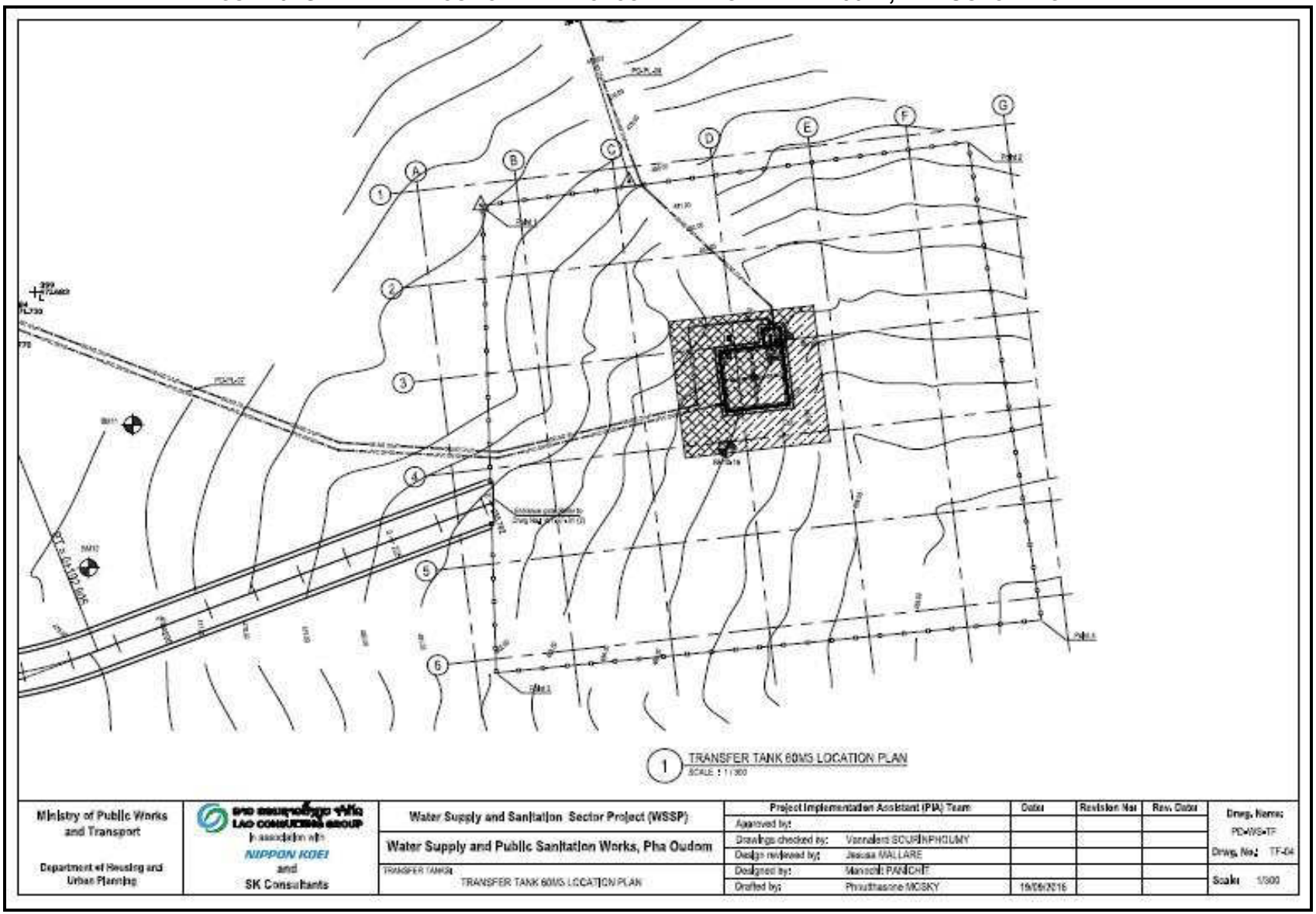


FIGURE 7. PLAN AND PROFILE OF PROPOSED ROAD TO WTP (SHEET 1), PHA OUDOM DISTRICT

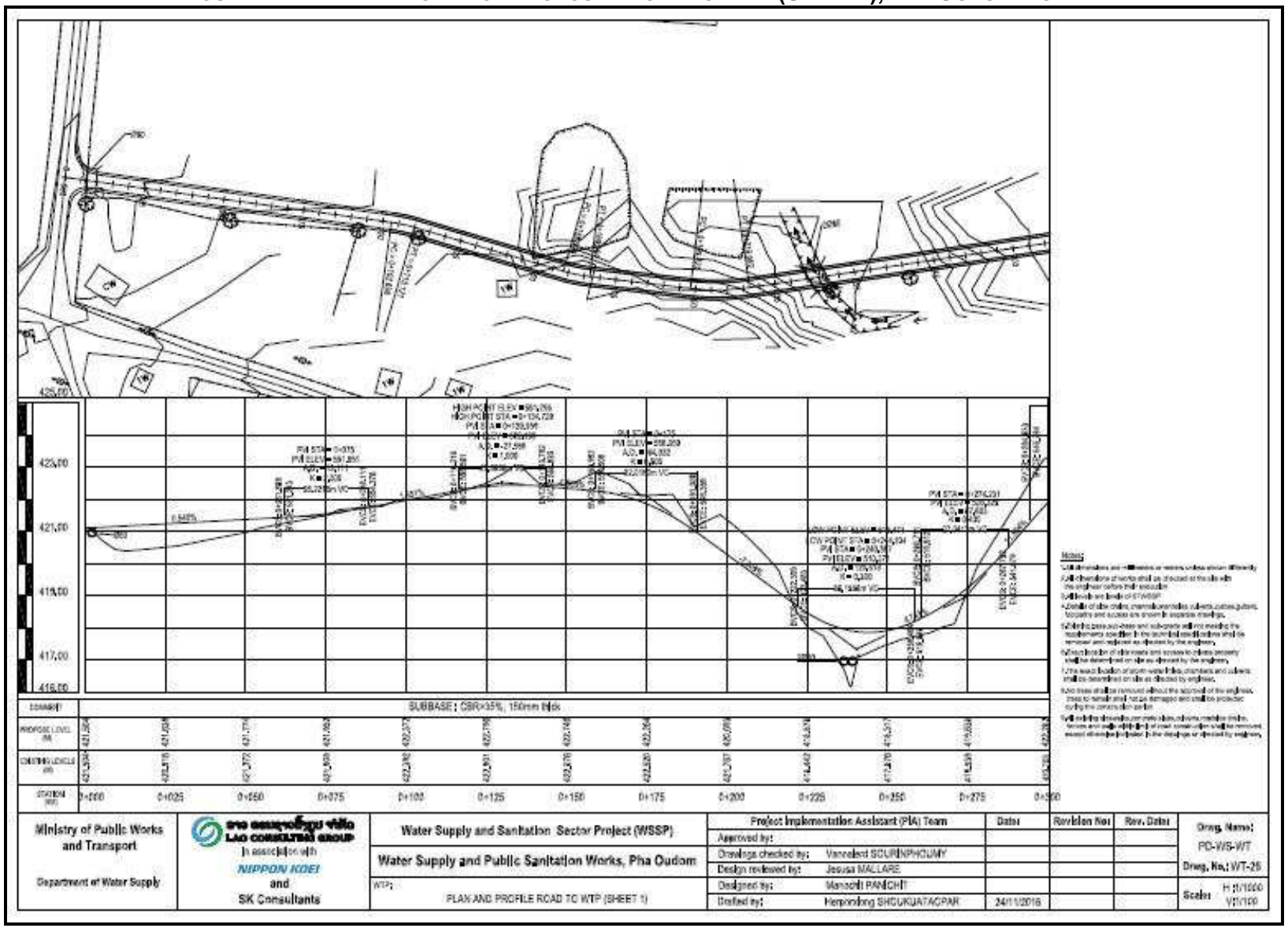


FIGURE 8. PLAN AND PROFILE OF PROPOSED ROAD TO WTP (SHEET 2), PHA OUDOM DISTRICT

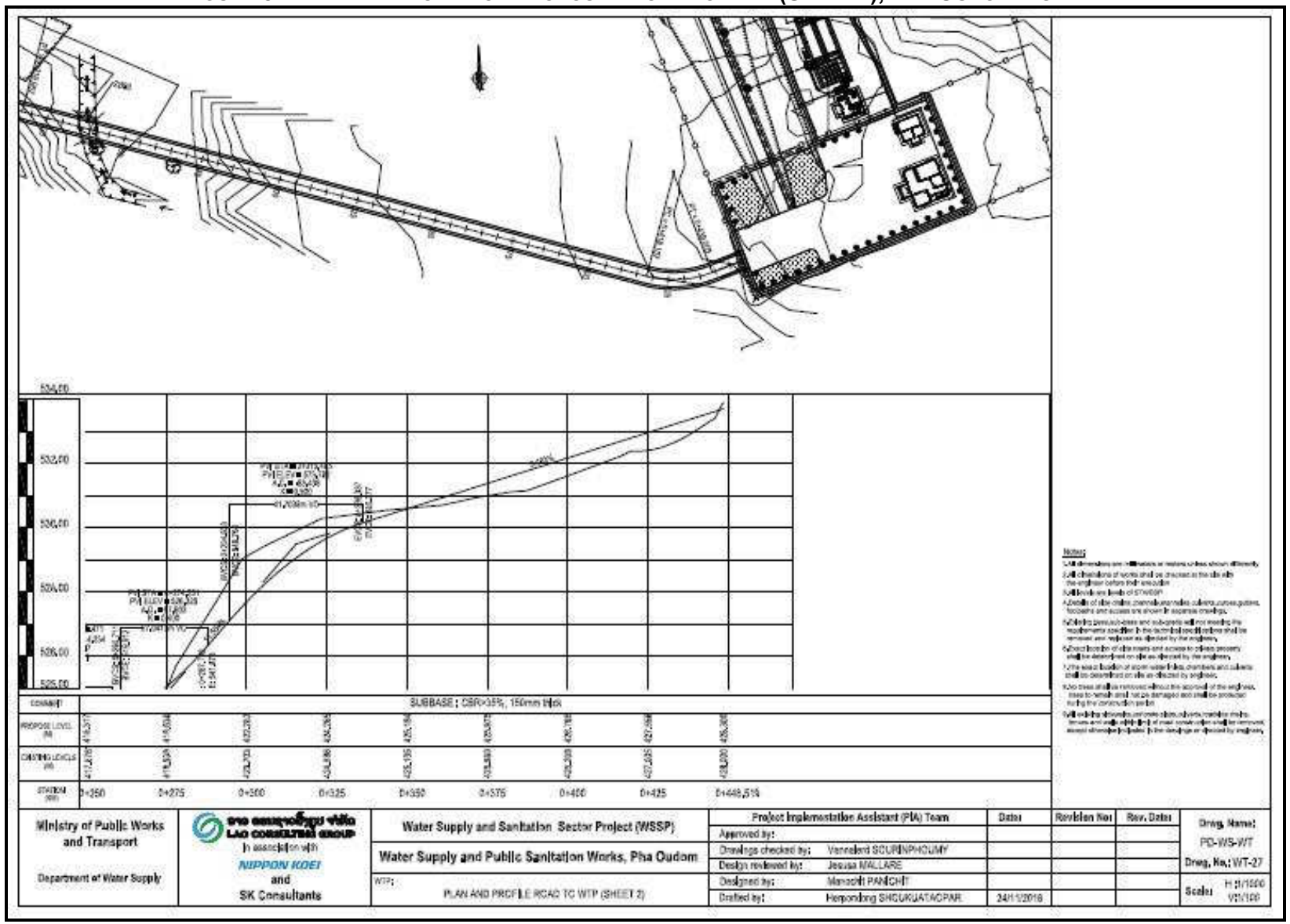
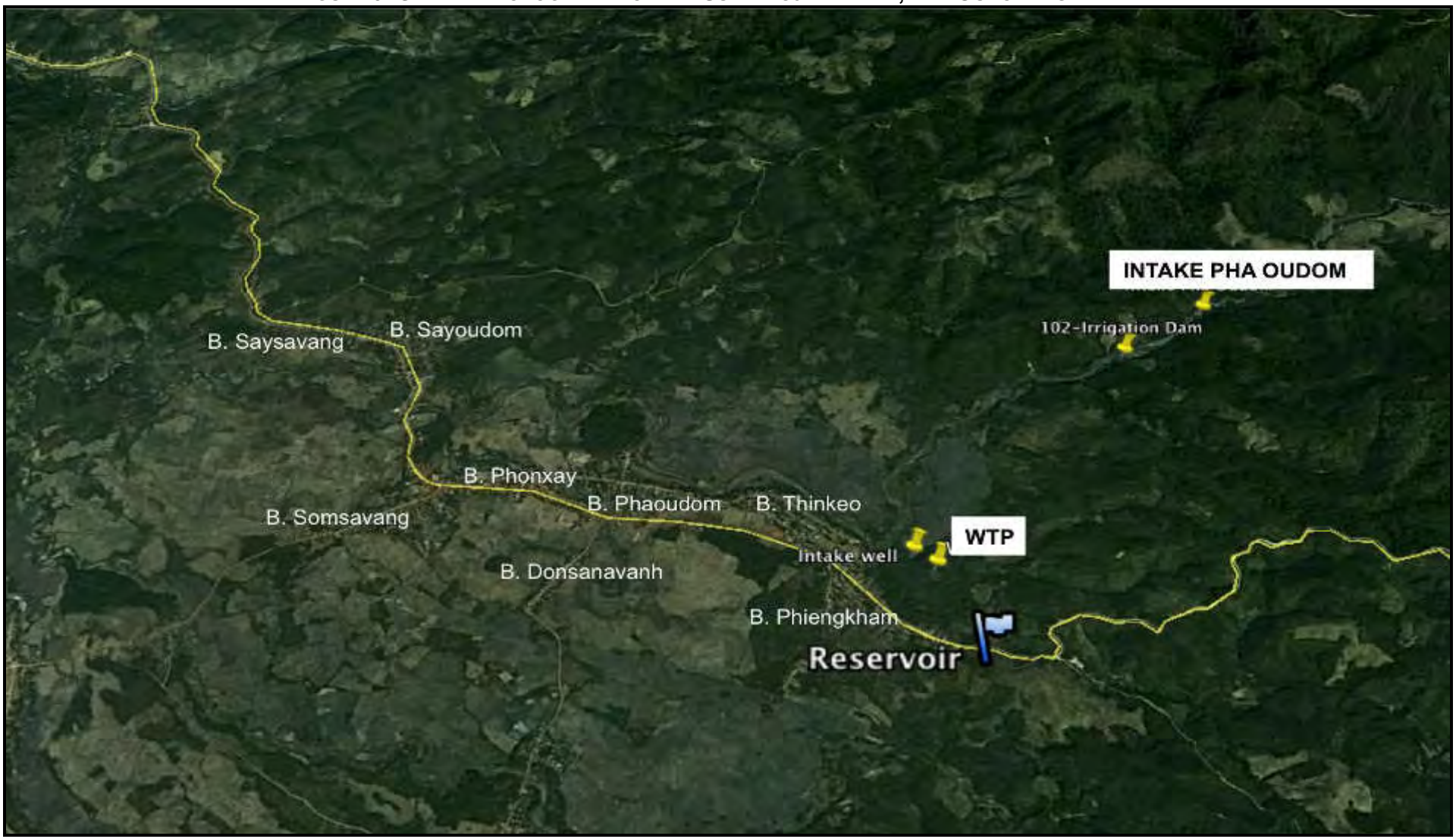


FIGURE 9. GENERAL TOPOGRAPHY OF THE SUB-PROJECT AREA, PHA OUDOM DISTRICT



Source: Google Earth

PLATE 1. PHOTOGRAPHS OF SITES OF PROJECT COMPONENTS, PHA OUDOM DISTRICT

PROPOSED INTAKE SITE

PROPOSED SITE OF OFFICE AND LABORATORY

PROPOSED SITE OF OFFICE AND LABORATORY

PROPOSED SITE OF WTP AND RESERVOIR

96. The upper catchment area of the intake is characterized by steep terrain at elevations of up to 1,400m ASL. The total catchment area is 79.82 km^2. There are reportedly no households upstream of the proposed intake and most of the houses are located at the downstream side of the Nam Haad catchment area. Access to the intake site is a two hour hike through paths which run parallel to an irrigation canal and agricultural lands. There are no sensitive receptors within the vicinity of the proposed site of the intake.

97. The site of the WTP and the reservoir, office and laboratory is moderately sloping to flat ground and characterized as bushes and bamboo vegetation. Current access to the WTP and reservoir, office and laboratory site are through paths traversing an open playing field. The proposed locations of the WTP, reservoir, office and laboratory, transmission and distribution pipelines and the access road are on Government Land and permission to utilize the area has already been secured. The nearest receptor from the proposed site of the WTP and reservoir, proposed office and laboratory is a settlement area approximately 800 meters from the said site.

5.2 GEOLOGY AND SOILS

98. Soil samples were taken from 14 boreholes along the distribution main pipeline and 18 boreholes at the WTP and intake sites. Borings ranged from 2 meters to more than 10m. Based on the geological map provided by the Department of Mines, the rock formation in the area consists of Paleozonic deposits of marine sedimentary rock such as mudstone, lightly metamorphosed by volcanic activity. Igneous intrusions of granitic rock occur in the

surrounding hills. Majority of the town is underlain by alluvial deposits which predominates in the valley floor, where soils appear fertile and rice cultivation is extensive.

5.3 NATURAL HAZARDS

5.3.1 Earthquakes

99. Small to moderate earthquakes have occurred within Lao PDR over recorded history. Northern and western mountainous regions, including the project area, have the highest earthquake risk, rated by the Modified Mercalli Scale as moderate.

5.3.2 Floods

100. Lao PDR is prone to floods, mainly associated with the larger river basins. Eight rivers have been identified as particularly likely to result in nationwide flood disasters, which do not include Nam Haad or Man Chuk Rivers.

5.3.3 Landslides

101. Steep hills surrounding the town are prone to landslides, which occur most frequently at times of heavy rainfall. Landslide susceptibility in the hills around the project area is rated as moderate by the Asian Disaster Preparedness Center. The terrain in and around Pha Oudom District Center is either flat or undulating and not prone to landslides. However, the site of the WTP and reservoirs will be on hilly terrain, hence, would require appropriate slope protection.

5.4 AIR QUALITY AND NOISE

102. Air quality in the Pha Oudom is generally good. There are no industries producing discharges which result in atmospheric pollution and pollution from vehicular exhaust emissions are not significant given the low levels of traffic and absence of any traffic congestion. The only detrimental effect on air quality is the dust arising from the passage of vehicles over unsealed roads when the roads are dry. This is an intermittent problem with a minor effect over a limited area of 5 to 10 meters either side of the road.

103. The locations of the project components are relatively far from noise generating activities. There are no industries as mentioned in the previous section so ambient noise levels can be considered very good. There are no sensitive receptors within the area of the Intake. The proposed site for the WTP and reservoir is an estimated 800 meters from a settlement area.

5.5 CLIMATE

104. The northern part of Lao PDR has a warm temperate climate that is characterized with dry winters and hot summers. The dry season occurs between November and February while the wet season occurs between May and October. The dry season is generally cooler, though temperatures rise significantly in March and April prior to the onset of the rainy season.

105. Detailed meteorological information was provided by the Department of Meteorology and Hydrology office in Vientiane for the years 1994 to 2012. Rainfall is medium, remaining above 120 mm, between April and October, peaking in August at 412 mm. Between December to February the rainfall drops below 25mm.

106. The dry season in the year is pronounced, and within the period, no rainfall was recorded for the month November twice, for December five times, for January four times and for February five times. One period of two consecutive months of no rainfall is recorded (January and February, 2009). Rainfall varies significantly from year to year, the lowest in the period being 1,403mm in 2009, and the highest the year before at 2,437 in 2008. Table 1 shows the maximum, minimum and mean rainfall for each month between 1994 and 2012.

TABLE 1. TOTAL RAINFALL IN HOUAIXAI, 1994 – 2012

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
MIN	0	0	1	61	50	88	32	162	83	37	0	0	**513**
MAX	62	114	188	184	426	390	653	758	477	253	193	86	**3,782**
MEAN	16	23	50	121	236	223	372	412	247	107	39	13	**1,858**

Source: Department of Meteorology and Hydrology, Vientiane

107. Temperature averages 25.3^{o}C over the year, with lowest temperatures of around 14.6^{o}C occurring in January, and reaching 33.8oC in April. Monthly maximum temperatures are close to or above 30^{o}C for most of the year.

108. Relative humidity varies from 38% in February and March to around 95% in July, August and October. Evaporation averages 136.9 mm, exceeding 110mm for most of the year.

5.5.1 Climate Change

109. In Lao PDR, the most significant climate change impact is increasing frequency and severity of heavy rainfall events, and longer, more severe drought periods. The National Adaptation Program of Action (NAPA) for climate change, was prepared for Lao PDR and submitted to the United Nations Framework Convention on Climate Change in May 2009. The NAPA identifies priority vulnerability areas, and these include water resources. As per the NAPA, Bokeo Province is not situated in an identified vulnerable area. Over time, greater maximum and minimum water levels can be expected with consequently greater risks of floods and droughts.

5.6 WATER RESOURCES

110. The Nam Haad River flows through Pha Oudom in a westerly direction and flows into the Nam Chuk, a tributary of the Mekong River. The river feeds a new irrigation scheme. As determined during the preparation of the feasibility study in 2013, the size of the catchment area upstream of the proposed intake is 13.9 sq. km. using GIS data. Using this information and rainfall data was input to a model that used a volumetric runoff coefficient approach to estimate average monthly flows and importantly, to determine the minimum dry season flow. The model estimated runoff, and infiltration (either stored on the soil or lost as evapo-transpiration), with assumed levels of soil water storage and deep percolation. It further assumed that the catchment has predominant forest cover and that the extent of residential areas and roads within the catchment is negligible.

111. The model yielded mean flows during the driest months, December January and February as approximately 301 L/s; 371 L/s and 599 L/s respectively. However, when applying data from drier years, dry season flows can drop to under 20 L/s. However, the model may provide conservative estimates as the flow estimated by the consultants when visiting the scheme in March 2013 was approximately 4,500 L/s, while the model predicts a much lower flow during March of 1,515 based on figures from 2008 (the wettest year between 1996 and 2012 for which data is available).

112. Flow measurements were taken on the Nam Haad in January 2016 and February 2016 which are the driest months in Pha Oudom. The results show that the Nam Haad river

has a capacity of 67,392 m^3/day (February) and 93,312 m^3/day (January). These months are considered as the driest months in the year in Pha Oudom. With the proposed abstraction and treatment capacity of 2,200 m^3/day of the WTP, the proposed subproject in Pha Oudom will only abstract 1.88% (January) to 2.6% (February) of the river capacity. There is still more than enough water in the Nam Haad that will meet the irrigation demand of 0.32 m^3/s at the downstream. Environmental flow of about 38,000 m^3/day is assured after the water supply intake and irrigation weir in the Nam Haad river. Villagers in Pha Oudom disclosed that even during the dry season, the river continues to have water. This may be primarily attributed to the dense forest vegetation in the upstream catchment area.

113. Nam Haad River is among the many rivers that can be found in the mountainous and hilly region of Bokeo province. Water quality tests conducted at Nam Haad river on 8 February 2013 shows that water quality is quite good. Turbidity ranges from 11 NTU to 19 NTU. Very low levels of iron (Fe), manganese (Mn), and Arsenic (As) were detected in 2013. Follow-up water quality tests were taken on the river on January 6, 2016. The results indicate that the river water quality is good, except that slightly higher levels of iron (Fe) were detected as compared to the 2013 sampling results. Table 2 presents the water quality of Nam Haad river in 2013 and 2016.

TABLE 2. WATER QUALITY OF NAM HAAD RIVER

PARAMETER	UNIT	28 DEC. 2015	25 JAN. 2016	DRINKING WATER QUALITY STANDARD, MOH*
Turbidity		8.02	7.78	
Color	NTU	11	19	3.6
Alkalinity as CaCO3	TCU	6	7	10
Total hardness as CaCO3	mg/l	98	102	129
Chloride (Cl)		101	109	96.2
Fluoride (F)	mg/l	2	2	ND
Total Suspended Solids (TSS)	mg/l	17	19	7.3
Nitrate (NO3)	mg/l	110	122	
Sulfate (SO4)	mg/l	0.051	0.093	0.319
Iron (Fe)	mg/l	<0.02	<0.02	0.062
Manganese (Mn)	mg/l	<0.05	<0.05	0.0015
Arsenic (As)	mg/l	-	-	ND
Potassium (K)	mg/l	-	-	0.09

Source: Water analysis report Nam Haad River. 8 February 2013
Note: Minister's Decision on Water Quality Standard Management for Drinking and Domestic Use. Department of Hygiene and Health Promotion. Ministry of Public Health. March 2014

5.7 ECOLOGICAL RESOURCES

114. Land use in the area includes shifting cultivation and some orchards for fruits such as longan, mango, custard, apple, and citrus species. The upper reaches of the Nam Haad catchment is characterized by dense forest cover. Intensive shifting cultivation can be found at the downstream areas.

115. The Nam Ha National Biodiversity Conservation Area, located some 45 km from the subproject area, has a greater area of intact forest and is known to be inhabited by wildlife species of conservation significance. Aquatic ecosystems in the rivers in the uplands of Lao PDR are diverse, and subject to a variety of anthropogenic factors, including aquaculture, fishing, the creation of rice paddies and the construction of dams and weirs. Fish, molluscs, crustaceans and insects are important sources of protein.

5.8 HISTORICAL AND ARCHAEOLOGICAL SITES

116. The project components (intake, WTP site, reservoir, raw water transmission line and distribution lines and access roads) will not affect any historical and archaeological sites such as temples and burial sites. There are remains of ancient temples in the neighbouring districts but not within the project area.

5.9 UNEXPLODED ORDNANCE

117. Data on bombs dropped by US forces between 1968 and 1972 is available from the National Mines Regulatory Authority and has been reviewed. No sites occur within or around Pha Oudom district center. The PNP Bokeo commissioned a survey in Pha Oudom District to verify the presence of unexploded ordnance (UXO) and it was revealed that there are no UXO remaining in the area. Local residents also reported no known occurrence of UXO in the vicinity of the town or of knowledge of ground or air strikes from which UXO may remain. Appendix C presents the UXO Certification of the Pha Oudom subproject.

5.10 SOCIO-ECONOMIC CONDITION

118. The subproject covers nine villages in Pha Oudom district including merged areas such as the three villages of Thinkeo forming one village and 57 households adjoining Somsavang in old Palau village. The core area is composed of 1,673 households with a total population of 8,976 as of 2015. Table 3 presents the population of the core villages in Pha Oudom subproject.

TABLE 3. POPULATION IN CORE VILLAGES IN NEW PHA OUDOM SUBPROJECT, 2015

VILLAGES	NO OF HOUSEHOLDS	TOTAL POPULATION	FEMALE POPULATION
Ban Phiengkham	192	1,091	538
Ban Thinkeo	189	955	488
Ban Phaoudom	235	1,135	580
Ban Phonxai	94	504	262
Ban Somsavang	139	757	376
Ban Donsavanh	73	388	211
Ban Xaysavang	48	243	115
Ban Xayoudom	142	996	489
Ban Namkha	128	671	344
Ban Sibounheuang	92	408	205
Ban Pounglat	144	706	366
Ban Homsouk	197	1,122	597
TOTAL	**1,673**	**8,976**	**4,571**

119. A range of community facilities are located in the core villages including three primary schools and one secondary school; three pharmacies, one 15-bed district hospital; a daily market, 47 shops, one restaurant, three guesthouses and nine garages; and one bus station.

5.10.1 Economy

120. Economic activity is dominated by rice cultivation, industrial plantations (mainly banana and rubber) and horticulture and by trading. There are some major privately owned processing facilities, including mills and a drying plant in the town. Household incomes are often supplemented by remittances from household members who work outside of the town, often in Vientiane in the construction industry.

121. Pha Oudom District has benefitted little from the upturn in the tourism industry and remains reliant on agriculture and some remittances from outside the district for its economy. However, with improvements in the road that will improve access to the town of Pak Beng, a popular destination with tourists that has evolved as a resting point on long distance boat journeys on the Mekong River, prospects to gain incomes from tourism may improve, especially since caves and waterfalls in the area may provide suitable tourist attractions.

5.10.2 Health and Sanitation

122. The leading reported illnesses in Pha Oudom are diarrhoea, coughs, colds, and tuberculosis. Majority of households (75%) use pour flush toilet to a pit while 9% have septic tanks. About 15% of households have no toilet. Of the households with toilets, 91% are used solely by the household while 9% are shared, typically by two other households. Household toilets are also typically located in the yard (92%) with just 7% inside or attached to the house and 1% located outside of the property. For households with a septic tank, the wastewater goes to a soak pit (80%), with the remainder going to a street drain. Of all the pits and septic tanks, few have ever been full.[9]

5.10.3 Water and Power Supply

123. There is at present no piped water supply system in Pha Oudom. The sources of drinking water for households are wells (45%), with 37% of households using the Nam Saat piped water. Bottled water is purchased by 10% of households while rainwater is not used at all as a source of drinking water. Households normally boil water and then use the well water for cooking. The gravity system is being used for washing and bathing. All of the households in the core villages are connected to the electricity grid.

6 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

124. The environmental impacts were evaluated in the areas of influence at the subproject component sites. At the raw water intake, the area of influence includes the upstream and downstream sections from the intake considering the potential effects to water quality, sustainability of the water supply source, and potential conflict on river water use. At the locations of the main transmission line and distribution lines, the affected area may extend to an average of 1-50 meters along the excavated area of the pipelines. At the proposed sites for the WTP and reservoir and office and laboratory, temporary disruption and nuisance impacts may be experienced, mainly during the construction period. The sanitation component, which consists of the construction of 8 public latrines (2 rooms) at Village Meeting Halls will have very minimal impact on the surrounding environment as the works are small in scale. These affected areas may experience direct impacts associated with temporary disturbance from construction activities.

125. The environmental impacts were identified based on the project activities that may occur in each component and by evaluating the environmental and social baseline situation at the subproject area. The identification of environmental impacts was mainly based on the technical information for the project component design and operation, field visits, information from stakeholders, feasibility study, and previous IEE report of the proposed subproject.

6.1 ANTICIPATED BENEFITS FROM THE PROJECT

126. There are expected beneficial impacts on health and well-being of people because of the proposed water supply project for Pha Oudom District. The principal benefits would be

[9] *Socio-economic report on Pha Oudom subproject. Water Supply and Sanitation Sector Project. ADB TA-8150 LAO.*

derived because of improved accessibility to potable and reliable water supply. There are also health benefits in the form of reduced incidence of diarrhea, dysentery, skin rashes, and other water-borne diseases as a result of improved access to better and safe water for the community.

127. In general, the provision of sustainable, sufficient and safe piped water is expected to result in improved health conditions and better economic development to the community. The immediate impact will be clean and regular water supply that will translate to higher service levels, particularly in terms of coverage to households. There will be longer supply windows that eventually would lead to 24-hour supply for the service areas. Water pressure will improve and women and older children will need less time and effort in fetching water.

6.2 ENVIRONMENTAL IMPACTS RELATED TO PROJECT LOCATION (PRE-CONSTRUCTION PHASE)

6.2.1 Impact on Land Acquisition and Community Assets

128. There will be limited land acquisition required for the development of the requisite project component facilities namely the construction of the WTP, intake, reservoir, and access roads. Likewise, it is anticipated that there will be minimal acquisition required for temporary use of land or loss or damage to assets during pipe laying. During the installation of transmission and distribution pipes and construction of the access roads to the WTP and intake, land where community assets are located will be affected. As per the LACP, prepared in November 2016, there will be no loss of residential land, business/commercial land and primary and secondary structures. There will be a loss of 2,355 m^2 of productive land for 9 affected households (AHs) with 54 affected persons (APs). Temporary disruption to 597 m^2 of fallow land for 10 AHs with 52 APs for the construction of the main between WTP and reservoir will occur during the project implementation. PNP Bokeo has already acquired the land for the proposed site of the WTP and reservoir and the area for the New PNP Office. An updated Land Acquisition and Compensation Plan (LACP) for the subproject is prepared separately to ensure that any loss of land or damage to property will be subject to compensation in accordance with the Resettlement Framework of the WSSP.

6.2.2 Impact of Location of Raw Water Intake on other Water Users

129. Surface water is the preferred option for water supply of the GoL as stipulated in the Water Supply Law of 2009. The law allocates priority to water supply for human consumption and this is clearly recognized by the Ministry of Agriculture and Forestry which has oversight over the irrigation scheme. The downstream section of Nam Haad is presently used for irrigation of paddy fields. Aside from irrigation, the Nam Haad is also being utilized for fishing and for domestic uses like bathing and washing clothes. The abstraction rate for the water supply subproject will be limited to the 2,200 m^3/day capacity of the WTP. There are also animals like buffalos using the river for bathing and drinking at the downstream section. The Provincial Government has issued a Certification assigning water supply with the highest priority on the utilization of the Nam Haad River (see Appendix D).

130. Based on the measured river flows in January 2016 and February 2016, the Nam Haad river capacity during the dry months and the abstraction rate for the water supply project will enable sufficient supply of water for the downstream uses, e.g. irrigation, bathing, fishing, washing, etc. There is still more than enough water in the Nam Haad that will meet the irrigation demand of 0.32 m^3/s at the downstream. Environmental flow of about 38,000 m^3/day is assured after the water supply intake and irrigation weir in the Nam Haad river.

6.2.3 Impact on Natural Resources and Protected Areas

131. There are no areas of special ecological or biodiversity significance in or around the project area. The nearest protected area is the Nam Ha Conservation Area which is located about 45 km away from the Pha Oudom town. Activities such as hunting by workers pose minor threats. The contractors should prohibit activities in the forest such as cutting wood for cooking, hunting, or wildlife trade. In addition, no aggregate for concrete will be sourced at Nam Haad River.

6.2.4 Impact on Historical and Archaeological Sites

132. The proposed subproject, including the intake, WTP, raw water transmission line and distribution lines will not affect nor impact any historical and archaeological sites such as temples and burial sites. There are no identified historical and archaeological sites in the sites of the proposed subproject.

6.3 ENVIRONMENTAL IMPACTS DURING CONSTRUCTION

133. Construction activities that may be undertaken for the proposed subproject would include land clearing, excavation and grading, filling, disposal of excavated soil, road construction/rehabilitation, intake construction, movement of construction vehicles, operation of heavy equipment, and operation of worker camps. The works for the proposed subproject are expected to generate the following adverse impacts:

- Loss of vegetation as a result of clearing and grubbing
- Generation of excavated material
- Runoff of silt
- Temporary loss of access to houses and establishments
- Occurrence of acute increase in ambient noise
- Acute increase in generation of dust
- Generation of wastes, i.e. domestic wastewater, solid wastes and hazardous wastes
- Community hazards as a result of open excavations
- Hazards to occupational health and safety.

134. The mitigation measures to address the adverse environmental impacts during the construction phase of the subproject implementation are presented in the following sections. The Subproject will conform to the Environmental, Health, and Safety General Guidelines of 30 April 2007 (IFC-WB).

6.3.1 Temporary Disruption of Community Roads, Pathways and Access to Properties

135. In general, pipe laying for the water supply distribution network will be undertaken along existing road right-of-way. The pipe lines will be laid out in the 2.5 – 4.0 m wide footpath or road shoulder from the edge of the road for arterial, sub-arterial and collector roads and about 2.0m wide road shoulder for distributor roads[10]. During trench excavation

[10] *In accordance with MPWT Regulation No. 205 on Town Planning (2004), services may be installed in the 2.5-4.0m wide road shoulder for arterial, sub-arterial and collector roads in the following order from the road edge: drainage, tree planting, water supply pipeline, electricity, telecommunications wires. The drain must not be closer to the road edge than 0.3m and telecommunications must not be closer than 0.5m from the outer edge. For distributor roads having only 2.0m wide footpaths, the facilities may be divided between the two sides of the road, with drainage, tree planting, electricity, and telecommunications on one side and drainage, tree planting and water supply pipeline on the other side.*

and pipe laying works, temporary loss of access to residential and commercial establishments, schools, and community facilities may occur. As mitigation for this impact, temporary accesses to houses and other establishments affected by the works will be provided. Particular attention will be given to ensuring safety along roads and paths normally traversed by school children. The contractor will restore and reinstate any damaged sections to properties immediately.

6.3.2 Air Pollution

136. The potential sources of air pollution during the construction stage include dust from earth works concentrated within a 50 meter radius of the work site; emissions from the operation of construction equipment and machineries; fugitive emissions from vehicles plying the area; fugitive emissions during the transport of construction materials; and localised increased traffic congestion in work areas. Most of the emissions will be in the form of coarse particulate matter and will settle down in close vicinity of the work sites. The impacts will be minor, local, short-term, direct and reversible.

137. The best management practices will be adopted during conduct of the works to minimize dust and release of combustion emissions from operation of the requisite heavy equipment and machineries. The contractor will be required to implement measures to control and minimize air emission and dust from affecting the residential area 800 meters from the proposed site of the WTP and reservoir. Excavated material and stockpiles will be kept moist while transport vehicles will be required to install tarpaulin covers or other suitable material to prevent spillage of the hauled materials.

138. Furthermore, construction equipment and vehicles will, at all times, be well maintained and in good working condition to reduce fugitive emissions. Speed limits on areas will be imposed to minimize dust emission and to reduce the risk of traffic accidents in the work sites. Information about planned construction activities will be provided to residents in the area and will be planned to minimize public disturbance and nuisance.

6.3.3 Noise

139. Construction activities may cause noise and vibration impacts for a short duration. The operation of equipment such as jackhammer for the installation of water supply distribution network may cause nuisance to adjacent residential houses and commercial establishments. Excavation works in pipe road crossing sections on paved roads would require the use of jackhammer to break the concrete. Diesel generators will also be required during the works. Ambient Noise levels in these areas may reach 88dBA at a distance of about 15m away from the source or operation of equipment. Along the haul roads, the average ambient noise level will also experience an acute increase because of increased vehicular traffic.

140. As mitigation for the adverse impacts identified, Work at the sites will be limited only during the daytime from 0700H to 1800H. There will no works that will be permitted beyond this period. Furthermore, the community will be provided with updated information about the schedule of the construction activities through billboards/sign. Stationary equipment like the diesel generators will be installed as far as practical from sensitive receptors. Buffers will also be established as further mitigation.

6.3.4 Impact of Borrow Materials

141. The construction activities will require material, specifically sand and aggregate for the works. The sourcing of these materials from the Nam Haad River will not be permitted as the mining/quarrying activities may irreversibly impact the ecology and hydraulic

characteristics of the river. The contractor will be required to secure these materials from Government permitted/licensed suppliers.

6.3.5 Impact on Ecological Resources

142. During the implementation of the construction activities, workers and labourers of the contractor may undertake hunting of wildlife and cutting of wood. The contractor will be instructed to orient their workers and staff that such activities are strictly prohibited. The contractor is responsible for the provision of the requisite kitchen facilities, food and cooking fuel for their workers and staff.

6.3.6 Clearing of Vegetation

143. The construction of the WTP, clear water reservoir and access road will require the removal of the existing vegetative cover in the sites. The impact of the clearing and grubbing works will be minimal because the existing vegetative cover at the sites consists only of bushes and bamboo. The rollout of the distribution network will affect trees that have been planted by communities in front of their houses. The clearing and grubbing activities for the works for the Intake, office and laboratory and the WTP and reservoir would also require removal of vegetation. The clearing/removal of trees required for the works will only be undertaken based on an inventory contained in the approved LACP for the subproject and upon securing of the requisite permits for tree cutting from the GoL. In accordance with the approved LACP, trees and improvements within private land that will be affected by the proposed subproject will be properly, and in a timely manner, compensated in cash. Trees that need to be removed within the existing Road ROW will not be compensated and would be deemed donated by the owner to the subproject.

144. The requisite roads and paths to the intake, WTP, and reservoir will constructed with a limited width enough only to accommodate construction vehicles and equipment. This is to minimize the impact on the receiving environment. In sloping terrain, such as at the reservoir and WTP site, manual labor will be utilized as the utilization of heavy equipment would cause irreversible and unnecessary damage to the area. Upon completion of works, the exposed surfaces will be planted with the appropriate vegetation to prevent soil erosion. Landscaping and planting of trees/vegetation at the WTP site will be undertaken.

6.3.7 Water Pollution

6.3.7.1 Impacts of Sediment Runoff

145. The construction of the facilities such as the intake, WTP, reservoir, distribution line and office, may result in erosion of unstable areas during earthworks, especially during heavy rainfall events. Sedimentation of nearby watercourses and channels from runoff heavily laden with material from the work sites may occur as a result of the works. These impacts are transient, short-term and insignificant. As mitigation, the contractor will be required to implement proper measures which would include the provision of silt traps, ditches, and sump pits to intercept the flow silt laden runoff from the worksites into the nearby channels and watercourses. Moreover, activities, especially earthworks, will be scheduled during the dry season.

6.3.7.2 Domestic Wastewater from Contractors Facilities and Worker's Camps

146. The establishment of the requisite facilities of the contractor and workers camps will result in various adverse impacts to the environment, among which is the generation of domestic wastewater. The contamination of the surface and groundwater sources and the surrounding land is a potential risk that should be addressed accordingly by the contractor.

Potential adverse impacts are minimal and temporal in duration and can be readily mitigated through measures established in the EMMP. Proper management of the domestic wastewater from the contractor's facilities and workers camps should be undertaken at all times. Appropriate latrines shall be installed in the camps and facilities of the Contractor.

6.3.7.3 Residual Chlorine During Pipeline and Reservoir Disinfection

147. Chlorinated water is retained in the completed pipe works and reservoirs for a pre-determined period to effectively sanitize the system. This is typically done after the completion of the leakage and pressure tests. The chlorinated water is then drained as the system is filled with potable water. Consequently, residual chlorine is inadvertently discharged. Extra caution is needed to avoid discharge of water with excessive residual chlorine residual as this is toxic to fish and other aquatic life. Flushed water from the system during commissioning of the pipelines and reservoirs will only be discharged to the nearest waterbody when chlorine concentration of the water has been reduced to less than 2 mg/l. The allowable limit for Chlorine (free residual) as per the Ministry of Public Health Drinking Water Quality Standards of 2014 is 0.1-2.0 mg/l.

148. The protocol is when the piped system has been assessed to be reasonably clean, the effluents from the flushing of the system will take well over a week to reduce to a residual level (less than 2 mg/l) fit for discharge. Discharge to soil will allow for further reduction through the combined effect of soil contact and sunlight. However, discharge at pipe ends will have to be monitored to minimize soil erosion. The normal chlorine residual test kit will give a NIL chlorine residual if the chlorine residual is above 10 mg/l. Options are (i) use a normal chlorine test kit and use 10x15x dilution with distilled water and calculate the final result or (ii) purchase and use a high range chlorine test kit.

6.3.8 Generation of Construction Wastes

6.3.8.1 Excavated Soil

149. The construction of the proposed WTP and reservoir will require excavation and levelling works. Excavated material during pipe laying will also be generated. Material during trench excavation will be utilized to backfill the trench after the pipes have been laid out. Any surplus material will be disposed properly and given for free to interested villagers as backfill materials in coordination with the village authority.

6.3.8.2 Domestic Waste

150. Solid waste will be generated at the work sites and camps. Wastes may include domestic solid waste, inert construction waste, and hazardous waste. Domestic waste is not anticipated to be a significant volume as only small temporary camps will be provided at the sites of the WTP and reservoir. There will no camps that will be established for the worksites for the intake, transmission and distribution pipes. It is projected that the temporary camps will generate an estimated 0.4 to 0.5 kg/person/day and would consist mainly of plastic and glass bottles, paper, cardboard, food wastes, and packaging wastes. This will be collected and properly disposed in the approved disposal facility of the District.

6.3.8.3 Inert Construction Waste

151. The inert waste that will be generated during the works will consist mainly of scrap wood and metal, cement bags, aggregates and concrete debris. These wastes are generally disposed of and/or land filled in appropriate sites and represent no direct danger to health. The scrap metal and wood can be collected for recycling.

6.3.8.4 Hazardous Waste

152. Hazardous wastes such as containers of paint and solvents and spent batteries are projected to be generated during the works, especially at the worksites for the intake, WTP and reservoir. Although the volume is anticipated to be small, this type of waste is highly detrimental to the environment and public health. As mitigation, these materials will be segregated from the general solid waste, collected and disposed appropriately.

6.3.9 Impact on Community Health and Safety

153. During the works, the community may be exposed to the health and safety risks from increased vehicular movements in the area, open excavation and operation of heavy equipment. As mitigation and to prevent accidents and hazards to motorists, pedestrians and residents in the area of the worksites, barricades and wood/steel plate covers will be provided in open excavations during non-working time. The worksites will be properly secured with fences and access to the area restricted. The contractor is to ensure that all vehicles and transport equipment and materials that may be required to pass through villages are operated safely without endangering these communities. All loads are to be secured and all loads with fugitive materials (e.g. excavated soil and sand) are to be covered with tarpaulins. The contractor is to immediately remove any drivers that ignore any of the community safety requirements. The required warning signage will be installed in all the worksites.

6.3.10 Occupational Health and Safety

154. During the construction phase, the implementation of the works may result in hazards to the safety of workers such as tripping, falling from height, slippery surfaces, carrying heavy loads, and during operation of machines and equipment. The contractor will be required to prepare a site safety plan and designate a safety supervisor who will ensure that safety measures during construction are implemented. These safety measures include the use of personnel protective clothing and equipment, placing of hazard warning signs, and excavation covers and barriers. Arrangements for prompt medical attention in the event of accidents will also be made.

155. The contractor will be required to: (i) provide priority hiring of qualified skilled and hire all required unskilled workers from the villages, (ii) consult with local people to avoid conflict if migrant workers will be brought to the site, (iii) installation of suitable toilets such as pit latrines and grey water drainage facilities such as soakage pits, (iv) arrangement for the proper disposal of solid wastes, (v) briefing of workers and the villagers on the dangers of communicable diseases, and (vi) assignment of responsibility to workers and local peoples' welfare to a senior member of the contractor's staff.

156. In addition, during the disinfection of water distribution lines, only crews who have had experience with chlorinating agents and who are trained and aware of the potential health hazards associated with these chemicals will be involved in such activity.

6.4 ENVIRONMENTAL IMPACTS DURING OPERATION

157. The potential long-term or permanent impacts of project development are most important and generally determine the level of impact assessment a water supply project requires. The potential long-term impacts include:

- Incremental wastewater generation and increased burden on drainage systems
- Conflict with other water users of Nam Haad River

- Deterioration of water quality
- Generation of backwash water and sediments from operation of the WTP; and
- Exposure of workers to chemicals for water treatment.
- Generation of sludge from the detention ponds.
- Community health and safety.

6.4.1 Incremental Wastewater Generation and Increased Burden on Drainage Systems

158. Households receiving new water supply connections are likely to use more water for bathing, cooking and washing. This may lead to more grey water or sullage as the standard of living improves, the population increases and more people have access to water supply. The current condition and lack of well-designed drainage system in the villages will result to increase in the volume of grey water or sullage. The potential for the ponding of dirty water because of the absence of proper drainage systems may, consequently result to the formation of habitats for mosquitoes and other pests and pose health hazards to the communities. In most of the households in the District, the domestic wastewater drains into irrigation canals and on their yard.

159. As project policy, water connection will only be provided to a household once an approved sanitation facility is present to cope with the increased wastewater that will be generated with improved water supply services. Public awareness raising initiatives have been undertaken by the WSSP through the drainage improvement and Village Environmental Improvements (VEIs) component. Villagers have been informed about the need to provide latrines before a water connection service can be made.

6.4.2 Conflict with Other Water Users

160. The Nam Haad River is being utilized as a source of irrigation water for the paddy fields in the downstream areas. The proposed intake source is further upstream of the irrigation weir. Based on the results of flow rate measurements, there is no potential dispute in water use because adequate river flow can be measured even during the dry season. In addition, the paddy fields grow rice only during the rainy season. The risks of over-abstraction during periods of drought will be mitigated through public awareness raising activities on water conservation, including information for tourists in hotels and guesthouses. Likewise, PNP will continue monitoring of river levels and water abstraction rates for the water supply.

6.4.3 Deterioration of Water Quality

161. The quality of the raw water may deteriorate particularly if there are human activities at the upstream catchment area that may cause contamination of raw water quality. This may affect the efficiency of the WTP and the resulting quality of the treated water. The PIU and PNP will continuously coordinate with the villages and Pha Oudom district regarding community activities in the catchment area to check watershed activities that may contribute to the contamination of raw water. Laboratory testing equipment and training will also be provided to allow the PNP to conduct regular monitoring of raw and treated water quality parameters.

6.4.4 High Pressure and Leaks on the Pipeline

162. The distribution network is located on generally flat to moderately undulating terrain. There is a potential risk of high water pressure that will cause bursting of pipes although this is very low risk occurrence. As mitigation and to minimize the risk of bursting pipes from high

water pressure in the mains, the following measures will be put in place: (i) the use of durable standard pipes for the main and secondary (rider mains) lines, (ii) use of pressure reducing valves for the rider mains, (iii) careful construction supervision by the Contractor to ensure that pipe laying and joining is done with the highest standard, and (v) regular inspection of the network and prompt isolation and repair when leaks occur.

6.4.5 Generation of Backwash Water and Sediments in the WTP

163. During the operation of the WTP, back wash water and sludge removed from the sedimentation tanks contains sediments and other pollutants that have been removed from the raw water during treatment. Discharging the sludge directly into land or river may result in deterioration of the condition of the receiving environment. As mitigation to eliminate this adverse impact, detention ponds have been included in the design of the WTP.

164. **Occupational health and safety.** Water treatment will involve the use of coagulants/flocculants and chlorine that will expose WTP personnel to hazards during chemical handling. Risks associated with these chemicals will be minimized by: (i) providing secure, dry and well-ventilated storage facilities for hazardous chemicals, (ii) use of chemicals in powder, rather than in gaseous form, which is safer to store and handle, (iii) posting of the Materials Safety and Data Sheets (MSDS) of these chemicals in the chemical storage area and chemical mixing tank area for information of workers, and (iv) training of staff and designation of responsible person on the handling of these chemicals.

165. **Generation of sludge from detention ponds**. The sludge that will generated from the detention ponds will be dredged and disposed as backfill material in low lying areas to be identified by the village leaders.

166. **Community health and safety.** The facilities that will be constructed will be properly fenced off and secured to restrict access and intrusion of unauthorized personnel,. Watchmen/security personnel will be hired to secure the facilities on a 24 hour basis. This would eliminate the safety risks to the community.

7 ANALYSIS OF ALTERNATIVES

7.1 ALTERNATIVES TO THE SUBPROJECT

167. Core villages in and around Pha Oudom District center have been selected as the site of the subproject. The selection process adopted for WSSP involved screening and prioritization, following which candidate projects were selected for the feasibility study. The feasibility study then confirms subproject eligibility. Prioritization was based on a set of criteria aimed primarily at ensuring alignment with Government priority, maximizing impact in terms of number of population to be served and also maximizing the contribution to economic development and poverty alleviation.

7.2 ALTERNATIVES WITHIN THE SUBPROJECT

168. Alternatives considered within the subproject are: (i) the raw water source and (ii) siting of the intake. The choice of the WTP and reservoir site was limited as only one site is at sufficient elevation within the corridor between the intake and distribution network. The land for the WTP site has been acquired by the PNP.

169. Candidate sources are the Nam Haad, Nam Kha, and Nam Hoi rivers. However, site inspections and discussions with villagers established that Nam Hoi and Nam Kha are insufficient for the dry season requirement while spot measurements by the team of the Nam

Haad during project preparation indicated that the river flow is substantially in excess of the water demand requirement.

170. Four potential intake sites in Nam Haad were considered for Pha Oudom's urban water supply during project preparation. These are: (i) an intake and pumping station near the army camp in Ban Phiengkham, which is about 2 km downstream of the Nam Haad irrigation weir; (ii) an intake and pumping station, taking water from the irrigation canal downstream of the weir; (iii) an intake at the irrigation weir with gravity pipeline to a pumping station located near the army camp; and (iv) an intake about 100m upstream of the irrigation weir with gravity pipeline to convey raw water to a pumping station located near the army camp. Although the intake site at the army base involves low capital and operating costs, it was deemed to be unsuitable because: (i) intensive agriculture and construction for the irrigation scheme may cause intermittent high turbidity levels in the river downstream of the weir; (ii) while GOL policy gives priority to urban water supply, in practice it will be difficult to ensure that sufficient raw water is released from the weir for abstraction downstream; and (iii) intensive rice production has an associated risk of contamination of the raw water with uncontrolled fertilizer and herbicide/pesticide application.

171. The intake location upstream of the irrigation weir was originally selected as the feasible option. However, because of technical concerns, a new intake location about 500m upstream of the existing irrigation weir was considered as the new intake location. The former proposed intake location was suspected to become contaminated with pesticides because of agricultural activities in the area.

7.3 "NO PROJECT" ALTERNATIVE

172. The "No Project" alternative would mean, inter alia, (i) that the opportunity to provide potable water supply to a significant urban population toward meeting GoL goals and priorities would not be realized, (ii) that strengthening of the PNP and BNP would not take place, and (iii) that drainage, sanitation, and general urban environmental improvements from the VEI would not be realized.

8 INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

8.1 CONSULTATIONS AND INFORMATION DISCLOSURE DURING SUBPROJECT DESIGN

173. Public/Stakeholder consultations were held in February and March 2013 during the project preparation phase. During the Detailed Design Phase the PNP Bokeo with the Project Implementation Unit (PIU) and the Project Consultants conducted follow-up village meetings and interviews in February, June, November and December 2016. Stakeholders who participated during the public consultation process included villagers, representatives of mass organizations, local government officers and staff. The consultations were conducted to discuss with the stakeholders the proposed project and the modifications from the original design and also to elicit the environmental concerns/issues of the community on the proposed project. Table 4 presents a summary of the public/stakeholders consultations undertaken for the sub-project while Appendix E provides the full details of the public/stakeholders consultations.

TABLE 4. SUMMARY OF PUBLIC/STAKEHOLDERS CONSULTATIONS

DATE	LOCATION	PARTICIPANTS			
		AGENCY	TOTAL	MALE	FEMALE
21 Mar 2016	Pha Oudom	PIU	81		56

DATE	LOCATION	PARTICIPANTS			
		AGENCY	TOTAL	MALE	FEMALE
	village	Village PIA			
21 Mar 2016	Thinkeo village	PIU Village PIA	54		13
24 Mar 2016	Phiengkham village	PIU Village PIA	59		23
24 Mar 2016	Phonsay village	PIU Village PIA	52		28
25 Mar 2016	Saysavang village	PIU Village PIA	44		23
25 Mar 2016	Donsavang village	PIU Village PIA	42		22
26 Mar 2016	Sayoudom village	PIU Village PIA	31		4
27 Mar 2016	Somsavang village	PIU Village PIA	54		13
27 Mar 2016	Somsavang village	PIU Village PIA	67		13
13 June 2016	Pha Oudom District Office	PIU Village PIA	21	18	3
13 June 2016	Phiangkham Village	PIU Village PIA	87	78	18
15 June 2016	Phonsay village	PIU Village PIA	43	23	20
16 June 2016	Sayoudom Village	PIU Village PIA	23	16	7
16 June 2016	Saysavang Village	PIU Village PIA	41	24	17
09 Nov 2016	Phiangkham village	PIU Village PIA	17	14	3
14 June 2016	Thinkeo Village	PIU Village PIA	76	55	21
11 Nov 2016	Thinkeo Village	PIU Village PIA	36	26	10
14 June 2016	Donesavanh Village	PIU Village PIA	36	26	10
10 Nov 2016	Donesavanh Village	PIU Village PIA	22	20	2
14 June 2016	Oudom Village	PIU	38	24	14

DATE	LOCATION	PARTICIPANTS			
		AGENCY	TOTAL	MALE	FEMALE
		Village PIA			
09 Nov 2016	Oudom Village	PIU Village PIA	80	40	40
10 Nov 2016	Saysavang Village	PIU Village PIA	38	34	4
11 Nov 2016	Somsavang Village	PIU Village PIA	50	33	17
11 Nov 2016	Somsavang Village	PIU Village PIA	35	25	10
11 Nov 2016	Sayoudom Village	PIU Village PIA	54	49	5

8.2 CONSULTATIONS DURING DETAILED DESIGN

174. Follow-up consultation and meetings were undertaken February, June, November and December 2016 with the village heads, and the Department of Natural Resources and Environment (DONRE) Bokeo Province. The community stakeholders were already aware of the proposed project as there were already previous consultations and the follow-up consultations that are conducted by the team. The stakeholders are in agreement that the project would result to more benefits than negative impacts. The villagers informed the Team of the following:

- That the project would result in more benefits than negative impacts.
- The village heads said that they are eagerly waiting for the project.
- Households have already readied themselves with latrines to be able to connect to the proposed water supply system.
- The concerns that were raised are that during pipe laying there may be temporary obstruction to houses and restoration of excavated areas may not be fully implemented.

8.3 INFORMATION DISCLOSURE

175. Prior to project implementation, a copy of the approved Updated IEE and EMMP will be submitted by PNP to the DONRE in Bokeo Province and the District Governor of Pha Oudom District. The updated IEE will also be posted on the ADB and MPWT website. During construction and operation, communities within the impact area of the subproject area will be kept informed of construction activities through billboards or information boards about the construction activities and schedules. The details of the PIU, GRM Focal Contact Persons and Construction Manager will be prominently displayed in the respective construction areas for the reference of the affected communities/persons. Complaints and grievances can be directly filed, both written and verbal, to the concerned entities. This will be an alternative to the village complaint system. All suggestions, opinions and responses from the community on the project should be taken into account and feedback provided on how concerns and recommendations have been addressed.

9 GRIEVANCE REDRESS MECHANISM

176. Article 13 of Decree 192/PM requires the subproject to establish an effective mechanism for grievance resolution. GoL legal requirements for this mechanism are further described in Part VI of the Decree's implementing regulations, and in detail in the Technical Guidelines. The loan covenants stipulate the GRM requirements of the ADB for the project. The mechanism to address any grievances on environmental issues is the same as that designed to address grievances related to land acquisition and compensation.

177. The objective of the grievance redress mechanism is to provide the means to resolve grievance and complaints in a timely and satisfactory manner. All affected persons will be made fully aware of their rights, and the detailed grievance redress procedures will be publicized through an effective public information campaign. An aggrieved affected person (AP) or affected household (AH) will be free from any fees in connection with the lodging and resolution of complaints, as the costs will be borne by the Executing Agency and the appointed contractors.

9.1 TYPE OF GRIEVANCES

178. Complainants are entitled to lodge complaints regarding any aspect of the project. Any affected person will be able to submit a grievance if they believe a practice is having a detrimental impact on the community, the environment, or on their quality of life. Eligible grievances or complaints include:

- Negative impacts on a person or a community (e.g. financial loss such as from loss of water, loss of roadside trees, health and safety issues, nuisances, etc.).
- Dangers to health and safety or pollution of the environment.
- Hazards due to construction activities (e.g. noise, dust, disruption of access, etc.)
- Impacts on social infrastructure.
- Failure to comply with standards or legal obligations.
- Improper conduct or unethical behaviour of contractor leading to nuisance of affected person(s).
- Misuse of funds and other irregularities.
- Grievances due to land acquisition, resettlement, compensation, relocation and unaddressed losses.
- Complaints related to gender issues.

9.2 GRIEVANCE RESOLUTION PROCESS

179. Complaints can be made verbally or in written form. It is recognized that in many cases, complainants do not have the writing skills or ability to express their grievances verbally, however, complainants are encouraged to seek assistance from family members or village heads, to have their grievances recorded in writing and to ensure that where disputes do occur and all the details have been recorded accurately enabling all parties to be treated fairly. In the case of verbal complaints, a written record of the complaint will be made during the first meeting with the complainant. Complainants who present their complaints within the prescribed procedures will be exempt from all administrative fees incurred. In addition, complainants who lodge complaints and appeals to district courts will be provided with free legal representation.

9.2.1 Arbitration Committees

180. The subproject's GRM will utilize the existing village arbitration units that have already been established in the core villages. The Village Development Committee (VDC) generally consists of the village chief, deputy chief, village secretary, and village representative of the Lao Women's Union, Lao Front for National Construction, village elders, youth, and village land taxation unit. The VDC is responsible for settling disputes between villagers through conciliation and negotiation. In the absence of these units, the members of the village committee (if formed) or the village leaders will act as grievance officers.

181. Moreover, the details of the PIU, GRM Focal Contact Persons and Construction Manager will be prominently displayed in the respective construction areas for the reference of the affected communities/persons. Complaints and grievances can be directly filed, both written and verbal, to the concerned entities. This will provide alternative entry points to the village complaint system.

182. The affected households (AHs) may present their complaints to the concerned local administrative officials and resettlement committees. The complaint can be filed first at the village level and can be elevated to the highest or provincial level if the affected persons (APs) are not satisfied with the decisions made by the VDC at village level.

183. At the district and provincial levels, the district and provincial steering committees of the project will act on grievances or complaints that have not been resolved at the VDC. The District Project Steering Committee (DPSC) are composed of the Vice District Governor, Director of the DPWT, and representatives of the District Natural Resources and Environment Office, health office, police, education office, Lao Women's Union, Lao Front for National Construction, and youth office. A representative of the PIU of the subproject is a member of the district project steering committee.

184. The Provincial Project Steering Committee (PPSC) is headed by the Vice Provincial Governor and is composed of representatives of provincial departments such as the DPWT, DONRE, health department, police department, education department, Lao Women's Union, Lao Front for National Construction, and provincial youth department. The representatives of the PIU and the PNP Bokeo are members of the Provincial Project Steering Committee.

9.2.2 Grievance Redress Procedures

185. All complaints and resolutions will be properly documented by the concerned committee and be available for public review and for monitoring purposes. As a general policy, the PNP and PIU will work proactively toward preventing grievances through the implementation of impact mitigation measures and community liaison activities that anticipate and address potential issues before they become grievances. Nonetheless, during construction and operation it is possible that unanticipated impacts may occur if the mitigation measures are not properly implemented, or unforeseen issues occur. The procedures for the grievance resolution process for the subproject is detailed in Table 5.

TABLE 5. GRIEVANCE REDRESS PROCEDURES

NO.	STAGES
1	**Stage 1 (Village – Subproject Area).** In the first instance, complainants will raise complaints or grievances to the Village Development Committee or other designated village grievance officers. The committee will organize a meeting with the complainants to resolve the issue using its traditional methods of conciliation and negotiation. The meeting will be held in a public place and will be open to other members of the community to ensure transparency. The VDC aims at clarifications and amicable solution with the complainant. This mediation aims at a village internal immediate solution agreed with the subproject. If the complaint cannot be solved at this stage, the next step will apply.
2	**Stage 2 (District Implementing Level).** If within 5 days of lodging the complaint and no

	understanding or amicable solution can be reached or no response is received from the Village Development Committee, the complainant can bring the complaint to the District Project Steering Committee (DPSC). The DPSC will meet with the complainant to discuss the complaint and provide a decision within 10 days of receiving the appeal.
3	**Stage 3 (Provincial Implementing Level).** If the complainant is not satisfied with the decision of the DPSC or in the absence of any response, the complainant can appeal to the Provincial Project Steering Committee (PPSC) with contribution of authorities and village representative/s. The PPSC will meet the complainant to clarify the complaint and will inform the complainant about its decision aiming to solve the complaint. The PPSC will provide a decision on the complaint within 10 days.
4	**Stage 4 (Ministerial Project Executive Level).** If the AP is still not satisfied with the decision of the PPSC, or in the absence of any response within the stipulated time, the complainant can submit his/her grievance to Department of Water Supply and Sanitation (DWSS). The DWSS acting on behalf of the MPWT will verify with the PPSC and DPSC. DWSS might consider an independent external opinion in this matter. The DWSS will render a decision within 10 days of receiving the complaint. Before the next stage is applied additional efforts should be made to find an agreement with the AP.
5	**Stage 5 (Country Level).** As a last resort, the complainant may submit his/her case to the Court of Law. The complaint will be lodged with the Court of Law. The Court will take note and register the case and will provide the final juristic decision. The DWSS will be responsible for forwarding the complaint and ensuring its process in the courts.

186. Normally complaints related to construction and environmental issues are resolved at the level of the VDC wherein the conciliation and negotiation are promptly attended to by the PIU and contractors. Complaints related to resettlement and land disputes are normally the ones that are elevated to the district and provincial levels, and at times up to the Court.

187. At each stage of the grievance redress process, careful written records will be maintained. The VDC will submit reports to the DPSC documenting the following: (i) the complaints received; (ii) the names and other pertinent information about complainants; (iii) the dates of the original complaint, meetings and any other actions; and (iv) the outcomes and/or resolution. The DPSC, PPSC, and DWSS will each maintain similar records for appeals that are submitted to them. The records of grievances will be included in regular progress reporting on the subproject. Table 6 presents the individuals at Stage 1 (Subproject Village Level) who will be responsible for receiving and recording the complaints from the affected persons (APs).

TABLE 6. INDIVIDUALS AT STAGE 1 (SUBPROJECT VILLAGE LEVEL)

NAME	DESIGNATION	CONTACT DETAILS
Mr. Xaiphone	Head Phiengkham Village,Chair of VDC	030 4925694
Mr. Syphone	Head of Phonxai Village, Chair of VDC	
Mr. Bounthem	Head of Donsavanh Village, Chair of VDC	
Mr. Xiengsombat	Head of Somsavang Village, Chair of VDC	020 96048373
Mr. Yeaveiher	Head of Xaioudom Village, Chair of VDC	030 9192477
Mr. Khamsavang	Head of Thinkeo Village, Chair of VDC	
Mr. Xiengboun	Head of Pahoudom Village, Chair of VD	
Mr. Somphong	Head of Xaisavang Village, Chair of VDC	030 9077776

188. If efforts to resolve complaints or disputes are still unresolved and unsatisfactory following the GoL grievance redress mechanism, the affected persons/households have the right to send their concerns or problems directly to ADB's Operations Department, i.e., Urban and Water Division, Southeast Asia Department (SERD) or through ADB Lao PDR Resident Mission. If the AP is still not satisfied with the responses of SERD, he/she can directly contact the ADB's Office of the Special Project Facilitator (OSPF) as outlined in the "Information Guide to the Consultation Phase of the ADB Accountability Mechanism". The Information Guide can be downloaded through this link: https://www.adb.org/documents/information-guide-consultation-phase-adb-accountability-mechanism. Those who want to make a complaint with the ADB can refer to the sample letter of complaint adapted from the Information Guide as shown in Figure 10.

FIGURE 10. SAMPLE COMPLAINT LETTER

Date:

Office of the Special Project Facilitator
Asian Development Bank
6 ADB Avenue, 1550 Mandaluyong City
Metro Manila, Philippines

Tel: (+632) 632-4825
Fax: (+632) 636-2490
Email: spf@adb.org

Dear Special Project Facilitator,

We, _____ *[name of your group) or name of representative authorized by your group]*, whose names and addresses are attached, live in _____ *[location and country]*

We hereby present this complaint to the Special Project Facilitator. *[If the complaint is filed through a representative, please provide the names of the project-affected people with their addresses and evidence of authority to represent them.]*

1. We are currently experiencing problems due to an ADB-assisted project *[specify name and description of project, and specify the site and country where it is located].*
2. The direct harm we experience is/are the following: *[describe the problem].*
3. We seek the following outcomes and remedies through the help of the Special Project Facilitator: *[describe what you would like to happen, how the harm or problem can be resolved].*
4. We have previously made efforts to address our problem with the EA/IA and ADB Operations Department concerned in the following manner: *[list and attach correspondence, details of meetings, emails, and other communications].*
5. We do not request that our identities be kept confidential
   [or]
   We request that our identities be kept confidential for the following reason: *[state reason].*
6. You can contact us at: *[specify directions how to set a meeting with you and/or your authorized representative].*

Signatures:
Names:
Addresses:
Other contact information:
Tel:
Fax:
Email:
Attachments: *[complete list of complainants and addresses; representative's letter of authorization, if any]*

Some matters not eligible for complaints/requests

- Allegations of fraud and corruption
- Procurement of goods, services, and consulting services
- Projects with a project completion report
- ADB personnel matters

10 ENVIRONMENTAL MANAGEMENT AND MONITORING

189. The matrix of mitigation measures in Table 7 presents all the required measures and monitoring responsibilities corresponding to the impacts as assessed that are considered necessary through the environmental assessment process. The mitigation measures required cover all stages of the contract and are separated into pre-construction, construction and operation phases. This EMMP is based on the type, extent and duration of the environmental impacts identified at the design stage. In the event that unexpected impacts occur during implementation, the EMP will be amended to take into account of unexpected impacts and mitigation measures will be amended as necessary.

TABLE 7. ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
I. PRE-CONSTRUCTION PHASE				
Impact on land acquisition and community assets Loss of community assets due to land acquisition and damage to properties	Implement the updated land acquisition and compensation plan that was approved by the ADB for the subproject. Design access roads to minimum necessary width and installation of pipelines within the Right-of-Way.	External LACP monitoring report	c/o PNP operations cost	PIU
Impact of location of raw water intake on other water users Downstream river uses such as irrigation, bathing, washing, and fishing will be affected if excessive water abstraction will occur.	The abstraction rate for the water supply subproject will be limited to the 2,200 m^3/day capacity of the WTP. There is minimal conflict with other water users of Nam Haad River because there is still enough water in the river that will meet the irrigation demand and other river uses at the downstream. Sufficient environmental flow is assured after the water supply intake and irrigation weir in the Nam Haad. The Governor of Bokeo has issued a certification for the subproject confirming that drinking water will be assigned highest priority in terms of competing water uses.	River level assessment at the intake on a monthly basis	c/o PNP operations cost	PIU, PNP Bokeo
Damage to natural resources and protected areas Impact on natural resources and protected areas from cutting/clearing of trees and other vegetation	Cutting of trees will be undertaken as per approved design and only upon approval of relevant authorities. Avoid cutting of trees as much as possible and minimize damage to native vegetation. Trees that need to be cut in private land will be compensated in cash accordance with the approved Land Acquisition and Compensation Plan.	N/A	N/A	N/A
Unexploded ordnance Risk of injury to project workers	The Contractor will ensure that the workforce are briefed that unlikely to be UXO as cleared but to keep watch and report any suspect items found.	UXO Clearance	c/o PNP operations cost	PNP Bokeo
II. CONSTRUCTION PHASE				
Temporary disruption of existing community	Walking access will be maintained to affected properties and access routes will be temporarily lined with	Contract documents to include the EMMP with health	Included in civil works	PIU

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
roads, pathways, and accesses Pipe laying will cause temporary disruption of community services and access to properties. Particularly at pipe road crossings, construction activities along narrow roads may lead to temporary blockage or closure of roads and hamper movement of vehicles and people in the community. Community access to areas in the vicinity of the WTP, pump station, reservoir, and intake will be affected. Community access to areas in the vicinity of schools, temples, village offices, market places and meeting halls will be affected during construction of public latrines.	timber or similar material. Particular attention will be given to ensuring safety along roads and paths used by school children. Side street parking of construction vehicles on prolonged basis will not be allowed. Install barriers and safety warning signs on road sections and if necessary deploy traffic aides/ flag persons at affected locations. Information boards at blocked roads will provide information about the temporary closure of roads, schedule of works and the traffic-rerouting plan. Require the contractor to immediately rehabilitate the excavated areas and any damaged road and path sections. Enclose the WTP, pump station, reservoir, and intake perimeters so that pathway use and stream access remains unimpeded. Enclose the latrine construction site to prevent access and limit disruption for the use of the schools and public buildings.	and safety provision monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	cost	
Air pollution Dust and air emissions from earthworks and movement of vehicles can pose nuisance to nearby communities	Require the contractor to cover materials with tarpaulin or other suitable materials while in transit to avoid spillage of materials. Moisten earthen roads during dry and dusty conditions, particularly roads near residences and through the town core area. Impose speed limits on construction vehicles. Conduct regular maintenance of construction equipment and vehicles to control air emissions during vehicle operation.	Contract documents to include the EMMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	Included in civil works cost	PIU, Contractor
Noise Operation of construction equipment such as jackhammer will	Limit construction activities, particularly operation of noise generating equipment at night. Position any stationary equipment that produce high noise levels such	Include EMP in bid documents and contract. Report any complaint received	Included in civil works cost	PIU, Contractor

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
cause excessive noise resulting in nuisance to communities.	as diesel generators as far as practical from sensitive receptors. Erect temporary barriers around construction sites especially near schools, hospitals, and houses. Install noise suppression devices to noise generating equipment. Require drivers to minimize blowing of horn and to comply with speed limits Provide information to community on schedule of construction activities through billboard/signs and complaint hotline.	from the community to PIU.		
<u>Impact of borrow materials</u> Quarrying of aggregates on Nam Haad river will cause siltation and affect the ecological condition of the river.	The contractor will be prohibited from quarrying materials directly from Nam Haad. Construction materials will be bought from Government-permitted sources / suppliers only.	Include EMP in bid documents and contract. Report any complaint received from the community.	Included in civil works cost	PIU, Contractor
<u>Impact on ecological resources</u> Construction workers may undertake hunting of wildlife and cutting of wood upstream of the intake.	The contractors will prohibit activities such as cutting wood for cooking, hunting, or wildlife trade.	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor
<u>Clearing of vegetation</u> Poor planning and execution of tree clearing/vegetation removal at project facilities and along pipeline alignments can result in loss of vegetation and general landscape	Cutting of trees will be undertaken as per approved design and only upon approval of relevant authorities. Avoid cutting of trees as much as possible and minimize damage to native vegetation. Trees that need to be cut in private land will be compensated in cash accordance with the approved Land Acquisition and Compensation Plan. Roads and paths to the intake, WTP, and reservoir will only be sufficiently wide to accommodate construction vehicles/equipment to minimize landtake. Manual labor will be utilized in sloping terrain where use of heavy equipment would cause unnecessary damage. Steep exposed slopes will be graded and covered with bush and grass to minimize erosion.	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
	Implement landscaping and planting of trees/vegetation at WTP site.			
Water pollution - Sediment runoff Sediment runoff undertaken during excavation, earthworks and grading in the rainy season will cause siltation of rivers	Construct silt traps, deviation channels, mounting barriers or trenches around the stockpiles of materials.	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor
Water Pollution - Worker's camp Domestic wastewater from worker's camp would result to the discharge of sewage into drainage canals. Unsanitary conditions at the worker's camp will occur without the provision of necessary sanitation arrangements.	Provide adequate water supply and temporary toilet facilities at the worker's camp.	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor
Water pollution - Generation of residual chlorine during pipeline and reservoir disinfection Prior to commissioning, disinfection will be undertaken on the pipeline and reservoir. Discharge of residual chlorine above the allowable limits is toxic to fish and other aquatic life.	Follow the recommended dosage of chlorine during the disinfection of pipes and reservoir. . Discharge of water with high chlorine concentration to soil at the end of pipelines to be controlled to minimize soil erosion. Use chlorine test kit and use 10x15x dilution with distilled water or use high range chlorine test kit with high range tablets to detect chlorine residual before flushing.	Include EMP in bid documents and contract	Included in civil works cost	PIU, Contractor
Generation of construction waste - Generation of excavated soil Generation of excavated materials during pipe laying and foundation works for WTP tanks and reservoirs.	During pipe laying, excavated material will be utilized to backfill the trench. The contractor will be required to properly reinstate the excavated trench after completion of pipe laying. Surplus excavated material/cut soil from construction of the WTP and reservoir will be used as backfill material for low-lying areas that have been identified by the village	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
	authority.			
Generation of construction wastes – Solid, Inert and Hazardous Wastes Solid wastes, inert construction wastes, and hazardous wastes during construction will result to pollution of land and receiving water bodies.	Provide appropriate segregation bins or areas for construction wastes. Secure and control storage of all hazardous materials including fuels. Reuse recyclable construction wastes such as wood, steel, and scaffoldings or sell to junk shops. Solid waste will be collected and properly disposed in approved disposal facility of the District.	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor
Community health and safety Community may be exposed to dangers of open excavation	Install barricades/barriers and sturdy plate covers in open excavations during non-working time. Install warning signs in the area.	Include EMP in bid documents and contract Report any complaint received from the community.	Included in civil works cost	PIU, Contractor
Occupational health and safety Construction activities may pose hazards to workers because of the use of heavy equipment, lifting of heavy loads, and exposure to open excavations and chemicals. Potential conflict with local people will occur if migrant workers will be brought to the site.	Require the contractor to implement the construction health and safety plan in accordance with the World Bank EHS Guidelines (http://www.ifc.org/ehsguidelines) as a minimum standard. The contractor will appoint an environment, health and safety officer to ensure implementation of the plan. The plan will at minimum include: • Provision of first-aid facilities readily accessible by workers. • Provision of personal protective equipment (PPEs) such as hard hats, gloves, rubber boots, etc., • Wearing of PPEs while working onsite will be a mandatory requirement for workers. • Posting of safety signs/reminders in strategic areas within the construction area. • Installation of sufficient lighting at night. • Employ only trained personnel in handling chlorine during the line disinfection process. • Ensure that vehicle and equipment operators are properly licensed and trained. • Provide staff with communicable disease and HIV-related awareness training. The contractor will be required to provide priority hiring of qualified	Contract documents to include the EMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community.	Included in civil works cost	PIU, Contractor

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
	construction workers from the villages and to consult with the local to avoid conflict if migrant workers will be brought to the site.			
III. OPERATION PHASE				
Generation of incremental wastewater and increased burden on drainage systems Increased water supply to public buildings and households will generate additional quantities of wastewater.	As project policy, water connection will be provided only if the household has an approved sanitation facility to cope with the increased wastewater generated. This policy and the public awareness raising initiatives was presented to the villages under the Village Environmental Improvements (VEI) component. The public institution shall sign a service and management agreement before construction and have sufficient funds to maintain the facility.	Monitor the number of households with latrines and with water connections, population served, and billed water volume. Monitor that the service and management agreements are followed and facilities are properly maintained.	Part of PNP operations cost	PNP
Competing water demand on raw water source	Provincial Governor issued a certification that drinking water will always have highest priority on river water use. Encourage the community to implement water conservation measures	PNP operational records on water abstraction rate	Part of PNP operations cost	PNP
Deterioration of water quality Potential deterioration in quality of raw water supply and of treated water Potential risk on public health in deterioration of treated water quality due to use of poor quality treatment chemicals	Monitor community activities in the catchment area to check activities at the upstream that may cause contamination of raw water quality. Provide laboratory test equipment and training to allow the PNP to conduct regular monitoring of raw and treated water quality parameters. Follow O&M standard operating procedures in accordance with the water treatment plant manuals. Use of potable grade chemicals, especially PAC, and request a Supplier product specification data sheet signed off by a reputable external laboratory.	Monitor the following parameters: Daily at the inlet to the treatment plant: turbidity, pH Daily at the reservoir: pH, turbidity, residual chlorine, temperature Weekly at several locations in the network: residual chlorine, pH, turbidity Annually after clearwater tank: chloride (Cl), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), sodium (Na), sulfate ion, zinc (Zn), conductivity, total hardness as CaCO3	Part of PNP operations cost	PNP
Disposal of backwash water and sediments from WTP Backwash water	Filter backwash water and periodic discharges from the sedimentation tanks will be collected to a detention pond to separate the concentrated waste sludge or sediments. Land application of	Check condition of detention ponds; report frequency/schedule of backwashing	Part of PNP operations cost	PNP

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	BUDGET	RESPONSIBLE OFFICE
and sludge from the sedimentation tanks will be generated from the cleaning of filters and tanks. Backwash water and sludge contain high total suspended solids.	wastes with high dissolved solids concentrations from the detention pond is preferred over discharge to a landfill.			
Occupational health and safety Potential hazards to WTP workers due to accidental release of chlorine	Provide secure, dry and well-ventilated storage facilities for chlorine and other hazardous chemicals. Use chlorine compounds in powder form, which is safer than gas. Training of staff and allocation of responsibility to ensure that materials are properly handled and used.	Training undertaken for staff on chemicals handling and monitoring and reporting of incidents.	Part of PNP operations cost	PNP
Community health and safety Potential hazards to residents in the area and school children near the intake	Facilities (Intake, WTP and Reservoir and Office and Laboratory) will be properly fenced and secured and watchmen/security personnel to be employed on a 24 hour basis.	Daily log of security personnel	Part of PNP operations cost	PNP

10.1 REPORTING

190. **Pre-construction Phase.** The EMMP monitoring during the pre-construction phase of the subproject will be undertaken by the PIA consultant. Semi-annual Integrated Safeguards Monitoring Reports will be prepared by the PCU with support of the PIA. The semi-annual reports will be submitted to ADB for monitoring of compliance with the ADB's safeguards policies.

191. **Construction Phase.** Throughout the construction period, the contractor will submit monthly environmental compliance progress reports to the PNP, copy furnished to the PIU. Appendix G presents the template of the monthly environmental monitoring checklist report to be prepared by the contractor. The contractor should be able to highlight the summary of the progress of construction, activities undertaken within the reporting period to implement the measures outlined in the environmental management and monitoring plan, record any community complaints received and how the complaint was resolved.

192. The PIU will consolidate the results of the monthly environmental monitoring through a quarterly progress report that will be submitted to the PCU which is based at the Department of Water Supply and Sanitation of the MPWT. The quarterly report will summarize the significant findings and measures undertaken to address any adverse environmental impacts during construction and also present any unforeseen environmental impacts and suggested remedial actions for the next monitoring period. Copies of the quarterly progress report prepared by the PIU will be given to the members of the Provincial Project Steering Committee and the District Governor. PCU will consolidate information from quarterly progress reports, compile and submit integrated safeguards monitoring report semi-annually to ADB.

193. Once the reports are received by the PCU, these will be reviewed relative to subproject compliance with the indicators defined in the EMMP (see Table 11). The PCU will submit the quarterly reports to the Department of Water Supply and Sanitation of MPWT and other national agencies (MONRE, MOF, MOPC, etc.), and to ADB. The PCU will also prepare the quarterly Project Progress Reports including the main points of environmental monitoring and Semi-annual Integrated Safeguards Monitoring Reports in English to be submitted to ADB.

Operational Phase. The EMMP monitoring during the operational phase will be undertaken by the PNP. Semi-annual reports will be submitted by the PIU to the PCU. The PCU will review the report and check the project's adherence to the EMMP and then submit the Semi-annual Integrated Safeguards Monitoring Reports to ADB until the Project Completion Report (PCR) is prepared. The monitoring parameters during the operational phase, as outlined in the EMMP, include monitoring of water quality at the inlet of the WTP and of treated water. Table 7 presents the EMMP Reporting Plan while Table 8 shows the matrix for reporting of the Water Quality Monitoring Results.

TABLE 8. EMMP REPORTING PLAN

TYPE OF REPORT	BASIC CONTENT	PREPARED BY	SUBMITTED TO	FREQUENCY
PRE-CONSTRUCTION THROUGH OPERATIONAL PHASE				
Progress report	Integrated Safeguards Monitoring Report including EMMP implementation and monitoring	PCU, Department of Water Supply and Sanitation	MPWT ADB	Semi-annual until project completion report (PCR)
CONSTRUCTION PHASE				
Construction Progress Report	Progress of construction, including EMMP monitoring results, complaints received and actions taken	Contractor	PCU and copy furnished to PIU	Monthly
Progress Report	Progress of construction, EMMP implementation, complaints received and actions taken	PIU	PCU, District Governor, Provincial Project Steering Committee	Quarterly
Progress Report	Progress of construction, safeguards (EMMP and LACP) implementation, complaints received and actions taken	PCU, Department of Water Supply and Sanitation	MPWT, MONRE, and other national agencies ADB	Quarterly
OPERATIONAL PHASE				
Progress Report	Subproject progress report including EMMP implementation and monitoring	PNP	PCU	Semi-annual until project completion report (PCR)
Integrated Safeguards Monitoring Report	Subproject progress report including EMMP/LACP implementation and compliance with ADB's policies and regulations	PCU, Department of Water Supply and Sanitation	MPWT ADB	Semi-annual until project completion report (PCR)

TYPE OF REPORT	BASIC CONTENT	PREPARED BY	SUBMITTED TO	FREQUENCY
Project Completion Report	Project evaluation, lessons learnt and recommendations	PCU	MPWT ADB	Within x months of physical completion of the subproject

10.2 IMPLEMENTATION ARRANGEMENTS

194. Table 10 sets out the Institutional Responsibilities for Environmental Management. The Ministry of Public Works and Transport - Department of Water Supply and Sanitation and the PNP are the key institutions that will play crucial roles in the implementation of the subproject as well as in ensuring the proper and timely implementation of the requisite environment safeguard reports. The succeeding sections detail the administrative and environmental management responsibilities of the concerned institutions.

10.2.1 Department of Water Supply and Sanitation - Ministry of Public Works and Transport

The Department of Water Supply and Sanitation of the MPWT as Executing Agency (EA) will house the Project Coordination Unit (PCU) of the WSSP and will be the primary point of contact with ADB. The Department of Water Supply and Sanitation will head the PCU. The PCU will receive overall direction and policy guidance from a Project Steering Committee (PSC), which includes representatives of the main central level agencies, including MONRE.

TABLE 9. MATRIX FOR REPORTING OF THE WATER QUALITY MONITORING RESULTS

Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

WATER MONITORING RESULTS

Province: _____ No: _____ /WS.LNT
District: _____ Date: _____
Water Supply and Transport Division Time: _____
Water Supply of State Enterprise

NO	POINT TEST	VILLAGE	HOME NO	HOUSE TYPE	TURBIDITY 5NTU	CHORINE CL_2 MG/L	PH	SMELL	COLOR 5TCU	PASS	FAIL	NOTATION

_____ _____ Date: _____
Director, Water Supply of State Enterprise Chief of Water Treatment Plant Researcher: _____

10.2.2 Project Implementation Unit (PIU)

195. The Project Implementation Unit (PIU) at the provincial level, will be responsible to the day-to-day coordination and supervision of project implementation. The PIU is headed by the Director of the PNP. The PIU will receive support in coordinating the provincial and district agencies including the DONRE offices and take decisions on behalf of the provincial government from a Provincial Project Steering Committee (PPSC), chaired by the Provincial Vice Governor. At the district level, the District Government or Vice Governor will oversee the subproject, monitor progress, review quality of work, coordinate the subproject with the PIU and local communities and report on the progress to the PPSC. Table 9 presents the institutional responsibilities for environmental management.

TABLE 10. INSTITUTIONAL RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT

AGENCY	ROLE	CONSTRUCTION	OPERATION
MONRE	Overall central level supervision and guidance related to natural resources and environment	✓	✓
PCU	Overall supervision IEE preparation and implementation: Review of updated IEEs and coordination of approvals from ADB Uploading of the updated IEE on MPWT website Ensuring EMMP is included in contract documentation. Check the project's adherence to the EMMP Review the quarterly environmental monitoring reports prepared by the PIU during the construction phase and submit the report to ADB. Review the semi-annual progress report prepared by the PNP during the operational phase and submit the report to ADB.	✓	✓ (prior to PCR)
PIU	Principal responsibility for EMMP implementation Preparation of IEEs and contract documentation Submission of updated IEEs to ADB for approval Submission of updated IEEs to PPSC and DONRE for reference during monitoring Conduct consultations with local residents in respect of specific sites where the proposed works will include excavation, determine the need for any further investigation and/or clearance services and submit to the PCU Monitor compliance of the contractor with the EMMP Consolidate monthly environmental monitoring reports prepared by contractor through a quarterly progress report to be submitted to the PCU. Provide members of the Provincial Project Steering Committee and the District Governor with copies of the quarterly progress report	✓	✓
PIA	Advice on issues arising with EMMP implementation and overall technical support	✓	✓
PPSC	Coordination of provincial and district agencies for EMMP implementation during construction and operation, and ensuring compliance monitoring.	✓	✓

AGENCY	ROLE	CONSTRUCTION	OPERATION
PNP	Participation in PIU	✓	
	Implementation of operational aspects related to water supply output in the EMMP Conduct water quality monitoring at WTP inlet, treated water, and distribution lines		✓
OPWT	Participation in PPSC	✓	
	Implementation of operational aspects related to drainage and public sanitation output in the EMMP		✓
MOH/DOH	Participation in PPSC	✓	
	Participation in environmental monitoring and awareness raising		✓

Notes: PIA – Project implementation Assistance; OPWT – Office of Public Works and Transport (District); DOH – District Heath Office

10.2.3 Environmental Monitoring

196. Table 10 presents the environmental monitoring plan and performance indicators during the construction and operational phases of the subproject based on the EMMP.

TABLE 11. ENVIRONMENTAL MONITORING PLAN

PARAMETERS	LOCATION	ENVIRONMENTAL PERFORMANCE INDICATOR	FREQUENCY	MEANS OF MONITORING
CONSTRUCTION PHASE				
Adherence to provisions in the EMMP to mitigate construction impacts	All project sites (intake, WTP, reservoir, access roads, main and distribution network)	Compliance with EMMP	Daily	Compliance monitoring by contractor and PIU
Direct effects on communities from impacts such as damage to properties, dust generation, noise and safety	All project sites (intake, WTP, reservoir, access roads, main and distribution network)	Views and opinions of communities and complaints received via GRM	Weekly	Through community feedback and grievance redress mechanism
Monitoring of EMMP during construction/excavation, including compliance with traffic management requirements	All roads, particularly at road pipe crossings	Compliance with EMMP	Daily	Compliance monitoring by contractor and PIU
Residual chlorine during pipeline and reservoir disinfection prior to commissioning	Pipeline and reservoir	Residual chlorine should be less than 2 mg/l before flushing	Prior to decommissioning	Residual chlorine testing or report on dilution activity
OPERATIONAL PHASE				
Wastewater management	Core villages	Number of households with latrines and with water connections, population served, and billed water volume	Monthly	PNP records
Raw water source	Intake	Water abstraction rate at intake	Monthly	PNP records

PARAMETERS	LOCATION	ENVIRONMENTAL PERFORMANCE INDICATOR	FREQUENCY	MEANS OF MONITORING
Water quality of raw water and treated water	Inlet of WTP	pH, turbidity	Daily	In-situ test kits
Water quality of treated water and at the distribution networks	WTP and sampling stations strategically scattered around the distribution area	After the reservoir pH, turbidity, residual chlorine, and temperature At locations in the distribution system: Residual chlorine, pH, turbidity After the clearwater tank: Chloride (Cl), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), sodium (Na), sulfate ion, zinc (Zn), conductivity, total hardness as CaCO3	Daily Weekly Annually	Using portable test kits and/or analysis in laboratory
Backwash water and sediments from WTP	WTP	Schedule of backwashing and condition of detention ponds	Monthly	PNP records and site observation
Occupational health and safety	WTP	Staff training on chemicals handling, monitoring of incidents	Before the start of WTP operation and throughout operation	PNP records

10.2.4 Capacity Building

197. The extension office of PNP Boeko Province in Pha Oudom District lacks the capacity for environmental management and monitoring and water quality testing. The subproject will include equipment for a small water testing laboratory at the proposed WTP site. Regular water quality tests on the raw and treated water will help determine appropriate dosing of chemicals to be applied at the WTP as well as ensure potable water quality at the distribution lines. The PNP will receive training on the operation, calibration, and maintenance of the laboratory equipment. At the minimum, the laboratory will include portable equipment for testing of turbidity, temperature, residual chlorine, pH, and coliform. The PNP staff will also be trained on the proper and correct sampling and preservation methods for water samples that will be brought to external laboratories for analysis.

10.3 ENVIRONMENTAL MANAGEMENT AND MONITORING COSTS

198. The cost for the environmental safeguard activities during construction, i.e. environmental management, review, and monitoring, for the subproject will be primarily included in the civil works cost. The cost of environmental management and monitoring activities during the operational phase will be borne by the PNP as part of operation and maintenance activities.

11 CONCLUSION AND RECOMMENDATIONS

199. This updated IEE for the Pha Oudom District subproject was undertaken to determine the environmental issues and concerns associated with the proposed water supply system subproject, following modifications from the initial plans that were presented during project preparation. The modifications made are considered more suitable in terms of

ensuring better raw water quality and quantity, in avoiding impacts to downstream ecosystems of the intake and the surrounding areas of the WTP and reservoir, Office and laboratory and minimizing cutting and slope erosion for the reservoir and WTP area. The assessment confirms that the subproject remains classified as Category B for environment based on ADB Safeguards Policy Statement (SPS, 2009).

200. The subproject will have beneficial impacts on health and well-being of the people because of improved accessibility to potable and reliable water supply. There are also health benefits in the form of reduced incidence of diarrhoea, dysentery, skin rashes, and other water-borne diseases as a result of hygiene promotion activities and improved access to safe water for the community.

201. Most of the environmental impacts are expected to occur during the construction phase. The environmental impacts are not expected to cause irreversible and significant adverse environmental impacts and are easily controllable by appropriate and conventional mitigation measures. Based on the assessment of environmental impacts, the anticipated adverse impacts during project implementation are related to nuisances which may happen during the construction of the subproject components such as temporary alienation of access, temporary disruption of community facilities, noise, sediment runoff, release of dust and engine gas emissions. Recommendations formulated in the EMMP, its inclusion in the contractual framework, and an effective inspection of construction sites will reduce these risks to an acceptable level.

202. Environmental mitigation measures have been designed as outlined in the subproject EMMP to address any adverse impacts during the various phases of project implementation. The EMMP also presents the institutional responsibilities for implementing the mitigation measures. All Subproject activities prior to construction, during construction and during operation will be managed as provided in the EMMP and the Contractor's compliance and implementation of the mitigation measures shall be monitored. An environmental monitoring plan has been provided to ensure water quality is maintained according to the prevailing Lao standards. The DONRE Environmental Compliance Certificate is attached in Appendix B.

203. The IEE concludes that the subproject combined with available information on affected environment is sufficient to identify the scope of environmental impacts of the subproject. No further environmental assessment is therefore required.

APPENDIX

APPENDIX A
RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: LAO PDR: Water Supply and Sanitation Sector Project (Pha Oudom District Subproject)

Sector Division: SEUW

SCREENING QUESTIONS	YES	NO	REMARKS
A. Project Siting Is the project area…			
Densely populated?		X	The service area and locations of project components are in urban town centers. These areas are not densely populated.
Heavy with development activities?		X	Development activities in the service area are limited to small-medium sized commercial activities. Most of the area is used for residential purposes with some paddy fields.
Adjacent to or within any environmentally sensitive areas?		X	The Nam Ha Conservation Area is located 45 km from the project area.
Cultural heritage site		X	Not applicable
Protected Area		X	There is no protected area within the component sites and immediate vicinity. The Nam Ha Conservation Area is located about 45 km away.
Wetland		X	Not applicable
Mangrove		X	Not applicable
Estuarine		X	Not applicable
Buffer zone of protected area		X	Not applicable
Special area for protecting biodiversity		X	Not applicable
Bay		X	Not applicable
B. Potential Environmental Impacts Will the Project cause…			
▪ pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?	X		There are no settlements in the upstream.
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?		X	There are no historical/cultural sites that will be affected by the project.
▪ hazard of land subsidence caused by excessive ground water pumping?		X	Not applicable.
▪ social conflicts arising from displacement of communities ?		X	Not applicable.
▪ conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?		X	There is sufficient water in Nam Haad for downstream users. Villagers disclosed that even during the dry season, the river still has water.
▪ unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?		X	The current condition of the raw water in Nam Haad is satisfactory. A WTP is proposed for the subproject to improve

SCREENING QUESTIONS	YES	NO	REMARKS
			quality of water supply.
▪ delivery of unsafe water to distribution system?		X	The subproject will ensure delivery of safe and potable water.
▪ inadequate protection of intake works or wells, leading to pollution of water supply?		X	Measures will be included in the EMMP to protect intake works against contamination.
▪ over pumping of ground water, leading to salinization and ground subsidence?		X	Not applicable. Groundwater abstraction is not included in the scheme.
▪ excessive algal growth in storage reservoir?		X	Disinfection will be undertaken to prevent algal growth.
▪ increase in production of sewage beyond capabilities of community facilities?		X	The project policy will ensure that households have pit latrines before connecting to the water supply system. The drainage and sanitation concerns will be addressed in the VEI component of WSSP.
▪ inadequate disposal of sludge from water treatment plants?		X	Filtrate and sludge resulting from the WTP process is will be channeled into detention ponds.
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?		X	Noise control measures are included in the EMMP.
▪ impairments associated with transmission lines and access roads?		X	Installation of pipelines will affect access of vehicles and passerbys. A management plan needs to be included in the EMMP.
▪ health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals. ▪		X	The WTP will include a chlorination and coagulation which needs proper chemical storage and handling system to avoid health hazards.
▪ health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation?		X	Workers and staff of the WTP will be oriented on the proper handling of coagulants and chlorine.
▪ dislocation or involuntary resettlement of people?		X	Not applicable
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		X	Not applicable
▪ noise and dust from construction activities?		X	Noise and dust may be generated during the construction of the subproject components (intake, WTP, and secondary mains). Mitigating measures are incorporated in the EMMP.
▪ increased road traffic due to interference of construction activities?		X	Some roads may be blocked during construction of the lines. Also, the movement of vehicles carrying construction materials along the narrow roads to the subproject component sites may cause disturbances. Appropriate management of traffic are incorporated in the EMMP.
▪ continuing soil erosion/silt runoff from construction operations?		X	Temporary silt runoff from excavation activities may be generated. Silt traps and other measures to control sediment flow into rivers are included in the EMMP.
▪ delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?		X	The subproject is expected to improve the O&M of the WTP and water distribution system resulting to potable water.
▪ delivery of water to distribution system, which is		X	Monitoring of water quality at the intake,

SCREENING QUESTIONS	YES	NO	REMARKS
corrosive due to inadequate attention to feeding of corrective chemicals?			WTP, and distribution system will be ensured by the subproject.
▪ accidental leakage of chlorine gas?		X	Powder chlorine will be used
▪ excessive abstraction of water affecting downstream water users?		X	Abstraction will be limited to the capacity of the WTP.
▪ competing uses of water?		X	Water supply is the priority on the use of the Nam Haad. The proposed abstraction rate is minimal and that there will be sufficient water for downstream users.
▪ increased sewage flow due to increased water supply		X	Improvement in water supply may result to increased water consumption and therefore increase the volume of sewage. Sewage pit latrines will be required for households connecting to the water supply system.
▪ increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant	X		There is potential increase in sullage with improvement in water supply. Drainage improvement measures will be needed as part of the VEI.
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		X	Not applicable
▪ social conflicts if workers from other regions or countries are hired?		X	PIU and contractor will be required to hire qualified locals during construction and operation.
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?		X	Not applicable
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		X	Not applicable

A CHECKLIST FOR PRELIMINARY CLIMATE RISK SCREENING

Country/Project Title: LAO PDR: WATER SUPPLY AND SANITATION SECTOR PROJECT
SUBPROJECT: PHA OUDOM DISTRICT
Sector : WATER SUPPLY
Subsector:
Division/Department: SEUW

SCREENING QUESTIONS		SCORE	REMARKS[11]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	0	The river has not dried up even during the dry months. The WTP and reservoir are located in elevated areas and will not be affected by extreme floods.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	1	Design of intake needs to consider highest and lowest flows of the river and rainfall intensity. River flow measurements will be undertaken as part of the monitoring plan.
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	0	
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	

[11] *If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.*

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): Total score is 1 thus LOW RISK

Other Comments:

_____
_____
_____

Prepared by: _____

APPENDIX A
CERTIFICATE NO. 645/DONRE - ENVIRONMENTAL COMPLIANCE CERTIFICATE (ECC) FOR PHA OUDOM DISTRICT SUBPROJECT

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ

ແຂວງບໍ່ແກ້ວ
ພະແນກ ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ

ເລກທີ 645/ພຊສ.ບຊ
ເມືອງຫ້ວຍຊາຍ, ວັນທີ 24/10/2016

ໃບຢັ້ງຢືນ

- ອີງຕາມ ກົດໝາຍວ່າດ້ວຍ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ, ສະບັບເລກທີ 02/99/ສພຊ, ລົງວັນທີ 03 ເມສາ 1999;
- ອີງຕາມ ດຳລັດວ່າດ້ວຍການຫັດແທນຄ່າເສຍຫາຍ ແລະ ການຍົກຍ້າຍຈັດສັນປະຊາຊົນ ຈາກໂຄງການພັດທະນາ, ສະບັບເລກທີ 192/ນຍ, ລົງວັນທີ 07 ກໍລະກົດ 2005;
- ອີງຕາມ ດຳລັດວ່າດ້ວຍການປະເມີນຜົນສິ່ງແວດລ້ອມ ສະບັບເລກທີ 112/ນຍ, ລົງວັນທີ 16 ກຸມພາ 2010;
- ອີງຕາມ ບົດລາຍງານ ການສຶກສາສິ່ງແວດລ້ອມເບື້ອງຕົ້ນ (IEE) ແລະ ແຜນການຄຸ້ມຄອງສິ່ງແວດລ້ອມ (EMP) ໂຄງການ ກໍ່ສ້າງນ້ຳປະປາ ແລະ ສຸຂະພິບານ ເມືອງສາອຸດົມ ແຂວງບໍ່ແກ້ວ, ສະບັບເດືອນ ຕຸລາ 2016;
- ອີງຕາມ ບົດລາຍງານ ແຜນການເວນຄືນທີ່ດິນ ແລະ ການຊົດເຊີຍ (LACP) ໂຄງການ ກໍ່ສ້າງນ້ຳປະປາ ແລະ ສຸຂະພິບານ ເມືອງສາອຸດົມ ແຂວງບໍ່ແກ້ວ, ສະບັບເດືອນ ຕຸລາ 2016.
- ອີງຕາມ ການລະເໜີ ຂອງລັດວິສາຫະກິດນ້ຳປະປາ ແຂວງບໍ່ແກ້ວ ສະບັບເລກທີ 7003/ນປປ.ບກ, ລົງວັນທີ 15 ພະຈິກ 2016.

ພະແນກ ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແຂວງບໍ່ແກ້ວ ຕົກລົງ:

1. ເຫັນດີຮັບຮອງເອົາການປັບປຸງ ການສຶກສາສິ່ງແວດລ້ອມເບື້ອງຕົ້ນ (IEE) ແລະ ແຜນການຄຸ້ມຄອງສິ່ງແວດລ້ອມ (EMP) ໂຄງການ ກໍ່ສ້າງນ້ຳປະປາ ແລະ ສຸຂະພິບານ ເມືອງສາອຸດົມ ແຂວງບໍ່ແກ້ວ, ສະບັບເດືອນ ຕຸລາ 2016.
2. ເຫັນດີຮັບຮອງເອົາ ບົດລາຍງານການປັບປຸງ ແຜນການເວນຄືນທີ່ດິນ ແລະ ການຊົດເຊີຍ (LACP) ໂຄງການ ກໍ່ສ້າງນ້ຳປະປາ ແລະ ສຸຂະພິບານ ເມືອງສາອຸດົມ ແຂວງບໍ່ແກ້ວ, ສະບັບເດືອນ ຕຸລາ 2016.

3. ເຈົ້າຂອງໂຄງການ ຕ້ອງປະຕິບັດຕາມເງື່ອນໄຂເພີ່ມເຕີມດັ່ງນີ້:

- ຮັບຜິດຊອບ ໃນການສຶກສາ ແລະ ສຳຫຼວດຂໍ້ມູນ ທີ່ລະບຸໃນ ການສຶກສາສິ່ງແວດລ້ອມເບື້ອງຕົ້ນ ແລະ ວິທີໃນການແກ້ໄຂ ເພື່ອແກ້ໄຂຜົນກະທົບທັ້ງໝົດ ທີ່ກຳນົດໄວ້ໃນແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການ. ໃນກໍລະນີ ມີບັນຫາສິ່ງແວດລ້ອມທີ່ເກີດຂຶ້ນ ບໍ່ໄດ້ກຳນົດໄວ້ໃນແຜນການຄຸ້ມຄອງດັ່ງກ່າວ ຜູ້ພັດທະນາໂຄງການ ຕ້ອງຮັບຜິດຊອບ ໃນການຮັບຮອງ ແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ແລະ ແກ້ໄຂບັນຫາເຫຼົ່ານັ້ນເພີ່ມເຕີມ ໃຫ້ໄດ້ຕາມມາດຕະການ ແລະ ພ້ອມທັງຮັບປະກັນໃຫ້ມີງົບປະມານພຽງພໍ.
- ຮັບຜິດຊອບໂດຍກົງ ຕໍ່ການສຳຫຼວດຂໍ້ມູນ ທີ່ລະບຸໃນ ແຜນການເວນຄືນທີ່ດິນ ແລະ ການຊົດເຊີຍ ແລະ ວິທີການແກ້ໄຂ ເພື່ອແກ້ໄຂບັນຫາທັງໝົດ ທີ່ກຳນົດໄວ້ໃນ ແຜນການເວນຄືນທີ່ດິນ ແລະ ການຊົດເຊີຍ ຂອງໂຄງການ. ໃນກໍລະນີ ມີບັນຫາການຍົກຍ້າຍສິ່ງກີດຂວາງ ທີ່ເກີດຂຶ້ນບໍ່ໄດ້ກຳນົດໄວ້ໃນ ແຜນການເວນຄືນທີ່ດິນ ແລະ ການຊົດເຊີຍດັ່ງກ່າວ ຜູ້ພັດທະນາໂຄງການ ຕ້ອງຮັບຜິດຊອບ ໃນການຮັບຮອງ ແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ແລະ ແກ້ໄຂບັນຫາເຫຼົ່ານັ້ນເພີ່ມເຕີມ ໃຫ້ໄດ້ຕາມມາດຕະການ ແລະ ພ້ອມທັງຮັບປະກັນໃຫ້ມີງົບປະມານພຽງພໍ.
- ເອົາໃຈໃສ່ເປັນພິເສດ ໃນການກຳຈັດສິ່ງເສດເຫຼືອຕ່າງໆ ຈາກການດຳເນີນການບຸກເບີກ, ການດຳເນີນການກໍ່ສ້າງ ແລະ ສິ່ງປຸກສ້າງອາຄານ ແລະ ສິ່ງອຳນວຍຄວາມສະດວກຕ່າງໆ ເຊັ່ນ: ຄາບນ້ຳມັນເຄື່ອງຈັກ, ຍານພາຫະນະ, ການກຳຈັດຂີ້ຝຸ່ນ, ຕະກອນ, ການປ້ອງກັນການເຊາะເຈື່ອນ, ການປົກປັກຮັກສາແຫຼ່ງນ້ຳທຳມະຊາດ, ປ່າໄມ້ ທີ່ນອນໃນເຂດໂຄງການ, ການສ້າງປ້າຍເຕືອນໄພຕ່າງໆ. ສຳລັບການບຸກເບີກ, ອະນາໄມ, ການກໍ່ສ້າງ ແລະ ກິດຈະກຳອື່ນໆ ຕ້ອງປະຕິບັດຕາມເຕັກນິກວິຊາການ ທີ່ໄດ້ກຳນົດໄວ້ ແລະ ຮັບຮອງໃນຂອບເຂດທີ່ອະນຸຍາດ ໃຫ້ດຳເນີນງານເທົ່ານັ້ນ ເພື່ອຫຼີກລ້ຽງບໍ່ໃຫ້ມີຜົນກະທົບທາງລົບ.
- ພາຍຫຼັງບຸກເບີກ ແລະ ນຳໃຊ້ພື້ນທີ່ດັ່ງກ່າວແລ້ວ ຕ້ອງໄດ້ປົວແປງ ແລະ ຟື້ນຟູ ເຂດທີ່ຖືກກະທົບຈາກໂຄງການ ໃຫ້ຄືນສູ່ສະພາບທີ່ສາມາດນຳໃຊ້ໄດ້.
- ໃນກໍລະນີທີ່ໄດ້ຮັບຜົນກະທົບຈາກໂຄງການ ປະຊາຊົນຕ້ອງໄດ້ຮັບ ການຫົດແທນຄ່າເສຍຫາຍຢ່າງສົມເຫດສົມຜົນ ແລະ ພຽງພໍ, ໂດຍຍົກໃສ່ ການປະຊາສຳພັນໃຫ້ແກ່ຊຸມຊົນ ແລະ ການມີສ່ວນຮ່ວມ ຂອງຊຸມຊົນຢ່າງເຂັ້ມງວດ ແລະ ຕາມລະບຽບຫຼັກການ ກ່ອນການລົງມືຈັດຕັ້ງປະຕິບັດຕົວຈິງ.
- ສ້າງລະບົບ ການຕິດຕາມກວດກາ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ໂດຍມີການລາຍງານພາຍໃນຢ່າງມີປະສິດທິຜົນສູງ ໃຫ້ແກ່ການຄຸ້ມຄອງໂຄງການ ແລະ ການຄຸ້ມຄອງລັດ.
- ສ້າງບົດລາຍງານປະຈຳໄຕມາດ ກ່ຽວກັບຜົນກະທົບຕໍ່ ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ໂດຍຜ່ານໄລຍະການຈັດຕັ້ງປະຕິບັດ ຂອງ ຕົວເມືອງໂຄງການ ແລະ ສົ່ງໃຫ້ ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແລະ ພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ໃນແຂວງບໍ່ແກ້ວ.
- ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແຂວງບໍ່ແກ້ວ ປະສານສົມທົບກັບ ຂະແໜງການກ່ຽວຂ້ອງຂັ້ນແຂວງ ແລະ ອົງການປົກຄອງຊາອຸດົມ ເຮັດໜ້າທີ່ຕິດຕາມ

ກວດກາ ການຈັດຕັ້ງປະຕິບັດ ແຜນການຄຸ້ມຄອງສິ່ງແວດລ້ອມ ແລະ ແຜນການເອນຄືນທີ່ດິນ ແລະ ຊີດເຊີຍ ຂອງໂຄງການດ້ານທ່າ ໃນເມືອງຜາອຸດົມ ແຂວງບໍ່ແກ້ວ ແລະ ມອບໃຫ້ເຈົ້າຂອງໂຄງການ ຕ້ອງກຳນົດງົບປະມານ ໃນການຕິດຕາມ ແລະ ກວດກາດ້ານສິ່ງແວດລ້ອມສັງຄົມ ຂອງໂຄງການຕາມລະບຽບການ.

ໃບຢັ້ງຢືນສະບັບນີ້ ນຳໃຊ້ສະເພາະໂຄງການນີ້ເທົ່ານັ້ນ ແລະ ມີຜົນນຳໃຊ້ໄດ້ນັບແຕ່ມື້ລົງລາຍເຊັນເປັນຕົ້ນໄປ ແລະ ຈະຍົກເລີກ ໃນເມື່ອ ໂຄງການຖືກຈັດຕັ້ງປະຕິບັດສຳເລັດໜ້າວຽກທັງໝົດ.

ຫົວໜ້າພະແນກ ຊັບພະຍາກອນທຳມະຊາດ
ແລະ ສິ່ງແວດລ້ອມ ແຂວງບໍ່ແກ້ວ

ສຳເນົາສຳລັບ:
1. ພະແນກ ຊຄ ແຂວງບໍ່ແກ້ວ ເກັບມ້ຽນ 2 ສະບັບ
2. ຫ້ອງການ ຊຄ ເມືອງຜາອຸດົມ 1 ສະບັບ
3. ພະແນກ ຍທຂ ແຂວງບໍ່ແກ້ວ 1 ສະບັບ
4. ບະແນກການກ່ຽວຂ້ອງເກັບມ້ຽນສະບາລະ 1 ສະບັບ

Lao People Democratic Republic
Peace Independence Democratic Unity Prosperity

Bokeo Province
Department of Natural Resources and Environment

No. 645/DONRE.BK
Date: 21 November 2016

Certificate

- Based on Law on Environment Protection, No. 22/99/NA, dated 03 April 1999.
- Based on Decree on Compensation and Resettlement of People Affected by Development Projects No. 192/PO, dated 07 July 2005.
- Based on Decree on the Environmental Impact Assessment of Lao PDR, No 112/ PO, dated 16 February 2010.
- Based on the Updated Initial Environment Examination (IEE) and Environmental Management Plan (EMP) for the proposed subproject works in Pha Oudom district town, Bokeo Province, under the Small Towns Water Supply and Sanitation Sector Project, October 2016.
- Based on the Updated Land Acquisition and Compensation Plan (LACP) for the proposed subproject works in Pha Oudom district town, Bokeo Province, under the Water Supply and Sanitation Sector Project, October 2016.
- Based on Request Letter of Water Supply State Enterprise of Bokeo Province (Provincial Nam Papa, PNP) No 7003/PNP.BK, dated 15 November 2016.

Department of Natural Resources and Environment of Bokeo Province:

1. Agree to approve the Updated Initial Environmental Examination (IEE) and Environmental Management Plan (EMP) for the proposed subproject works in Pha Oudom district town, Bokeo Province, under the Water Supply and Sanitation Sector Project, October 2016.
2. Agree to approve the Updated Land Acquisition and Compensation Plan (LACP) for the proposed subproject works in Pha Oudom district town, Bokeo Province, under the Water Supply and Sanitation Sector Project, October 2016.

3. The subproject must be implemented in accordance with the following:

   - Take up responsibility on the study and information indicated in the study for the initial environmental examination impact and implement all solution to solve the impacts as indicated in the environmental management plan. In case of environmental problems that were not studied in the report, the subproject must take up additional responsibility to improve the EMP and provide solutions to solve these problems and ensure the budget is sufficient.
   - Take up responsibility on the study and information indicated in the study for the LACP and implement all solutions to solve all issues indicated in LACP. In case of LACP issues that were not studied in the report, the subproject must take up

additional responsibility to improve the LACP and provide solutions to solve these problems and ensure the budget is sufficient.

- More attention of waste removal from site clearance, building construction and other facilities such as: machine oil, vehicles, dust generation, erosion, natural water resources and forest protection on project area. For clearing, cleaning after construction and other activities is needed to comply to the technical specification and as approved on project boundary to avoid negative affect.
- After clearance and site working is done that should be improved and rehabilitated situation of the area to existing condition.
- In case of people affected by the subproject, they must receive reasonable and adequate compensation, based on strong community awareness and participation with regulation before implementing the subproject.
- Establish monitoring system for environmental and social impact with highly efficient reporting to project management and official management.
- Establish quarterly report concerning the environment and social impacts throughout the implementation period of the subproject, and submit the finding to the Department of Natural Resource and environment and other concerned agencies in Bokeo province.
- The department of natural resource and environmental Bokeo Province should cooperate with other concerned agencies of Pha Oudom district administration to follow up on the monitoring and implementation of the EMP and LACP for Pha Oudom subproject works in Bokeo Province. The Project Coordination Unit shall determine the amount and source of the budget fund for monitoring and implementation of the plans, in accordance with the regulations.

This certificate is used only during project implementation of the subproject from the date of signing, will remain valid during implementation period.

Director of DONRE
of Bokeo Province

Signed and Steam

Khammanh CHANTHALITH

CC: DONRE 2 sets

APPENDIX B
UXO CERTIFICATION FOR THE PHA OUDOM DISTRICT SUBPROJECT

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ຍທຂ PWT
ເມືອງ [illegible]
ຫ້ອງການ ຍທຂ ເມືອງ

ເລກທີ [illegible]
ລົງວັນທີ 24/2/015

ໜັງສືຢັ້ງຢືນ

- [illegible]
- ເລື່ອງ: ການຢັ້ງຢືນວ່າ ລູກລະເບີດບໍ່ທັນແຕກໃນແລວທາງ ແລະ ຈຸດທີ່ຕັ້ງຫ້ອງການນ້ຳປະປາ ເມືອງ[illegible]
- ອີງຕາມ: ການລາຍງານຂອງເຈົ້າຂອງທີ່ດິນທຳການຜະລິດ ແລະ ນາຍບ້ານທີ່ຕັ້ງໂຄງການ ແລະ ການສຳຫລວດແບບຕາເປົ່າຂອງວິຊາການ

ຈາກການລົງສຳຫລວດຂອງວິຊາການສົມທົບກັບ ຄະນະບ້ານ[illegible] ແລະ ການຖາມທານເຈົ້າຂອງທີ່ດິນທຳການຜະລິດບໍລິເວນແລວທໍ່ , ຈຸດທີ່ຕັ້ງຫ້ອງການແມ່ນບໍ່ເຄີຍພົບເຫັນລະເບີດ ຈາກປະສົບການເຮັດໄຮ່ , ເຮັດນາ , ສວນປູກຕົ້ນໄມ້ ແລະ ທີ່ທຳກິນໃນຫລາຍປີຜ່ານມາ

ດັ່ງນັ້ນຈຶ່ງຂໍລາຍງານມາຍັງພາກສ່ວນກ່ຽວຂ້ອງຊາບ ເຂດດັ່ງກ່າວແມ່ນບໍ່ເຄີຍມີປະກົດການລະເບີດແຕກຈາກການບຸກເບີກ ແລະ ບໍ່ເຄີຍພົບເຫັນມາກ່ອນ.

ດ້ວຍຄວາມນັບຖືຢ່າງສູງ

ເຈົ້າເມືອງ[illegible]	ຫ້ອງການ ຍທຂ ເມືອງ	ນາຍບ້ານທີ່ຕັ້ງໂຄງການ
ກາງ ມະນີຫວ່າງ Kang MANYVANG	ທອງພັນ [illegible]	ພອນວິໄລ

Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

Pha Oudom District **No. 346**
PWT office **Date :24 /07 /2015**

Certificate
For the Unexploded Ordnance (UXO) Clearance

Refer to: The Director of PNP's Bokeo Province.
Subject: For the Unexploded Ordnance (UXO) Clearance in access road to WTP at Pha Oudom District.
Base on: The owner's Agriculture Land and Village Chie's of Project area and visually survey of Technical team PWT office.

Technical team from PWT office and PNP's together with Village Authorities had interview owner's agriculture land in the Project Corridors had no existing the UXO and other weapons remaining. from his experience did shifting, rice field and plantations.

Therefore, this letter has issued to certify for the Water Supply State Enterprise of Pha Oudom District, Bokeo Province and related sectors working within the project's corridor.
This is for evident will be taken for their implementation.

Deputy of District Governor office	Deputy of PWT office	Village Chief's
Mr. Kang Manivang	Mr. ThongPhan LuangLueXay	Mr. Phonvilay

APPENDIX D
PROVINCIAL GOVERNMENT CERTIFICATION - WATER SUPPLY HIGHEST PRIORITY USE

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນ ລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ

ແຂວງບໍ່ແກ້ວ
ຫ້ອງວ່າການປົກຄອງແຂວງ

ເລກທີ.5.320.../ຫປຂ.ບກ
ວັນທີ.17.ສິງ.ຫາ.2015

ຮຽນ: ທ່ານ ຫົວໜ້າຫ້ອງການ, ກະຊວງ ໂຍທາທິການ ແລະ ຂົນສົ່ງ,

ເລື່ອງ: ການປັ້ງປົນ ໃນການປະຕິບັດ ເງື່ອນໄຂ ແລະ ຂໍ້ຜູກພັນ ທາງດ້ານລະບຽບຫຼັກການ ເພື່ອໄດ້ຮັບການ ລະໜອງທຶນ ເງິນກູ້ ແລະ ຊ່ວຍເຫຼືອລ້າ ສຳລັບ ການກໍ່ສ້າງ ໂຄງການນ້ຳປະປາ ເມືອງຜາອຸດົມ ແຂວງ ບໍ່ແກ້ວ.

- ອີງຕາມ ສັນຍາເງິນກູ້ຢືມ ແລະ ຊ່ວຍເຫຼືອລ້າ (ADB Loan 3041 ແລະ Grant 0363) ລະຫວ່າງ ລັດຖະບານ ແຫ່ງ ສປປ ລາວ (ກະຊວງ ການເງິນ) ແລະ ທະນາຄານ ພັດທະນາອາຊີ ຄົ້ງວັນທີ 11 ມີນາ 2013;
- ອີງຕາມ ເອກະສານ ຄູ່ມືການບໍລິຫານ ແລະ ການຄຸ້ມຄອງ ໂຄງການ ນ້ຳປະປາ ແລະ ສຸຂະພິບານ (Project Administration Manual, PAM);
- ອີງຕາມ ຜົນຂອງ ກອງປະຊຸມໄລຍະຕົ້ນ (Inception WorkShop) ຂອງ ການຈັດຕັ້ງປະຕິບັດ ໂຄງການ ກໍ່ສ້າງ ນ້ຳປະປາ ແລະ ສຸຂະພິບານ, ຄົ້ງວັນທີ 30 ກໍລະກົດ 2015.

ຫ້ອງວ່າການປົກຄອງ ແຂວງບໍ່ແກ້ວ, ຂໍຖືເປັນກຽດ ຮຽນສະເໜີມາຍັງ ທ່ານເພື່ອປັ້ງປົນ ແລະ ຮັບຮອງເອົາ ໃນ ການປະຕິບັດເງື່ອນໄຂ ແລະ ຂໍ້ຜູກພັນ ທາງດ້ານລະບຽບຫຼັກການ ທີ່ໄດ້ກຳນົດໃນສັນຍາເງິນກູ້ຢືມ ແລະ ຊ່ວຍເຫຼືອລ້າ (ADB Loan 3041 ແລະ Grant 0363) ລະຫວ່າງ ລັດຖະບານ ແຫ່ງ ສປປ ລາວ (ກະຊວງ ການເງິນ) ແລະ ທະນາຄານ ພັດທະນາອາຊີ ໂດຍໃຫ້ສອດຄ່ອງກັບ ການຈັດຕັ້ງປະຕິບັດ ໂຄງການ ກໍ່ສ້າງ ນ້ຳປະປາ ແລະ ສຸຂະພິບານ ສຳລັບ ເມືອງຜາອຸດົມ, ແຂວງ ບໍ່ແກ້ວ. ເງື່ອນໄຂ ແລະ ຂໍ້ຜູກພັນ ທາງດ້ານລະບຽບຫຼັກການ ແມ່ນໄດ້ລະບຸໃນ Annex B, ໜ້າ 74-76 ຂອງ ເອກະສານ ຄູ່ມືການບໍລິຫານ ແລະ ການຄຸ້ມຄອງ ໂຄງການ ນ້ຳປະປາ ແລະ ສຸຂະພິບານ (PAM), ເຊິ່ງ ໄດ້ຕິດຄັດມາພ້ອມນີ້ດ້ວຍ ແລະ ສາມາດສະຫຼຸບໄດ້ດັ່ງຕໍ່ໄປນີ້:

1. ຫ້ອງວ່າການປົກຄອງແຂວງ ແລະ ລັດວິສະຫະກິດນ້ຳປະປາແຂວງ ຕົກລົງເຫັນດີ ຮັບຮອງເອົາ ນະໂຍບາຍ ກ່ຽວກັບ ການປັບປຸງຂະແໜງການນ້ຳ ຂອງລັດຖະບານ, ນະໂຍບາຍການເກັບກູ້ເງິນຄືນ, ນະໂຍບາຍ ການຕໍ່ນ້ຳໃຫ້ໂດຍບໍ່ເສຍ ເງິນ (Free Connection Policy), ແຜນການ ຄຸ້ມຄອງນ້ຳສູນເສຍ, ປັບປຸງແຜນດຳເນີນທຸລະກິດ ແລະ ການ ປັບປຸງໂຄງສ້າງຂອງລາຄານ້ຳ ໂດຍຜ່ານການເຫັນດີ ຈາກ ລັດຖະບານ ສປປ ລາວ ແລະ ທະນາຄານ ພັດທະນາອາຊີ;

2. ຫ້ອງວ່າການປົກຄອງແຂວງ ເຫັນດີ ໃນການຈັດສັນງົບປະມານໃຫ້ພຽງພໍ ໃນການດຳເນີນງານ ແລະ ບຸລະນະຮັກສາ ລະບົບຮ່ອງລະບາຍນ້ຳ ແລະ ຄວາມສະດວກທາງ ດ້ານສຸຂະພິບານສາທາລະນະ;

APPENDIX E
PROCEEDINGS OF PUBLIC CONSULTATIONS FOR PHA OUDOM DISTRICT SUBPROJECT

PPTA Stage

Summary:

- In February 2013, 9 meetings took place with 311 (86 female) participants excluding PPTA project staff.
- The meetings took place in offices in Houeisay and Pha Oudom, as well as in the villages of Phonxay, Sibounhieng, Xaysavang, Phiengkham and Thienkeo.
- Areas of topics have been: project scope, timing, resettlement and environment issues, cut-off date, water supply system, connection policy, installation of meters, pipe laying, temporary impacts, intake sites, water quality, protection of forests and water sources.

Summary:

- In March 2013, 9 meetings took place with 318 participants (76 female) excluding PPTA project staff.
- The meetings took place in the district office of Phou Oudom, as well as in the villages of Tinkeo, Phiengkham, Donsavan, Pha Oudom, Phonsay, Xaioudom, Saysavan, and Phonxay
- Areas of topics have been: project scope, timing, resettlement and environment issues, cut-off date, water supply system, connection policy, installation of meters, pipe laying, temporary impacts, intake sites, water quality, protection of forests and water sources.

Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component

Summary:

- In June and November 2016 there were 17 public village meetings attended by 719 (217 female and 502 male) villagers composed by ethnic groups of 238 Lao-Tai, 402 Mon-Khmer, and 79 Hmong-Mien participants.
- The meetings took place in Pha Oudom town, and the villages of Phiengkham, Tinkeo, Donsavan, Xaioudom, Saysavan, Pha Oudom, Phonsay, Somsasavang, Sayoudom, and Saysavang.
- Areas of topics have been: Compensation in cash or in kind, voluntary donation, entitlements, temporary and permanent impacts, Grievance Redress Mechanism, status of subproject, construction phase, environmental impacts and environmental management with focus on health and safety, and environmental awareness.

CHRONOLOGICAL ORDER BY DATE AND VILLAGE		AGENCY	PARTICIPANTS				DISCUSSION / RESPONSES / OUTCOMES FOLLOW-UP ACTIONS WITH RESPONSIBILITY
13 June 2016	District coordination and consultation meeting on LARC (DMS, SESAH, etc.) Time: 08:30 - 11:40 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authorities ▪ Villagers	Total Lue Lamet Hmong Khumu Lao Taidam IA/PIA [4(1)]	21 4 1 2 6 7 1	female 3 female 0 female 0 female 0 female 1 female 1 female 1	Presentation: • General introduction into topic, specific description on LAC, and explanation on surveys; • Handing out Lao regulation; • Subproject related briefing on severe affectedness and impacts, temporary / permanent loss of assets, vulnerable groups, entitlement; no loss of land (DMS to confirm). Comments – Questions – Answers: • Clarifying and agreeing on coordination and public consultation concerning dissemination of information and surveys (DMS, SESAH); • Gov. staff stressed the importance of WSS; • Villagers expressed their motivation of collaboration with the subproject
13 June 2016	Village consultation meeting at Phiangkham village meeting hall. Time: 19:30 - 21.30	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total Khumu Lao Lue IA/PIA [3(1)]	87 82 3 2	female 9 female 6 female 2 female 1	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based

Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component					
					verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.
09 Nov. 2016	Village consultation meeting at Phiangkham village meeting hall. Time 14.40-16.15 	▪ same	▪ same	Total 17 female 3 Lao 4 female 1 Khumu 9 female 1 Lue 4 female 1 IA/PIA [4 (1)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject;
14 June 2016	Village consultation meeting at Thinkeo village meeting hall. Time: 08:30 - 11:30 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total 76 female 21 Khumu 42 female 9 Lamet 30 female 1 Lue 3 female 0 Lao 1 female 11 IA/PIA [3 (1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.

Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component					
11 Nov. 2016	Village consultation meeting at Thinkeo village meeting hall. Time 08.45-11.25 	▪ same	▪ same	Total 36 female 10 Khumu 20 female 5 Lamet 11 female 0 Lue 5 female 5 IA/PIA [3(1)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject;
14 June 2016	Village consultation meeting at Donesavanh village meeting hall. Time: 13:30-16:30 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total 36 female 10 Khumu 20 female 5 Lamet 11 female 0 Lue 5 female 5 IA/PIA [3(1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.
10 Nov. 2016	Village consultation meeting at Donesavanh village meeting hall. Time 13.50-15.55 	▪ same	▪ same	Total 22 female 2 Taideng 1 female 1 Khumu 21 female 1 IA/PIA [3 (1)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject.

Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component					
14 June 2016	Village consultation meeting at Pha Oudom village meeting hall. Time: 19:30 to 21:30 			Total 38 female 14 Lao 33 female 11 Lue 1 female 1 Khumu 3 female 1 Lamet 1 female 1 IA/PIA [3(1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.
9 Nov. 2016	Village consultation meeting at Pha Oudom village meeting hall. Time 8.45-11.20 	▪ same	▪ same	Total 80 female 40 Lao 69 female 38 Khumu 8 female 0 Lamet 3 female 2 IA/PIA [4(1)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject.
15 June 2016	Village consultation meeting at Phonsay village meeting hall. Time: 7.00-10.00 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total 43 female 20 Khumu 43 female 20 IA/PIA [3(1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.

Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component					
12 Nov. 2016	Village consultation meeting at Phonsay village meeting hall. Time 19.45-21.35 	▪ same	▪ same	Total 33 female 15 Khumu 30 female 14 Lamet 2 female 0 Lao 1 female 1 IA/PIA [3(0)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject.
15 June 2016	Village consultation meeting at Somsasavang village meeting hall. Time: 19.30-21.00 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total 50 female 17 Lao 9 female 4 Khumu 39 female 12 Lamet 1 female 1 Lue 1 female 0 IA/PIA [4(1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.
11 Nov. 2016	Village consultation meeting at Somsasavang village meeting hall. Time: 13.47-15.58 	▪ same	▪ same	Total 35 female 10 Khumu 18 female 3 Lue 3 female 1 Lao 11 female 5 Taidam 3 female 1 IA/PIA [3 (0)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject.

Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component					
16 June 2016	Village consultation at Sayoudom village meeting hall. Time: 8.50.00-11.30 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total 23 female 7 Hmong 23 female 7 IA/PIA [3(1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers; • Villagers expressed satisfaction for subproject bringing better living conditions.
11 Nov. 2016	Village consultation at Sayoudom village meeting hall. Time 19.35-21.25 	▪ same	▪ same	Total 54 female 5 Hmong 54 female 5 IA/PIA [2(0)]	Presentation: • Describing current phase and stage of subproject; • Briefing on LAC aspects; • Explaining GRM; • Explaining in-cash compensation and voluntary donation; • Briefing on environmental aspects. Comments – Questions – Answers: • Villagers understand that the subproject will start construction in 2017 • No issues were raised by attending villagers; • Villagers confirmed their support for the subproject.
16 June 2016	Village consultation at Saysavang village meeting hall. Time: 19.30-21.30 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers	Total 41 female 17 Lue 41 female 17 IA/PIA [4(1)]	Presentation: • Introduction to subproject implementation; • Briefing on LAC aspects; • Explaining DMS and SESAH to be conducted; • Describing entitlements and eligibility; • Explained project impact: severely affected, not severely affected, permanent loss and temporally loss, vulnerable group. Comments – Questions – Answers: • Village authorities and villagers understand the measurement based verification of RoW and related properties; • No problems have been mentioned by attending villagers;

<table>
<tr><th colspan="6">Implementation Phase: Land Acquisition and Compensation and Environment related Consultation for Water Supply Component</th></tr>
<tr>
<td>10 Nov. 2016</td>
<td>Village consultation at Saysavang village meeting hall.
Time 8.38-11.15
  </td>
<td>▪ same</td>
<td>▪ same</td>
<td>Total 38 female 4

Lao 8 female 0
Khumu 7 female 0
Lue 22 female 3
Thaideng1 female 1

IA/PIA [3 (1)]</td>
<td>Presentation:
• Describing current phase and stage of subproject;
• Briefing on LAC aspects;
• Explaining GRM;
• Explaining in-cash compensation and voluntary donation;
• Briefing on environmental aspects.
Comments – Questions – Answers:
• Villagers understand that the subproject will start construction in 2017
• No issues were raised by attending villagers;
• Villagers confirmed their support for the subproject.</td>
</tr>
<tr><td colspan="4"></td><td colspan="2">Total Participants: 719 (male: 502 and female 217)</td></tr>
<tr><td colspan="4"></td><td>MAIN GROUPS MALE / FEMALE
LAO-TAI:130/108
MON-KHMER 305/97
HMONG-MIEN: 67/12
CHINESE-TIBETAN: 0/0

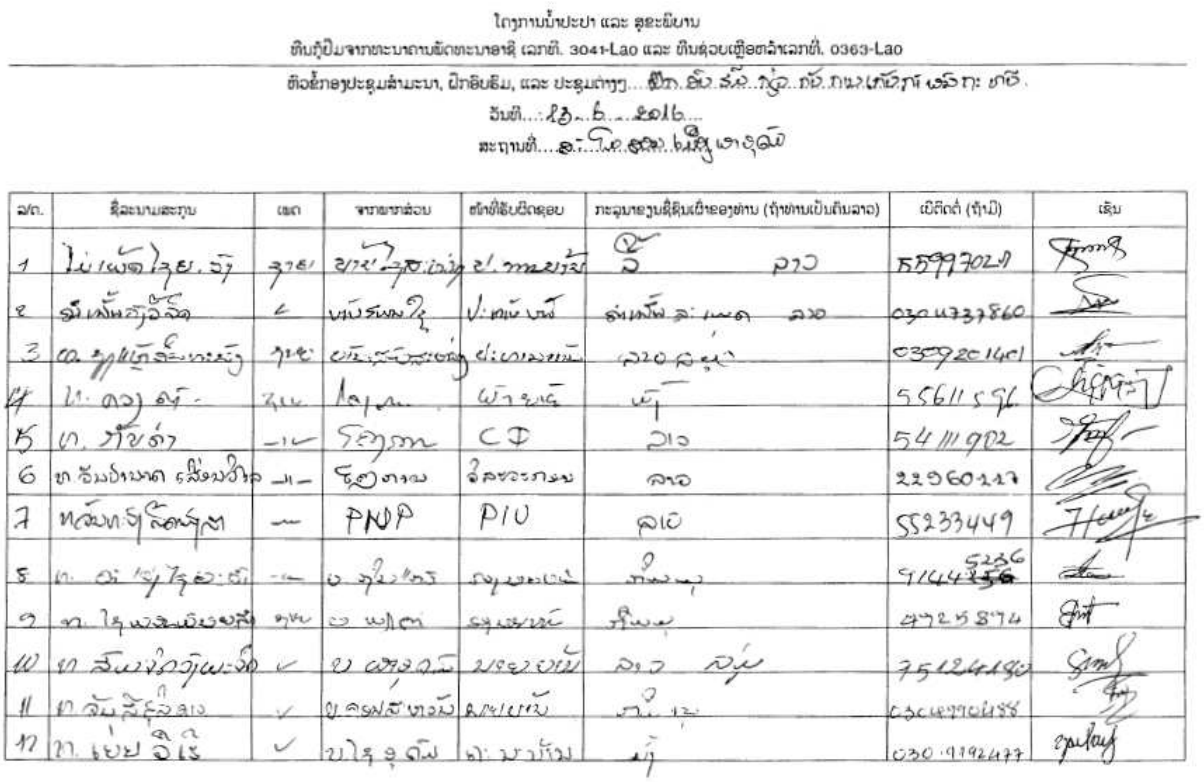
IN ADDITION
[IA/PIA 49 male (female 14)]</td><td>Subgroups male / female
Lao 72 female 74
Lue 56 female 30
Lamet 43 female 5
Hmong 67 female 12
Khumu 262 female 92
Taidam 2 female 2
Taideng 0 female 2</td></tr>
</table>

Complementary Consultation through the Village Environmental Improvement Component of the subproject					
23 March 2016	Pha Oudom village consultation ; meeting place Time: 8.30-11.30 	▪ PIU ▪ Village ▪ PIA	▪ PIU ▪ Village authority ▪ Villagers ▪ PIA	81 participants (56 female) IA/PIA [4(1)]	Results/Findings from consultation and discussion on required improvements: - Access road + drainage No 1 Length=210m , width=3,5m - Access road + drainage No 2 Length=200m , width=3,5m - Access road + drainage No 3 Length=141m , width=3,5m - Drainage N0 1 Length=335m , width=0,8m - Drainage N0 2 Length=110m , width=0,8m - Public Toilet with 2 rooms at village meeting hall
	Thinkeo village consultation ; meeting place Time: 13.30-16.30 			54 participants (13 female) IA/PIA [4(2)]	Results/Findings from consultation and discussion on required improvements: - Access + drainage No 1 Length=174m , width=3,5m - Access + drainage No 2 Length=273m , width=4m - Access + drainage No 3 Length=47m , width=4m - Access + drainage No 4 Length 100m , width=3m - Access + drainage No 5 Length=38m width=3m - Drainage No 1 Length=100m , width=0,8m - Drainage No 2 Length=129m , width=0,8m - Public Toilet with 2 rooms at village meeting hall
24 March 2016	Phiengkham village consultation; meeting place. Time: 8.30-12.00 			59 participants (23 female) IA/PIA [4(1)]	Results/Findings from consultation and discussion on required improvements: - Access road + drainage No 1 Length=500m , width=4,5m - Access road + drainage No 2 Length=480m , width=3m - Drainage - Public toilet with 2 rooms at village meeting hall - Improving village's office meeting room
	Phonsay village consultation; meeting place. Time: 13.30-16.30 			52 participants (28 female) IA/PIA [5(2)]	Results/Findings from consultation and discussion on required improvements: - Access road + drainage No 1 Length=40m , width=4m - Access road + drainage No 2 Length=45m , width=3m - Access road + drainage No 3 Length=120m , width=4m - Access road + drainage No 4 Length=160m, width=4m - Access road + drainage No 5 Length=40m , width=3,5m - Access road + drainage No 6 Length=220m , width=3m - Access road + drainage No 7 Length=20m , width=3m - Public Toilet with 2 rooms at village meeting hall

Complementary Consultation through the Village Environmental Improvement Component of the subproject					
25 March 2016	Village consultation at Saysavang village ; meeting place Time: 7.30-11.30 	▪ PIU ▪ Village ▪ PIA	▪ PIU; ▪ Village authority; ▪ Villagers; ▪ PIA.	44 participants (23 female) IA/PIA [4(2)]	Results/Findings from consultation and discussion on required improvements: - Access road + drainage No 1 Length=50m , width=3m - Access road + drainage No 2 Length=28m , width=3m - Access road + drainage No 3 Length=55m , width=3m - Access road + drainage No 4 Length=130m , width=3 - Public Toilet with 2 rooms at village meeting hall
	Village consultation at Donsavang village ; meeting place Time: 19.30-21.30 			42 participants (22 female) IA/PIA [4(2)]	Results/Findings from consultation and discussion on required improvements: - Village's office grounds - Drainage No 1 Length=48m , width=0,8m - Drainage No 2 Length=93m , width=0,8m - Public Toilet with 2 rooms at village meeting hall
26 March 2016	Village consultation at Sayoudom village ; meeting place Time: 19.30-21.30 			31 participants (4 female) IA/PIA [4(1)]	Results/Findings from consultation and discussion on required improvements: - Access no 1 Length=112m , width=4m - Access no 2Length=307m , width=4m - Access no 3 Length=200m , width=4m - Access no 4 Length=237m , width=4m - Access no 5 Length=200m , width=4m - Access no 6 Length=48m , width=4m - Culvert 7 Points - Public toilet in village office with two rooms

Complementary Consultation through the Village Environmental Improvement Component of the subproject					
27 March 2016	Village consultation at Somsavang village Time: 8.30.-11.00 	▪ PIU ▪ Village ▪ PIA ▪	▪ PIU; ▪ Village authority; ▪ Villagers; ▪ PIA.	54 participants (13 female) IA/PIA [4(1)]	Results/Findings from consultation and discussion on required improvements - Village office equipment's site 14.5x8.5ตร.ม - Drainage from village to paddy field Length=420m , width=2m - Access rehabilitation no 1 Length=63m , width=3,5m - Access rehabilitation no 2 Length=337m , width=3,5m - Access rehabilitation no 3 Length=1,173m , width=3,5m - Culvert 2 places - Public toilet with two rooms in the village office
	Village consultation at Somsavang meeting hall Time: 19.30-21.45 			67 participants (13 female) IA/PIA [4(1)]	Results/Findings from consultation and discussion on required improvements: - Drainage No 1 - Access road + drainage - Access road + drainage No 1 - Access road + drainage No 2 - Public Toilet with 2 rooms at village meeting hall - Two rooms at cluster 3
			TOTAL PARTICIPANTS (FEMALE) [PLUS IA/PIA STAFF (FEMALE)]	**484 (195) [37(13)]**	

DISTRICT COORDINATION AND CONSULTATION MEETING:
PHA OUDOM; 13/6/2016; DISTRICT MEETING HALL;
TIME 08.30-11.40; PARTICIPANTS 21 (3 FEMALE)



ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ
ທຶນກູ້ຢືມຈາກທະນາຄານພັດທະນາອາຊີ ເລກທີ. 3041-Lao ແລະ ທຶນຊ່ວຍເຫຼືອຕ່າງປະເທດ ເລກທີ. 0363-Lao
ຫ້ອງການປະຊຸມສຳມະນາ, ຝຶກອົບຮົມ, ແລະ ປະຊຸມຕ່າງໆ.....
ວັນທີ....
ສະຖານທີ....

ລ/ດ.	ຊື່ແລະນາມສະກຸນ	ເພດ	ຕຳແໜ່ງ	ໜ້າທີ່ຮັບຜິດຊອບ	ກະລຸນາລົງນາມ	ເບີໂທ (ຖ້າມີ)	ເຫັນ
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ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ
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ວັນທີ....
ສະຖານທີ....

ລ/ດ.	ຊື່ແລະນາມສະກຸນ	ເພດ	ຕຳແໜ່ງ	ໜ້າທີ່ຮັບຜິດຊອບ	ກະລຸນາລົງນາມ	ເບີໂທ (ຖ້າມີ)	ເຫັນ
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PUBLIC VILLAGE CONSULTATION MEETING:
PHIANGKHAM; 13/6/2016; VILLAGE MEETING PLACE;
TIME 19.30-21.30; PARTICIPANTS 87 (9 FEMALE)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ ບໍ່ແກ້ວ

ເມືອງ [illegible]

ບ້ານ ພຽງຄຳ

ວັນທີ 13 6 2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
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14	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
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ນາຍບ້ານ

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ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ ບໍ່ແກ້ວ

ເມືອງ [illegible]

ບ້ານ ພຽງຄຳ

ວັນທີ 13 6 2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
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2	[illegible]	[illegible]	[illegible]	[illegible]	9709675	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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13	[illegible]	[illegible]	[illegible]	[illegible]	22583010	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	56145662	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
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19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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ນາຍບ້ານ ບ້ານ ພຽງຄຳ

PUBLIC VILLAGE CONSULTATION MEETING:
PHIANGKHAM; 13/6/2016; VILLAGE MEETING PLACE;
TIME 19.30-21.30; PARTICIPANTS 87 (9 FEMALE)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....

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ວັນທີ 13 / 6 / 2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນບ້ານ	ຕຳແໜ່ງ	ຈຸ້ນຜົ້ວ	ເບີໂທລະສັບ	ລາຍເຊັນ
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ນາຍບ້ານ

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....

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ວັນທີ 13 / 6 / 2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນບ້ານ	ຕຳແໜ່ງ	ຈຸ້ນຜົ້ວ	ເບີໂທລະສັບ	ລາຍເຊັນ
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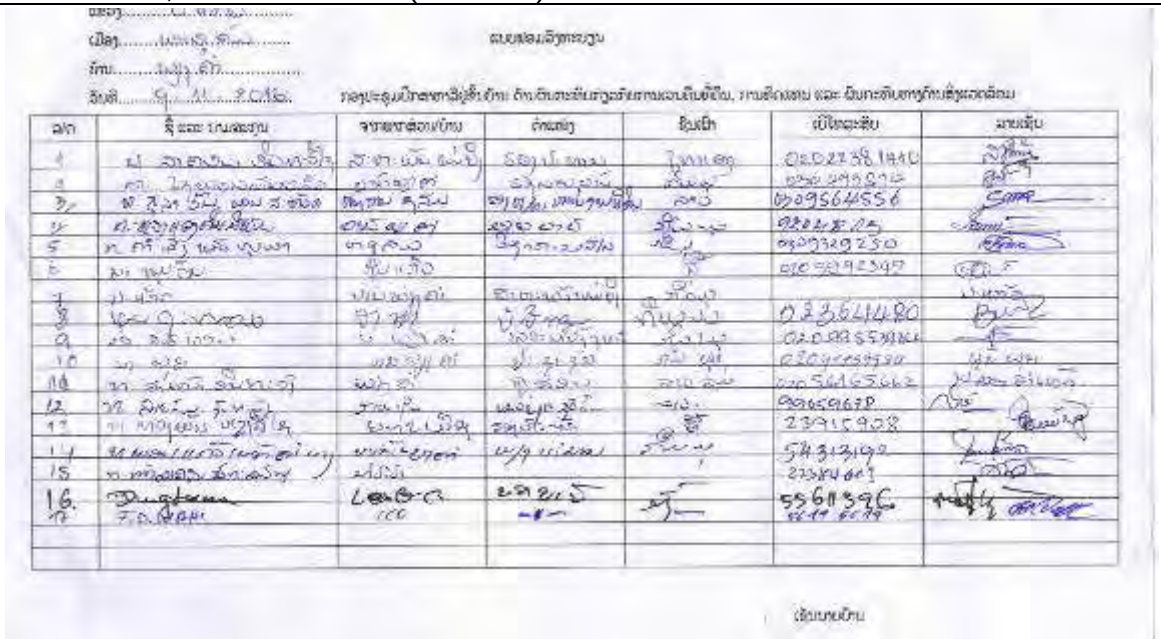
ນາຍບ້ານ

PUBLIC VILLAGE CONSULTATION MEETING:
PHIANGKHAM; 13/6/2016; VILLAGE MEETING PLACE;
TIME 19.30-21.30; PARTICIPANTS 87 (9 FEMALE)

PUBLIC VILLAGE CONSULTATION MEETING:
PHIANGKHAM; 09/11/2016; VILLAGE MEETING PLACE;
TIME 14.40-16.15; PARTICIPANTS 17 (3 FEMALE)



PUBLIC VILLAGE CONSULTATION MEETING:
THINKEO VILLAGE; 14/6/2016; VILLAGE MEETING PLACE;
TIME 08.30-11.30; PARTICIPANTS 76 (FEMALE 21)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບພ້ອມບັນທຶກ

ແຂວງ.....
ເມືອງ.....
ບ້ານ.....
ວັນທີ.....

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
17						
18						
19						
20						
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28						
29						
30						

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບພ້ອມບັນທຶກ

ແຂວງ.....
ເມືອງ.....
ບ້ານ.....
ວັນທີ.....

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
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PUBLIC VILLAGE CONSULTATION MEETING:
THINKEO VILLAGE; 14/6/2016; VILLAGE MEETING PLACE;
TIME 08.30-11.30; PARTICIPANTS 76 (FEMALE 21)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....ບໍ່ແກ້ວ.....

ເມືອງ.....ຫ້ວຍຊາຍ.....

ບ້ານ.....ຫ້ວຍ ແກ້ວ.....

ວັນທີ.....14.6.2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	...	...	...	...		
2	...	...	...	...		
3	...	...	...	...		
4	...	...	...	...		
5	...	...	...	...		
6	...	...	...	...		
7	...	...	...	...		
8	...	...	...	...		
9	...	...	...	...		
10	...	...	...	...		
11	...	...	...	...		
12	...	...	...	...		
13	...	...	...	...		
14	...	...	...	...		
15	...	...	...	...		
16	...	...	...	...		
17	...	...	...	...		
18	...	...	...	...		

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....ບໍ່ແກ້ວ.....

ເມືອງ.....ຫ້ວຍຊາຍ.....

ບ້ານ.....ຫ້ວຍ ແກ້ວ.....

ວັນທີ.....14.6.2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	...	...	...	...		
2	...	...	...	...		
3	...	...	...	...		
4	...	...	...	...		
5	...	...	...	...		
6	...	...	...	...		
7	...	...	...	...		
8	...	...	...	...		
9	...	...	...	...		
10	...	...	...	...		
11	...	...	...	...		
12	...	...	...	...		
13	...	...	...	...		
14	...	...	...	...		
15	...	...	...	...		
16	...	...	...	...		

PUBLIC VILLAGE CONSULTATION MEETING:
THINKEO VILLAGE; 14/6/2016; VILLAGE MEETING PLACE;
TIME 08.30-11.30; PARTICIPANTS 76 (FEMALE 21)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....ບໍ່ແກ້ວ.....

ເມືອງ.....ຫ້ວຍຊາຍ.....

ບ້ານ.....ຫ້ວຍ ແກ້ວ.....

ວັນທີ.....14.6.2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	...	...	...	...		
2	...	...	...	...		
3	...	...	...	...		
4	...	...	...	...		
5	...	...	...	...		
6	...	...	...	...		
7	...	...	...	...		
8	...	...	...	...		
9	...	...	...	...		
10	...	...	...	...		
11	...	...	...	...		
12	...	...	...	...		
13	...	...	...	...		
14	...	...	...	...		
15	...	...	...	...		
16	...	...	...	...		
17	...	...	...	...		
18	...	...	...	...		

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....ບໍ່ແກ້ວ.....

ເມືອງ.....ຫ້ວຍຊາຍ.....

ບ້ານ.....ຫ້ວຍ ແກ້ວ.....

ວັນທີ.....14.6.2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	...	...	...	...		
2	...	...	...	...		
3	...	...	...	...		
4	...	...	...	...		
5	...	...	...	...		
6	...	...	...	...		
7	...	...	...	...		
8	...	...	...	...		
9	...	...	...	...		
10	...	...	...	...		
11	...	...	...	...		
12	...	...	...	...		
13	...	...	...	...		
14	...	...	...	...		
15	...	...	...	...		
16	...	...	...	...		

PUBLIC VILLAGE CONSULTATION MEETING:
THINKEO VILLAGE; 14/6/2016; VILLAGE MEETING PLACE;
TIME 08.45-11.25; PARTICIPANTS 36 (FEMALE 10)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະອະນາໄມ (WSSP)

ແຂວງ.........................
ເມືອງ [illegible]
ບ້ານ [illegible]
ວັນທີ [illegible]

ແບບຟອມລົງທະບຽນ

ກອງປະຊຸມປຶກສາຫາລືຂັ້ນບ້ານ ດ້ານຜົນກະທົບກ່ຽວກັບການເວນຄືນທີ່ດິນ, ການຍົກຍ້າຍ ແລະ ຜົນກະທົບທາງດ້ານສິ່ງແວດລ້ອມ

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
12	[illegible]	[illegible]		[illegible]		[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
16	[illegible]	[illegible]		[illegible]	22384669	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	54203020	[illegible]

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະອະນາໄມ (WSSP)

ແຂວງ.........................
ເມືອງ [illegible]
ບ້ານ [illegible]
ວັນທີ [illegible]

ແບບຟອມລົງທະບຽນ

ກອງປະຊຸມປຶກສາຫາລືຂັ້ນບ້ານ ດ້ານຜົນກະທົບກ່ຽວກັບການເວນຄືນທີ່ດິນ, ການຍົກຍ້າຍ ແລະ ຜົນກະທົບທາງດ້ານສິ່ງແວດລ້ອມ

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	[illegible]	[illegible]	[illegible]	[illegible]	99445236	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
4	[illegible]					
5	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
6	[illegible]	[illegible]				
7	[illegible]	[illegible]		[illegible]		
8	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]		
12	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]		
14	[illegible]	[illegible]	[illegible]	[illegible]		
15	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
17	[illegible]					
18	[illegible]	[illegible]				
19	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

PUBLIC VILLAGE CONSULTATION MEETING:
DONESAVANH VILLAGE; 14/6/2016; VILLAGE MEETING HALL;
TIME 13.30-16.30, PARTICIPANTS 36 (10 FEMALE)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....ບໍ່ແກ້ວ.....

ເມືອງ.....[illegible].....

ບ້ານ.....ດອນສະຫວັນ.....

ວັນທີ...14...6.....2016...

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	[illegible]	[illegible]	[illegible]	[illegible]	030 5912930	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
~~7~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	[illegible]		
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	030 99623421	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	020 56209502	[illegible]
11	[illegible]	[illegible]		[illegible]		[illegible]

ນາຍບ້ານ

ຈັນສີ ສຸລິດາວ

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....ບໍ່ແກ້ວ.....

ເມືອງ.....[illegible].....

ບ້ານ.....ດອນສະຫວັນ.....

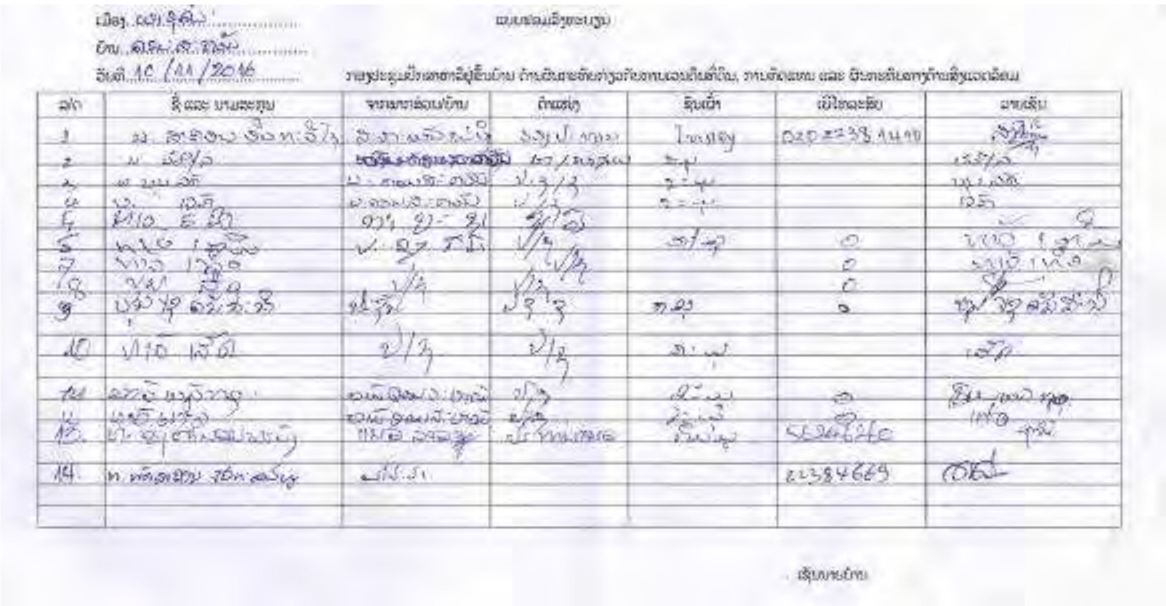
ວັນທີ 14...6...2016....

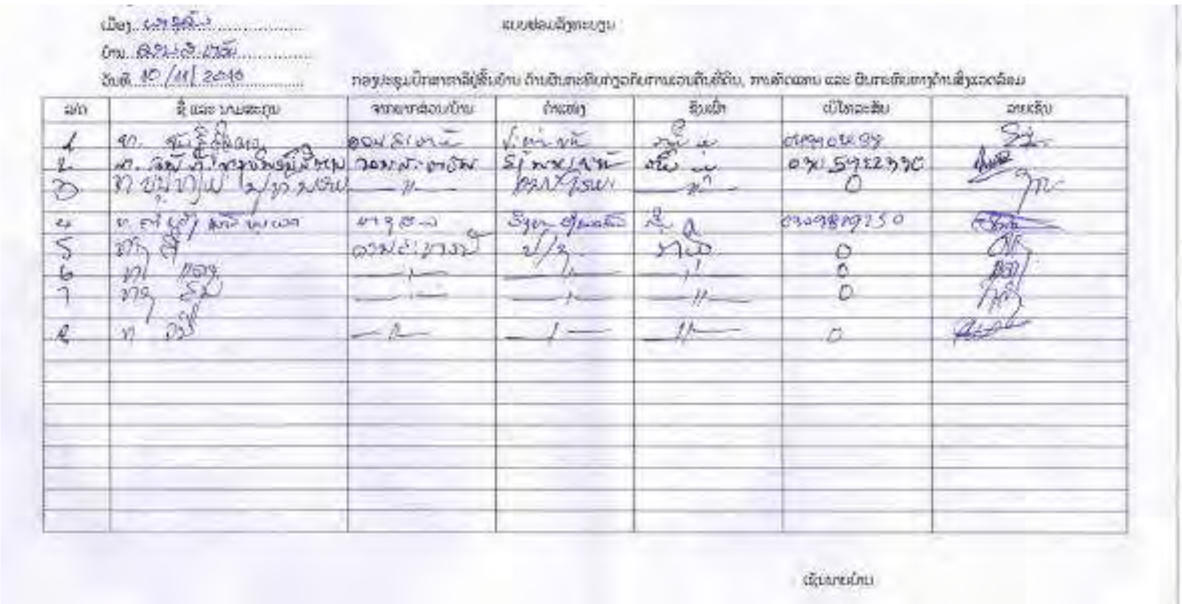
ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນ/ບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
1	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
11	[illegible]	[illegible]		[illegible]		[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
13	[illegible]	[illegible]		[illegible]		[illegible]
14	[illegible]			[illegible]		[illegible]
15	[illegible]			[illegible]		
16	[illegible]			[illegible]		
17	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

ນາຍບ້ານ

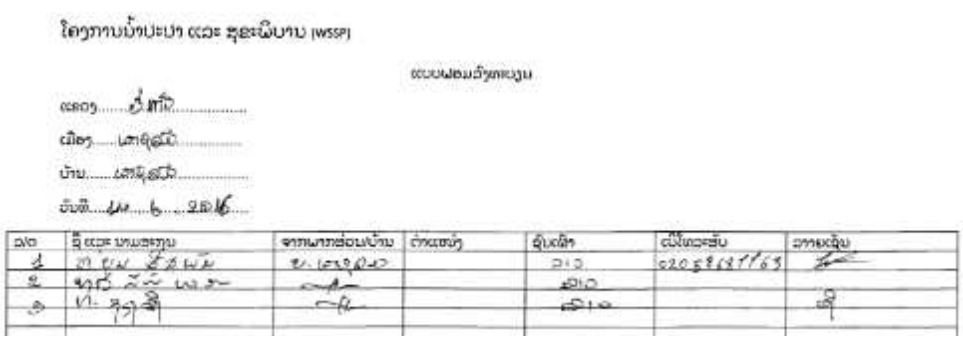
ຈັນສີ ສຸລິດາວ

PUBLIC VILLAGE CONSULTATION MEETING:
DONESAVANH VILLAGE; 10/11/2016; VILLAGE MEETING HALL;
TIME 13.50-15.55, PARTICIPANTS 22 (2 FEMALE)

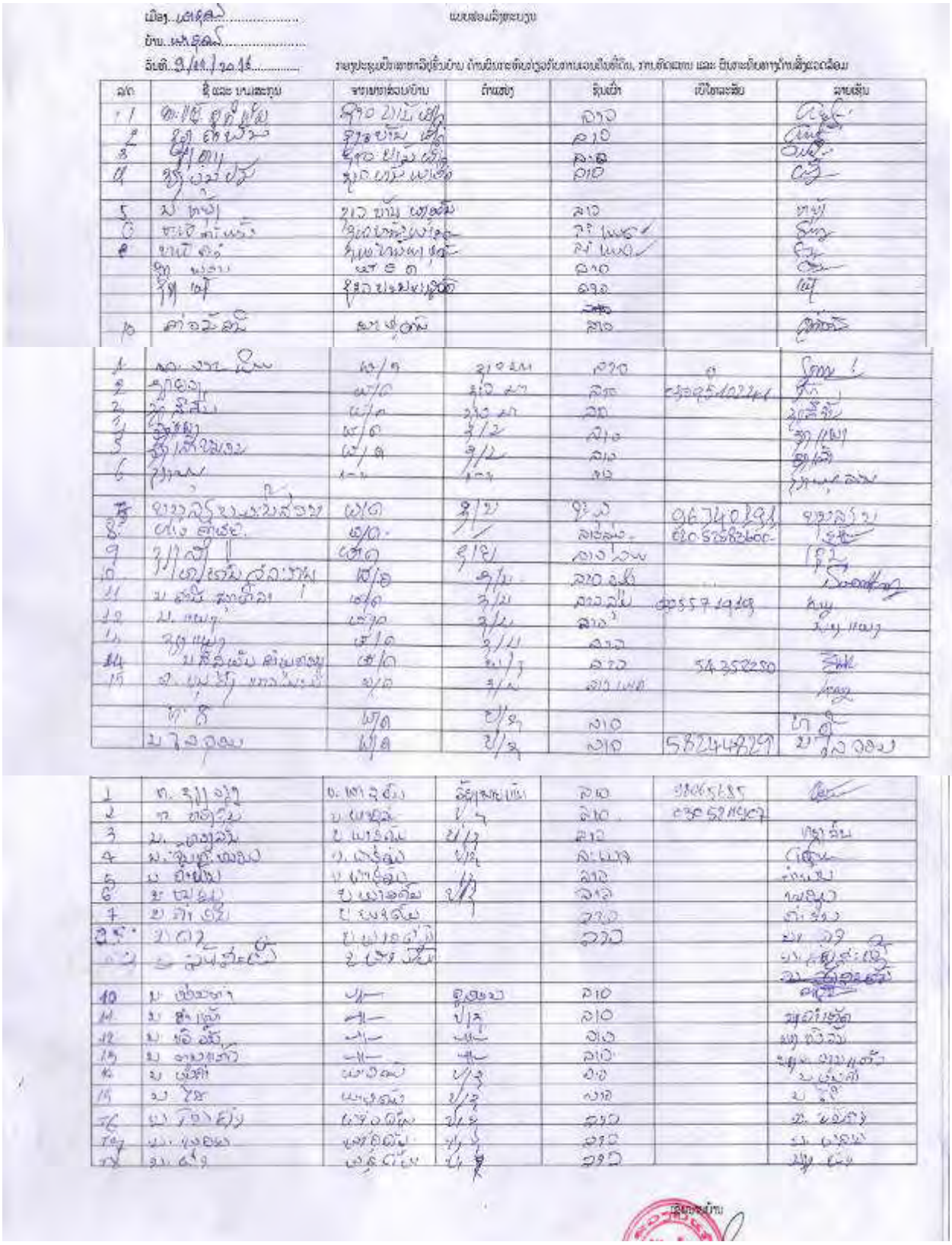




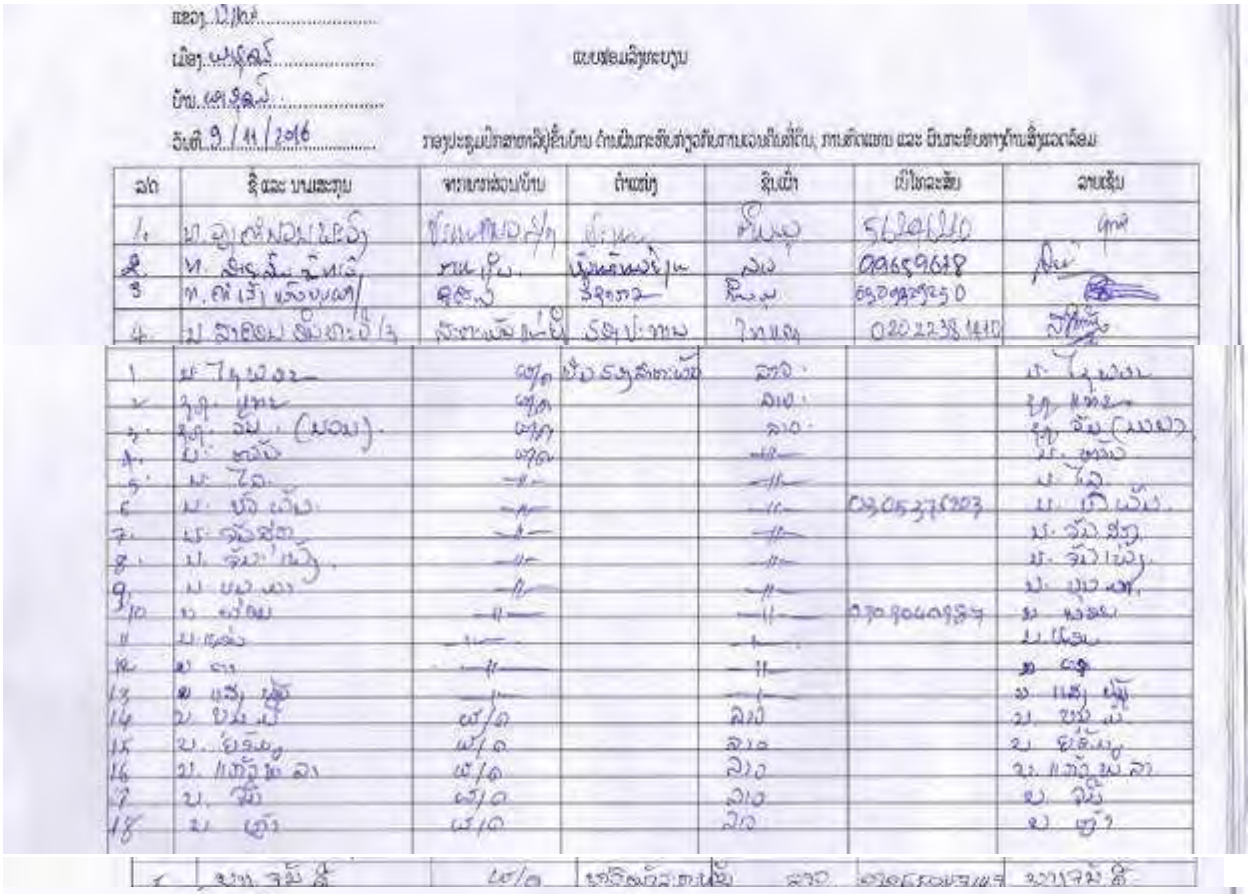
PUBLIC VILLAGE CONSULTATION MEETING:
PHA OUDOM VILLAGE; 14/6/2016; VILLAGE MEETING HALL;
TIME 19.30-21.30, PARTICIPANTS 38 (14 FEMALE)

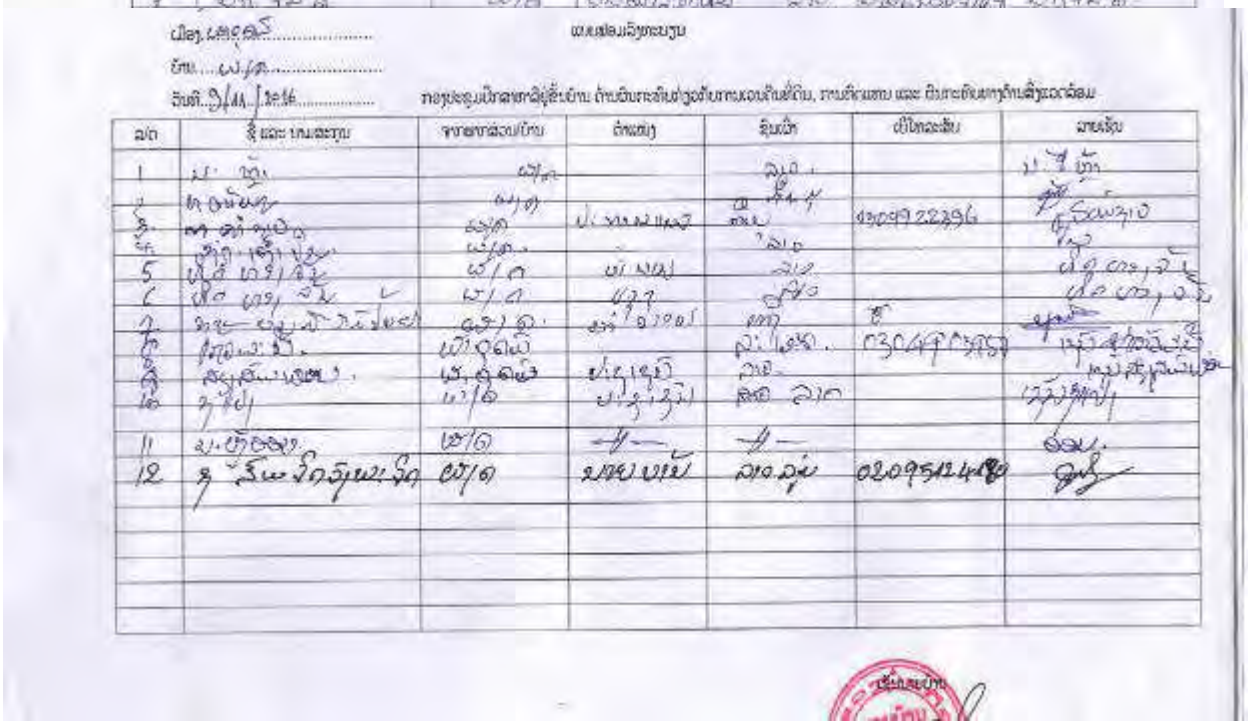


PUBLIC VILLAGE CONSULTATION MEETING:
PHA OUDOM VILLAGE; 09/11/2016; VILLAGE MEETING HALL
TIME: 8.45-11.20, PARTICIPANTS 80 (40 FEMALE)



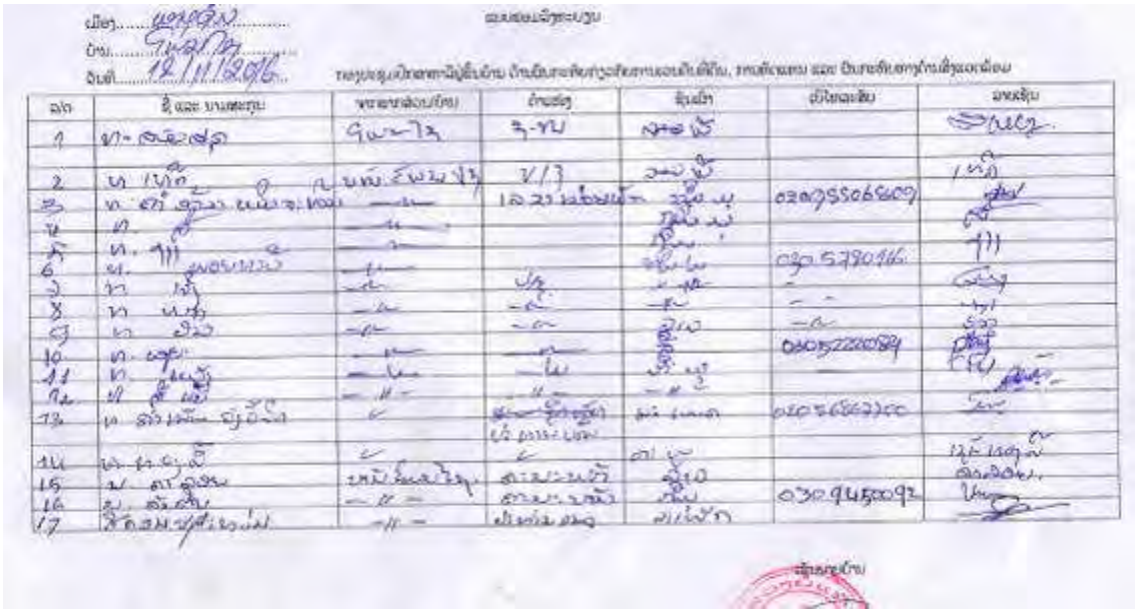
PUBLIC VILLAGE CONSULTATION MEETING:
PHA OUDOM VILLAGE; 09/11/2016; VILLAGE MEETING HALL
TIME: 8.45-11.20, PARTICIPANTS 80 (40 FEMALE)





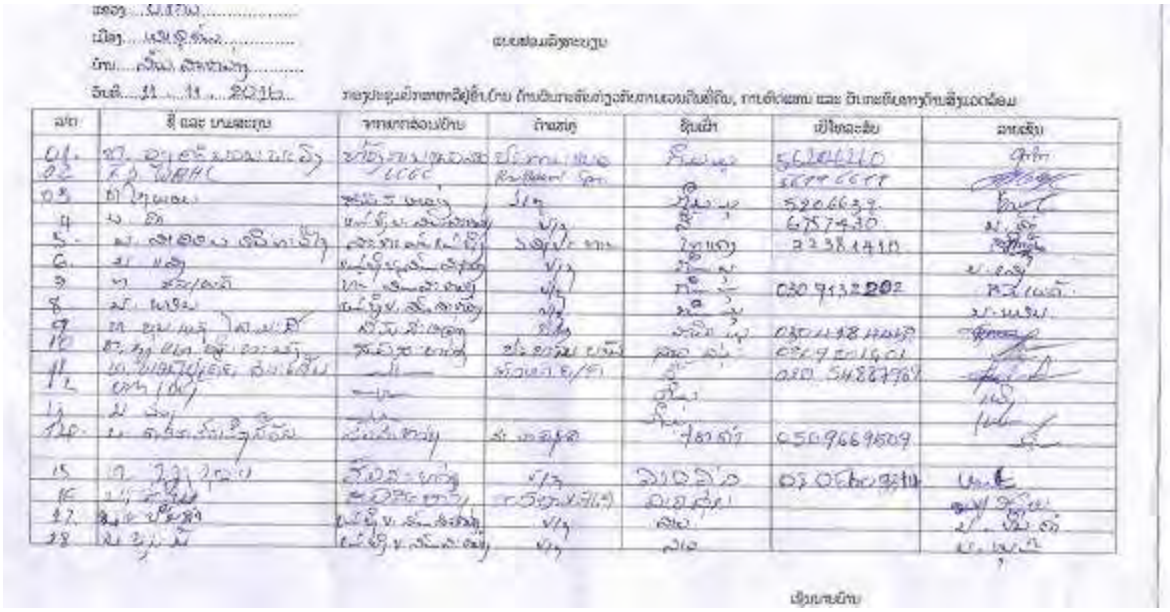
PUBLIC VILLAGE CONSULTATION MEETING:
PHONSAY VILLAGE; 15/6/2016; VILLAGE MEETING HALL;
TIME 07.00-10.00, PARTICIPANTS 43 (20 FEMALE)

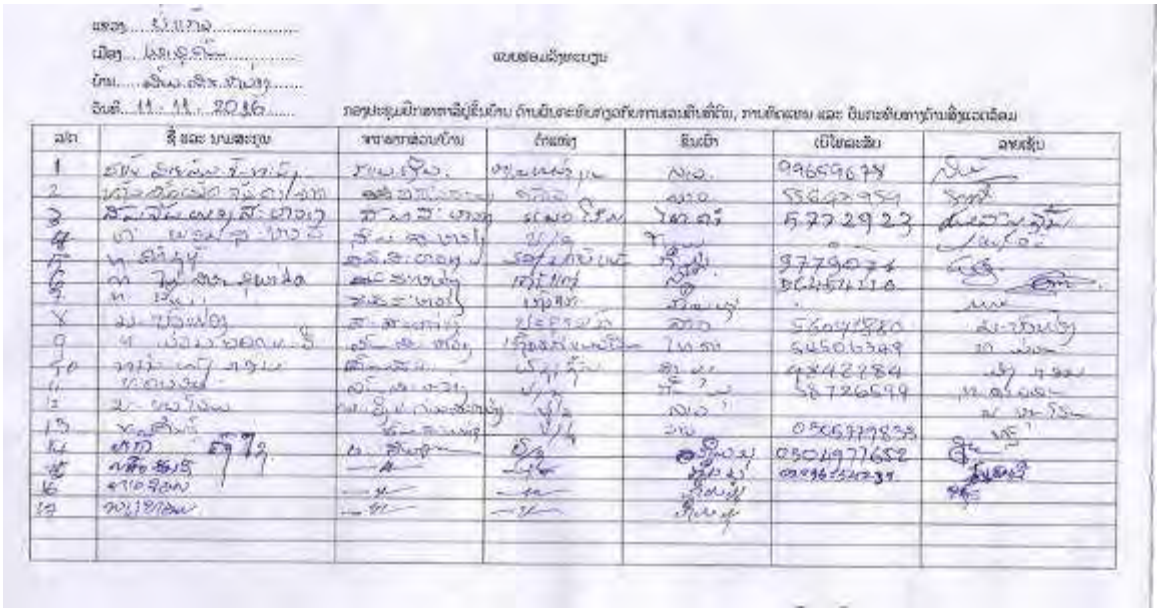
PUBLIC VILLAGE CONSULTATION MEETING:
PHONSAY VILLAGE; 12/11/2016; VILLAGE MEETING HALL;
TIME 19.45-21.35, PARTICIPANTS 33 (15 FEMALE)



PUBLIC VILLAGE CONSULTATION MEETING:
SOMSASAVANG VILLAGE; 15/6/2016; VILLAGE MEETING HALL;
TIME 19.30-21.00, PARTICIPANTS 50 (17 FEMALE)

PUBLIC VILLAGE CONSULTATION MEETING:
SOMSASAVANG VILLAGE; 11/11/2016; VILLAGE MEETING HALL;
TIME 13.47-15.58, PARTICIPANTS 35 (10 FEMALE)





PUBLIC VILLAGE CONSULTATION MEETING:
SAYOUDOM VILLAGE; 16/6/2016; VILLAGE MEETING HALL;
TIME 08.50-11.30, PARTICIPANTS 23 (7 FEMALE)

ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)

ແບບຟອມລົງທະບຽນ

ແຂວງ.....
ເມືອງ.....
ບ້ານ.....
ວັນທີ 16 ... 6 ... 2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
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ນາຍບ້ານ

ແບບຟອມລົງທະບຽນ

ແຂວງ.....
ເມືອງ.....
ບ້ານ.....
ວັນທີ 16 ... 6 ... 2016

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ຈາກພາກສ່ວນບ້ານ	ຕຳແໜ່ງ	ຊົນເຜົ່າ	ເບີໂທລະສັບ	ລາຍເຊັນ
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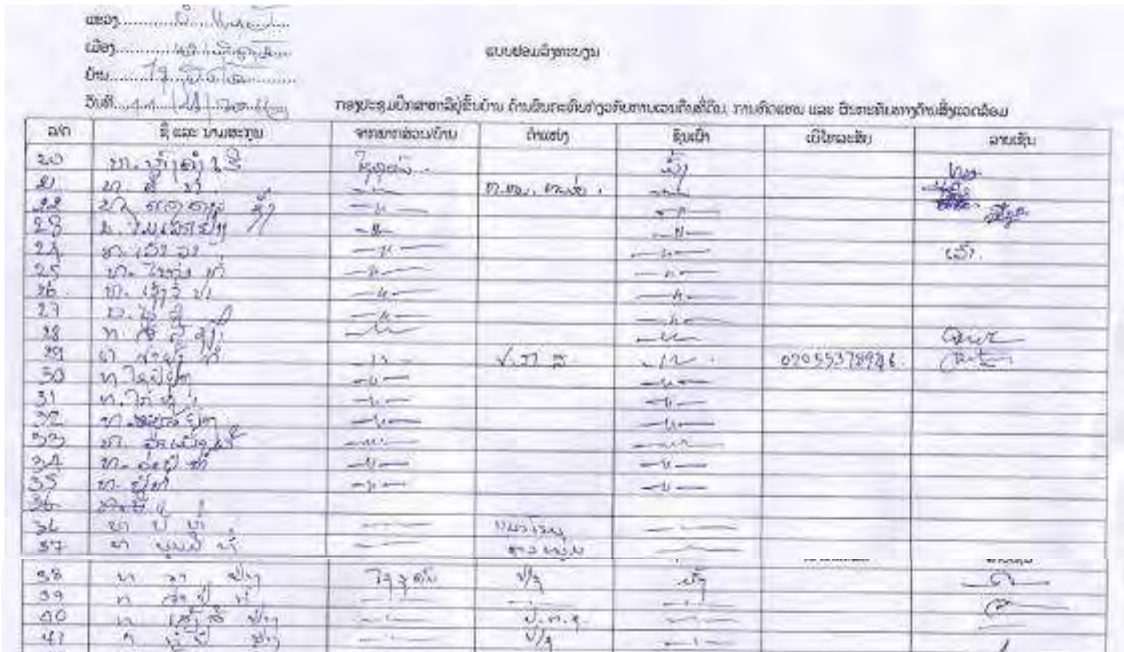
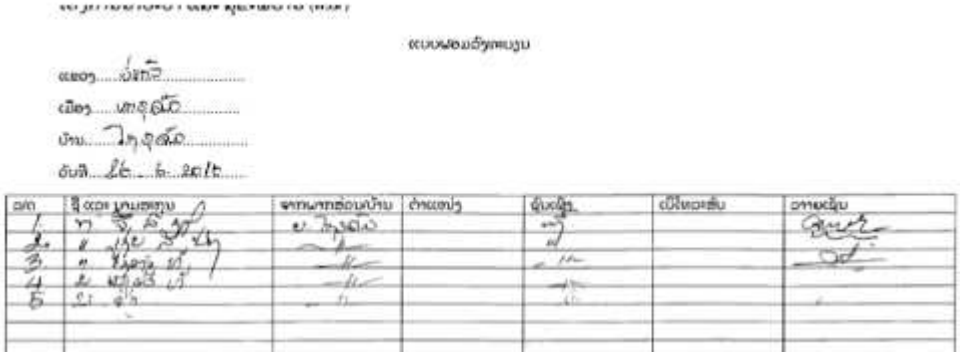
ນາຍບ້ານ

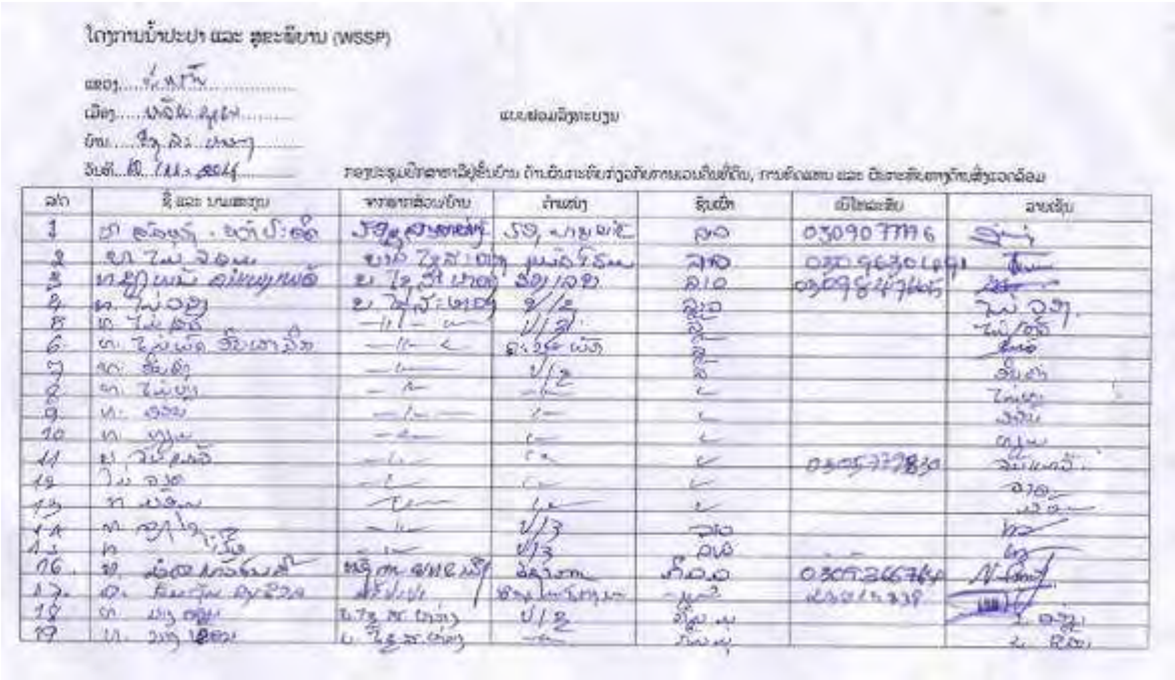
PUBLIC VILLAGE CONSULTATION MEETING:
SAYOUDOM VILLAGE; 11/11/2016; VILLAGE MEETING HALL;
TIME 19.35-21.25, PARTICIPANTS 54 (5 FEMALE)



PUBLIC VILLAGE CONSULTATION MEETING:
SAYSAVANG VILLAGE; 16/6/2016; VILLAGE MEETING HALL;
TIME 19.30-21.03, PARTICIPANTS 41 (17 FEMALE)



PUBLIC VILLAGE CONSULTATION MEETING:
SAYSAVANG VILLAGE; 10/11/2016; VILLAGE MEETING HALL;
TIME 08.38-11.15, PARTICIPANTS 38 (4 FEMALE)



ໂຄງການ: **ໂຄງການນ້ຳປະປາ ແລະ ສຸຂະພິບານ (WSSP)**

ໄລຍະທີ: **1**

ໂຄງການຍ່ອຍຕົວເມືອງ: ຜາອຸດົມ:

ເລື່ອງ: **ການເວນຄືນທີ່ດິນ ແລະ ການຫົດແທນ.**

ບົດຍັ້ນຫົວກອງປະຊຸມ /ການສຳຫຼວດ

ກ່ຽວຂ້ອງເຖິງຄົວເຮືອນທີ່ຖືກກະທົບຈາກການກໍ່ສ້າງເສັ້ນທາງຫາ ໂຮງງານ (WTP) ແລະ ອ່າງເກັບນ້ຳ (reservoir) ໂດຍການສະເໜີຂອງ PIU, PNN ແລະ PIA:

I. ກອງປະຊຸມ ວັນທີ 9 ພະຈິກ 2016;

II. ການເຂົ້າຮ່ວມສຳຫຼວດຄັ້ງຫລ້າສຸດກ່ຽວກັບການດຳເນີນການສຳຫຼວດວັດແທກລະອຽດລະອຽດໄປຕາມເສັ້ນທາງສອງເສັ້ນທີ່ຈະກໍ່ສ້າງໄປຫາ ໂຮງງານ ແລະ ອ່າງເກັບນ້ຳ;

III. ເພີ່ມເຕີມການສຳຫຼວດ ເຂດຖກົດສັງຄົມຂອງບາງຄົວເຮືອນທີ່ຖືກກະທົບໃນວັນທີ 12 ພະຈິກ 2016.

ສະເໜີ ແລະ ອະທິບາຍ ນະໂຍບາຍຫລັກທີ່ສຳຄັນໂດຍ ນ້ຳປະປາແຂວງ (PNP) ແລະ ທີ່ປຶກສາໂຄງການ. PIA

- ໃນຊ່ວງທຳອິດຂອງການປຶກສາຫາລື ກັບຄົວເຮືອທີ່ຖືກກະທົບ (AHs) ເດືອນ ກໍລະກົດ 2016, ແລະ ກ່ຽວຂ້ອງເຖິງການສຳຫຼວດຄົວເຮືອນທີ່ຖືກກະທົບ ຊຶ່ງໄດ້ຕົກລົງໃຈເຫັນດີປະກອບສ່ວນທີ່ດິນທີ່ຖືກກະທົບ ແລະ ຕົ້ນໄມ້ທີ່ຖືກກະທົບ ໃຫ້ແກ່ໂຄງການ ;
- ຄົວເຮືອນ ທີ່ຖືກກະທົບ AHs, ໄດ້ຢືນຢັນການປະກອບສ່ວນ ໂດຍລົງລາຍເຊັນຢູ່ໃນໃບປະກອບສ່ວນ ເດືອນ ສິງຫາ 2016.
- ກ່ຽວຂ້ອງເຖິງການມາຕິດຕາມກວດກາການຈັດຕັ້ງປະຕິບັດໂຄງການຂອງທະນາຄານພັດທະນາອາຊີ ADB ໃນເດືອນ ກັນຍາ 2016 ຊຶ່ງໄດ້ກ່າວ ເຖິງການມາຢ້ຽມຢາມ ໂຄງການຢູ່ ເມືອງຜາອຸດົມ ແລະ ໄດ້ມີຄຳເຫັນວ່າ ການປະກອບສ່ວນໂດຍສະມັກໃຈ ແມ່ນມີໄດ້ສະເພາະແຕ່ດິນປຸກສ້າງເທົ່ານັ້ນ ສ່ວນດິນທຳການຜະລິດແມ່ນຕ້ອງໄດ້ຫົດແທນ ກວມລວມເຖິງ ຕົ້ນໄມ້ ແລະ ຊັບສິນອື່ນໆ ທີ່ຖືກກະທົບ ຕ້ອງໄດ້ຫົດແທນດ້ວຍເງິນສົດ ໃຫ້ຄົວເຮືອນທີ່ຖືກກະທົບ.
- ສະນັ້ນ ພວກເຮົາຈຶ່ງໄດ້ດຳເນີນກອງປະຊຸມພິເສດ ເພື່ອອະທິບາຍຄືນເຖິງບັນຫາດັ່ງກ່າວ ໃຫ້ຜູ້ໄດ້ຮັບຜົນກະທົບມີຄວາມເຂົ້າໃຈຢ່າງກະຈ່າງແຈ້ງ.
- ຜົນຂອງກອງປະຊຸມພິເສດ ທີ່ໄດ້ສົນທະນາ ແລະ ປຶກສາຫາລື ເຖິງ ປະເພດຂອງການຫົດແທນ ກ່ຽວກັບການປະກອບສ່ວນໂດຍສະມັກໃຈນັ້ນໄດ້ຖືກຍົກເລີກ ແລະ ໄດ້ມີການຕົກລົງໃໝ່ ຕໍ່ກັບການຫົດແທນນັ້ນເປັນ ເງິນສົດ ສຳຫລັບຊັບສິນທາງການຜະລິດທີ່ຖືກກະທົບ
- ນ້ຳປະປາແຂວງໄດ້ມີຄວາມເຕັມໃຈໃຫ້ຂໍ້ມູນ ກ່ຽວກັບການຫົດແທນເປັນເງິນສົດເປັນພິເສດ ຕໍ່ກັບບັນຫາດັ່ງກ່າວ ເພື່ອສົມທົບກັບ ກ່ຽວກັບການຫົດແທນຂອງໂຄງການ ໂດຍປະຕິບັດຕາມຄວາມເຫັນຂອງ ADB ທີ່ໄດ້ມີຄຳເຫັນຕໍ່ກັບການຫົດແທນດັ່ງກ່າວ.
- ຫົວໜ່ວຍລາຄາຂອງປະເພດຊັບສິນຕ່າງໆ ຕໍ່ກັບການຄິດໄລ່ມູນຄ່າຫົດແທນ ທີ່ທາງເມືອງໄດ້ກຳນົດໃນປີ 2016 ຈະໄດ້ຖືກນຳໃຊ້ ເພື່ອຄິດໄລ່ມູນຄ່າຫົດແທນຂອງສິ່ງປຸກສ້າງທີ່ຖືກກະທົບຄື: (i) ຫົວໜ່ວຍລາຄາທີ່ທາງເມືອງໄດ້ກຳນົດອອກ ປີ 2016ນີ້ ໄດ້ຖືກນຳໃຊ້ ສຳຫລັບໂຄງການອື່ນໆທີ່ຢູ່ໃນຕົວເມືອງຜາອຸດົມນີ້ຄືກັນ, (ii)ຫົວໜ່ວຍລາຄານີ້ແມ່ນເປັນຕົວແທນໃຫ້ແກ່ຫົວໜ່ວຍລາຄາ ຕະຫລາດຂອງເມືອງຜາອຸດົມ.

ຂໍ້ສະເໜີຂອງຜູ້ທີ່ຖືກກະທົບສ່ວນຫລາຍ.

- ໄດ້ມີກອງປະຊຸມພິເສດເພີ່ມເຕີມເພື່ອໃຫ້ຄວາມກະຈ່າງແຈ້ງຕໍ່ກັບຜູ້ທີ່ໄດ້ຮັບຜົນກະທົບ.
- ຜູ້ທີ່ໄດ້ຮັບຜົນກະທົບມີຄວາມປະຫລາດໃຈວ່າເປັນຫຍັງ ADB ຈຶ່ງບໍ່ຍອມຮັບການສະມັກໃຈປະກອບສ່ວນຂອງເຂົາເຈົ້າ ນັ້ນກໍເພາະວ່າ ກົດລະບຽບ ແລະ ນະໂຍບາຍຂອງ ADB ຕໍ່ກັບການເວນຄືນທີ່ດິນ ແລະ ການຫົດແທນນັ້ນ ໄດ້ມີການກຳນົດແຕກຕ່າງກັນລະຫວ່າງ ດິນປຸກສ້າງ ແລະ ດິນທຳການຜະລິດທາງ ADB ຈຶ່ງບໍ່ຮັບເອົາການປະກອບສ່ວນໂດຍສະມັກໃຈ;
- ຄືດັ່ງທີ່ການຫົດແທນ ດິນທຳການຜະລິດ ແລະ ຕົ້ນໄມ້ທີ່ຖືກກະທົບຢູ່ສອງເສັ້ນທາງທີ່ໄປຫາໂຮງງານ ແລະ ອ່າງນ້ຳ ຈະຕ້ອງໄດ້ຫົດແທນເປັນເງິນສົດຢ່າງດຽວເທົ່ານັ້ນຊຶ່ງເປັນທາງເລືອກທີ່ຮັບໄດ້ຈາກ ADB.
- ຫລ້າສຸດຄວາມກະຈ່າງແຈ້ງ /ການຢືນຢັນກ່ຽວກັບຂະໜາດຂອງດິນ ແລະຈຳນວນປະເພດຕົ້ນໄມ້ທີ່ຖືກກະທົບຢູ່ສອງເສັ້ນທາງທີ່ໄປຫາ ໂຮງງານ ແລະ ອ່າງນ້ຳ ກໍສາມາດ ຄິດໄລ່ມູນຄ່າຫົດແທນໄດ້.

PROJECT: **WATER SUPPLY AND SANITATION SECTOR PROJECT (WSSP)**
ADB LOAN NO. 3041-LAO AND GRANT 0363-LAO

PHASE: **1**

SUBPROJECT: **PHAOUDOM**

SUBJECT: **LAND ACQUISITION AND COMPENSATION**

MINUTE OF MEETINGS / SURVEYS

Concerning the households affected by the access roads to both the water treatment plant (WTP) area and reservoir, and the reservoir area itself PIU, PNN and PIA have requested:

IV. A meeting on 09 November 2016;
V. A final joint site inspection on 10 November 2016 regarding detailed measurement surveys along the two road alignments and the reservoir area; and
VI. Complementary socio-economic surveys of some AHs on 12 November 2016.

PRESENTATION AND MAIN-EXPLANATIONS BY PNP AND PIA

- During the first consultation in July 2016 with you, the AHs, and the related surveys you (AHs) had decided to voluntarily donate your affected proportions of productive land and trees as your contribution to the subproject;
- You, the AHs, confirmed this in signing the voluntary contribution consent declaration in August 2016;
- Related to ADB's loan review mission to the Project in September 2016 including a site visit to the subproject Phaoudom and its collected feedback, ADB informed the Project, that donation concerning residential area had been defined in the Project's Resettlement Policy, but for productive land and related other assets in-cash compensation shall be provided to the AHs.
- We, therefore, have to make this specific consultation with you to provide complementary information in this matter aiming in providing you clarifications;
- As a consequence of the type of compensation discussion this would lead to a cancelation of your already agreed voluntary donation and to a new agreement for the in cash-compensation of your affected productive assets;
- PNP informed about its preference for cash-compensation in this specific matter in order to meet the Project compensation criteria to which ADB refers with its comments. The 2016 district compensation nit rates will be applied for this infrastructure as (i) they are applied for other projects too, an (ii) represent current market values.

MAJOR FEEDBACK FROM AHS

- Appreciation of this additional meeting to keep them informed;
- The AHs are surprised that their donations cannot be accepted by ADB, because of the Project's land acquisition and compensation regulations making a difference between residential and productive land;
- As compensation for their productive land and trees along the two access roads and the reservoir area is only in cash possible they would have to accept this option then;
- Final clarifications/confirmations about size of land and number/type of trees affected were achieved.

WSSP November 2016

ລ/ດ	ຊື່	ຜູ້ເຂົ້າຮ່ວມປະຊຸມ				ລົງລາຍເຊັນຂອງຜູ້ເຂົ້າຮ່ວມປະຊຸມ ແລະ ສໍາເນົາບັນທຶກຄວາມຈົງຈໍາ
		ປະຊຸມ 09 ພະຈິ. 2016	ສໍາຫຼວດວັດແທກ ລະອຽດ DMS 10 ພະຈິ. 2016	ສໍາຫຼວດ ເຄາະກໍ ສັງຄົມ 12 ພະຈິ. 2016	ປະຊຸມອື່ນທີ່ ເປັນສ່ວນ ບຸກຄົນ	
No	Name	Meeting 09 Nov. 2016	DMS 10 Nov. 2016	SESAH 12 Nov. 2016	Other indivi-dual meeting	Signatures for attendances and agreement in MoM
1	ທ.ໝື້ນ Mr. Man / ທ. ຜິວ. Phio	✓	✓	✓		
2	ທ. ຄໍາເຫ້ຼກ;Mr. Khamlek / ນ. ໃຫ Mrs. Yai	✓	✓	✓		
3	ທ. ພອນແກ້ວ Mr. Phonekeo / ນ. ແຮ Mrs. Hae	✓	✓	✓	✓	
4	ທ. ບຸນທະໜອມMr. Bounthanome / ນ. ອໍາໄພ Mrs. Amphay	✓	✓	✓		
5	ທ. ຄໍາສົ Mr. Khamsao / ນ. ທົມວັນ Mrs. Thomvanh	✓	✓	✓		
6	ທ. ບຸນຄໍາ Mr. Bounkham / ນ. ແສນ Mrs. Saen				✓	
7	ທ. ຜຸ Mr. Pui / ນ. ອອນ Mrs. One	✓	✓	✓		
8	ນ. ສິ Mrs. Sim	✓	✓	✓		
9	ທ່ານ ກາງ Mr. Kang / ນ. ຄໍາພະຜ Mrs. Khamphaeng M.				✓	

ลายเຊັ້ນ SIGNATURES:

ຊື່– ໜ້າທີ່ຕຳແໜ່ງ/ ທ່ານ ທັດສາຄອນ ຮອງອຳນວຍການບໍລິສັດນ້ຳປະປາ ແຂວງບໍ່ແກ້ວ

MR. THATSAKHONE / DEPUTY OF PNP BOKEO

ຊື່– ໜ້າທີ່ຕຳແໜ່ງ / ທ່ານ ສົມຈັນ PIU ເມືອງພາອຸ້ມ

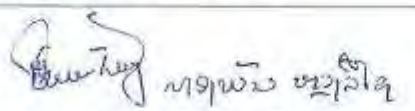
MR. SOMCHANH / PIU PHAOUDOM

ຊື່– ໜ້າທີ່ຕຳແໜ່ງ / ທ່ານ ທອງແດງ ນາຍບ້ານໆພຽງຄຳ

MR. THONDENG / CHIEF OF VILLAGE PHIANKHAM

ຊື່– ໜ້າທີ່ຕຳແໜ່ງ / ທ່ານສຸລາວັນ ພະນັກງານທີ່ດິນ

MR. SOULAVANH / LAND OFFICER



ຊື່– ໜ້າທີ່ຕຳແໜ່ງ / ທ່ານ ທອງພັນ ຮອງຫົວໜ້າ ຍທຂ

MR. THONGPHANH / DEPUTY OF PWT

ທ່ານ ຈີ່ຢາວຢ່າງ ຝຸງຢ່າງ - PIA, ຊ່ຽວຊານຍົກຍ້າຍສິ່ງກໍ່ສ້າງ /

MR. CHUYAO YAJ FOOMYAJ--PIA, RESETTLEMENT SPECIALIST/

ທ່ານ ຝັ່ຣ ຊ່ຽວຊານຍົກຍ້າຍສິ່ງກໍ່ສ້າງ

MR. FRANZ-DIETER WAHL --PIA, RESETTLEMENT SPECIALIST/

DATES : **26 – 27 FEBRUARY 2016**
LOCATION : **PHA OUDOM SUBPROJECT**
- DONRE, Bokeo
- District Governor Office, Pha Oudom
- Core villages

The PNP Bokeo provided the team with copies of the following documents:

- Governor's certification about the watershed protection and the proposed project as having priority in terms of river water use
- UXO survey and certification
- Environmental Clearance issued by Department of Natural Resources & Environment of Bokeo province.

The team discussed the proposed configuration of the sub-project and the modifications that will be made as a result of more detailed studies undertaken during the Detailed Design Phase.

During the meeting with the District Governor of Pha Oudom, he informed the team that the villages have already been informed about the proposed water supply project from ADB loan. He reiterates the concern about the land acquisition and resettlement impacts of the access road to the intake and other project components.

Village heads also confirmed that the villagers are already aware of the proposed project because of previous consultation meetings and also because of study team members who were gathering data from the community. They raised the following concerns:

- Project should make sure that excavation will be restored after pipe laying. They want to know which side of the road will be used for the pipe laying.
- They learned from previous meetings that if the household is more than 15m away from the distribution line, the household will pay the connection fee and those that are less than 15m away will be free. They hope that those houses that are located 15m away will also be given free connection.
- In general, all the villages consulted said that the project would result to more benefits than negative impacts. The only concern is during pipe laying.
- Current source of water in the villages are through household wells and from gravity system (spring). Households normally boil water for drinking and then use the well water for cooking. The gravity system is being used for washing and bathing.
- They are apprehensive that the project will not compensate those that will be affected such as what happened during a road construction project.
- With improved water supply, the people will use more water that will also create problems on wastewater and drainage. Wastewater needs to be managed to avoid creating sanitation problems in the community.
- The people in Ban Donsavahn are willing to provide labor for construction. The contractor can hire laborers for construction from the village.

MEETING WITH VILLAGE HEAD, BAN PHIENGKHAM (27 FEBRUARY 2016)

MEETING WITH VILLAGE HEAD, BAN THINKHEO (28 FEBRUARY 2016)

LAO PEOPLE DEMOCRATIC REPUBLIC

PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

*********00000000********

Public Consultation date 26/2/2016 -27 at .... District.................. Province..................

REGISTRATION

NO	Name and Surname ຊື່ ແລະນາມສະກຸນ	Position ຕຳແໜ່ງ	From Organization ມາຈາກພາກສ່ວນ	TEL/E-mail ເບີໂທລະສັບ/ອີເມວ	Signature ລາຍເຊັນ
1	Bounlai MINGBOUPPHA	Director	PNP Bokeo	02056432909, mbunlai@yahoo.com	[signature]
2	Chanthavong Sydanvongsa	PIU	PNP -"-	020 55233449	[signature]
3	Somchan Duangvilay	-"-	-"-	94203020	[signature]
4	Mr. Vasoudom PHAYAXAY	Head of the Environment Division of Bokeo	Natural resource and Environment Department of Bokeo	Tel. 020-22382007 E-mail. Vasoudom_54 @yahoo.com	[signature]
5	Thatsakhone CHANTHASOMBOUN.	Deputy Director	PNP	020 22384669 mail: Thatsakhone@gmail.com	[signature]
6	Mr. Chanthone Phonthala	District Head	Pha Oudom		
7	[illegible]	[illegible]	[illegible]	030 9204813	[signature]
8	[illegible]	[illegible]	[illegible]	020 91513743	[signature]
9	[illegible]	[illegible]	[illegible]	020 9512480	[signature]
10	[illegible]	[illegible]	[illegible]	030 4990488	[signature]

95124

DATES: **08 DEC 2016**
LOCATION: **PHA OUDOM DISTRICT SUBPROJECT**

- PIU, Pha Oudom
- Ban Phieng Kham

The head of village informed the team that there were already several consultations/meetings undertaken with the villagers and that the villagers all agree and interposes no objection to the implementation of the proposed sub-project.

They accept that there will be only temporary impacts during the construction and this does not concern them much.

The village head also said that the villagers perceive more benefits to the health and living conditions than negative impacts from the project.

The villagers are waiting for the water supply project for a long time already and that they request that the project be implemented soon.

MEETING WITH VILLAGE HEAD AT BAN PHIENG KHAM

ລາຍຊື່ຜູ້ເຂົ້າຮ່ວມ ປະຊຸມ ທີ່ເມືອງ ຜາອຸດົມ ແຂວງ ບໍ່ແກ້ວ ຊ່ວງວັນທີ່໖ ທັນວາ 2016

ລ.ດ	ຊື່ ແລະ ນາມສະກຸນ	ມາຈາກພາກສ່ວນ	ເບີໂທ ແລະ ອີແມວ
1	[illegible]	[illegible]	02092024913
2	[illegible]	[illegible]	22384669
3	[illegible]	PIU	55233449
4	[illegible]	[illegible]	55783009
5	[illegible]	[illegible]	0309368764
6	[illegible]	National Environmental Expert	22216588
7	FENA A. PASAUA JR.	IES	7056877161
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APPENDIX F
MINISTRY OF PUBLIC HEALTH DRINKING WATER QUALITY STANDARDS (2014)

PARAMETER	UNIT	PERMISSIBLE LIMITS	EXCEPTIONS	MONITORING FREQUENCY		
				WEEKLY	MONTHLY	YEARLY
MICROBIAL						
E. Coli	Units / 100 mL	<0	-		✓	
CHEMICAL						
Aluminium (Al)	mg/l	<0.2	There is no exception if aluminum-based coagulants are used		✓	
Arsenic (As)	mg/l	<0.01	There is no exception if source is groundwater			✓
Chloride Cl-	mg/l	<250				✓
Chlorine Cl2 (free residual)	mg/l	0.1 – 2	There is no exception if chlorine is used for disinfection	✓		
Copper (Cu)	mg/l	<2	Thee is no exception if copper pipe work is used			✓
Cyanide (Cn)	mg/l	<0.5	There is no exception if source is surface water and catchment includes gold mining / processing			✓
Fluoride (F)	mg/l	<1.5	There is no exception if source is groundwater or fluoride is added to water in the treatment process			✓
Iron (Fe)	mg/l	<0.3				✓
Lead (Pb)	mg/l	<0.01				✓
Manganese (Mn)	mg/l	<0.1				✓
Mercury (Hg)	mg/l	<0.006				✓
Nitrate (NO3-)	mg/l	<50		✓		
Nitrite (NO2-)	mg/l	<3		✓		
Sodium (Na)	mg/l	<200				✓
Sulfate ion (SO 2-) 4	mg/l	<250				✓
Zinc (Zn)	mg/l	<3				✓
PHYSICAL						
Colour	TCU	<5		✓		
Taste		Acceptable		✓		
pH		6.5-8.5		✓		
Conductivity	uS/cm	<1000				✓
Turbidity	NTU	<5		✓		
Total hardness as $CaCO_3$	mg/l	<300				✓

APPENDIX G
PROJECT ENVIRONMENTAL SAFEGUARDS MONITORING REPORT

1. INTRODUCTION AND PROJECT OVERVIEW

PROJECT NUMBER AND TITLE:	
REPORTING PERIOD:	This section can include, among others, the following: Activities of Proponent Progress of Work (% physical completion) Changes of Surrounding Environment Status of Permits
MONITORING PERIOD COVERED	
KEY SUB-PROJECT ACTIVITIES IMPLEMENTED SINCE LAST REPORT:	
REPORT PREPARED BY:	

2. ENVIRONMENTAL PERFORMANCE MONITORING

A. STATUS OF COMPLIANCE WITH EMMP REQUIREMENTS (ENVIRONMENTAL PERFORMANCE)

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE STATUS
PRE-CONSTRUCTION PHASE			
Impact on land acquisition and community assets Loss of community assets due to land acquisition and damage to properties	Implement the updated land acquisition and compensation plan that was approved by the ADB for the subproject. Design access roads to minimum necessary width and installation of pipelines within the Right-of-Way.	External LACP monitoring report	
Impact of location of raw water intake on other water users Downstream river uses such as irrigation, bathing, washing, and fishing will be affected if excessive water abstraction will occur.	The abstraction rate for the water supply subproject will be limited to the 2,200 m^3/day capacity of the WTP. There is minimal conflict with other water users of Nam Haad River because there is still enough water in the river that will meet the irrigation demand and other river uses at the downstream. Sufficient environmental flow is assured after the water supply intake and irrigation weir in the Nam Haad. The Governor of Bokeo has issued a certification for the subproject confirming that drinking water will be assigned highest priority in terms of competing water uses.	River level assessment at the intake on a monthly basis	
Damage to natural resources and protected areas Impact on natural resources and protected areas from cutting/clearing of trees and other vegetation	Cutting of trees will be undertaken as per approved design and only upon approval of relevant authorities. Avoid cutting of trees as much as possible and minimize damage to native vegetation. Trees that need to be cut in private land will be compensated in cash accordance with the approved Land Acquisition and Compensation Plan.	N/A	
Unexploded ordnance	The Contractor will ensure that the workforce are briefed that unlikely to be UXO as cleared but to keep watch and	UXO Clearance	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE STATUS
Risk of injury to project workers	report any suspect items found.		
CONSTRUCTION PHASE			
Temporary disruption of existing community roads, pathways, and accesses Pipe laying will cause temporary disruption of community services and access to properties. Particularly at pipe road crossings, construction activities along narrow roads may lead to temporary blockage or closure of roads and hamper movement of vehicles and people in the community. Community access to areas in the vicinity of the WTP, pump station, reservoir, and intake will be affected. Community access to areas in the vicinity of schools, temples, village offices, market places and meeting halls will be affected during construction of public latrines.	Walking access will be maintained to affected properties and access routes will be temporarily lined with timber or similar material. Particular attention will be given to ensuring safety along roads and paths used by school children. Side street parking of construction vehicles on prolonged basis will not be allowed. Install barriers and safety warning signs on road sections and if necessary deploy traffic aides/ flag persons at affected locations. Information boards at blocked roads will provide information about the temporary closure of roads, schedule of works and the traffic-rerouting plan. Require the contractor to immediately rehabilitate the excavated areas and any damaged road and path sections. Enclose the WTP, pump station, reservoir, and intake perimeters so that pathway use and stream access remains unimpeded. Enclose the latrine construction site to prevent access and limit disruption for the use of the schools and public buildings.	Contract documents to include the EMMP with health and safety provision monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	
Air pollution Dust and air emissions from earthworks and movement of vehicles can pose nuisance to nearby communities	Require the contractor to cover materials with tarpaulin or other suitable materials while in transit to avoid spillage of materials. Moisten earthen roads during dry and dusty conditions, particularly roads near residences and through the town core area. Impose speed limits on construction vehicles. Conduct regular maintenance of construction equipment and vehicles to control air emissions during vehicle operation.	Contract documents to include the EMMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community to PIU.	
Noise Operation of construction equipment such as jackhammer will cause excessive noise resulting in nuisance to communities.	Limit construction activities, particularly operation of noise generating equipment at night. Position any stationary equipment that produce high noise levels such as diesel generators as far as practical from sensitive receptors.	Include EMP in bid documents and contract. Report any complaint received from the community to PIU.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE STATUS
	Erect temporary barriers around construction sites especially near schools, hospitals, and houses. Install noise suppression devices to noise generating equipment. Require drivers to minimize blowing of horn and to comply with speed limits Provide information to community on schedule of construction activities through billboard/signs and complaint hotline.		
<u>Impact of borrow materials</u> Quarrying of aggregates on Nam Haad river will cause siltation and affect the ecological condition of the river.	The contractor will be prohibited from quarrying materials directly from Nam Haad. Construction materials will be bought from Government-permitted sources / suppliers only.	Include EMP in bid documents and contract. Report any complaint received from the community.	
<u>Impact on ecological resources</u> Construction workers may undertake hunting of wildlife and cutting of wood upstream of the intake.	The contractors will prohibit activities such as cutting wood for cooking, hunting, or wildlife trade.	Include EMP in bid documents and contract Report any complaint received from the community.	
<u>Clearing of vegetation</u> Poor planning and execution of tree clearing/vegetation removal at project facilities and along pipeline alignments can result in loss of vegetation and general landscape	Cutting of trees will be undertaken as per approved design and only upon approval of relevant authorities. Avoid cutting of trees as much as possible and minimize damage to native vegetation. Trees that need to be cut in private land will be compensated in cash accordance with the approved Land Acquisition and Compensation Plan. Roads and paths to the intake, WTP, and reservoir will only be sufficiently wide to accommodate construction vehicles/equipment to minimize landtake. Manual labor will be utilized in sloping terrain where use of heavy equipment would cause unnecessary damage. Steep exposed slopes will be graded and covered with bush and grass to minimize erosion. Implement landscaping and planting of trees/vegetation at WTP site.	Include EMP in bid documents and contract Report any complaint received from the community.	
<u>Water pollution - Sediment runoff</u> Sediment runoff undertaken during excavation, earthworks and grading in the rainy season will cause	Construct silt traps, deviation channels, mounting barriers or trenches around the stockpiles of materials.	Include EMP in bid documents and contract Report any complaint received from the community.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE STATUS
siltation of rivers			
Water Pollution - Worker's camp Domestic wastewater from worker's camp would result to the discharge of sewage into drainage canals. Unsanitary conditions at the worker's camp will occur without the provision of necessary sanitation arrangements.	Provide adequate water supply and temporary toilet facilities at the worker's camp.	Include EMP in bid documents and contract Report any complaint received from the community.	
Water pollution - Generation of residual chlorine during pipeline and reservoir disinfection Prior to commissioning, disinfection will be undertaken on the pipeline and reservoir. Discharge of residual chlorine above the allowable limits is toxic to fish and other aquatic life.	Follow the recommended dosage of chlorine during the disinfection of pipes and reservoir. . Discharge of water with high chlorine concentration to soil at the end of pipelines to be controlled to minimize soil erosion. Use chlorine test kit and use 10x15x dilution with distilled water or use high range chlorine test kit with high range tablets to detect chlorine residual before flushing.	Include EMP in bid documents and contract	
Generation of construction waste - Generation of excavated soil Generation of excavated materials during pipe laying and foundation works for WTP tanks and reservoirs.	During pipe laying, excavated material will be utilized to backfill the trench. The contractor will be required to properly reinstate the excavated trench after completion of pipe laying. Surplus excavated material/cut soil from construction of the WTP and reservoir will be used as backfill material for low-lying areas that have been identified by the village authority.	Include EMP in bid documents and contract Report any complaint received from the community.	
Generation of construction wastes – Solid, Inert and Hazardous Wastes Solid wastes, inert construction wastes, and hazardous wastes during construction will result to pollution of land and receiving water bodies.	Provide appropriate segregation bins or areas for construction wastes. Secure and control storage of all hazardous materials including fuels. Reuse recyclable construction wastes such as wood, steel, and scaffoldings or sell to junk shops. Solid waste will be collected and properly disposed in approved disposal facility of the District.	Include EMP in bid documents and contract Report any complaint received from the community.	
Community health and safety Community may be exposed to dangers of open excavation	Install barricades/barriers and sturdy plate covers in open excavations during non-working time. Install warning signs in the area.	Include EMP in bid documents and contract Report any complaint received from the community.	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE STATUS
Occupational health and safety Construction activities may pose hazards to workers because of the use of heavy equipment, lifting of heavy loads, and exposure to open excavations and chemicals. Potential conflict with local people will occur if migrant workers will be brought to the site.	Require the contractor to implement the construction health and safety plan in accordance with the World Bank EHS Guidelines (http://www.ifc.org/ehsguidelines) as a minimum standard. The contractor will appoint an environment, health and safety officer to ensure implementation of the plan. The plan will at minimum include: • Provision of first-aid facilities readily accessible by workers. • Provision of personal protective equipment (PPEs) such as hard hats, gloves, rubber boots, etc., • Wearing of PPEs while working onsite will be a mandatory requirement for workers. • Posting of safety signs/reminders in strategic areas within the construction area. • Installation of sufficient lighting at night. • Employ only trained personnel in handling chlorine during the line disinfection process. • Ensure that vehicle and equipment operators are properly licensed and trained. • Provide staff with communicable disease and HIV-related awareness training. The contractor will be required to provide priority hiring of qualified construction workers from the villages and to consult with the local to avoid conflict if migrant workers will be brought to the site.	Contract documents to include the EMP with health and safety provisions monitoring through the Construction Supervisor's reports. Report any complaint received from the community.	
OPERATION PHASE			
Generation of incremental wastewater and increased burden on drainage systems Increased water supply to public buildings and households will generate additional quantities of wastewater.	As project policy, water connection will be provided only if the household has an approved sanitation facility to cope with the increased wastewater generated. This policy and the public awareness raising initiatives was presented to the villages under the Village Environmental Improvements (VEI) component. The public institution shall sign a service and management agreement before construction and have sufficient funds to maintain the facility.	Monitor the number of households with latrines and with water connections, population served, and billed water volume. Monitor that the service and management agreements are followed and facilities are properly maintained.	
Competing water demand on raw water source	Provincial Governor issued a certification that drinking water will always have highest priority on river water use. Encourage the community to implement water conservation measures	PNP operational records on water abstraction rate	
Deterioration of water quality	Monitor community activities in the catchment area to check activities at the upstream that may cause contamination	Monitor the following parameters:	

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	MONITORING	COMPLIANCE STATUS
Potential deterioration in quality of raw water supply and of treated water Potential risk on public health in deterioration of treated water quality due to use of poor quality treatment chemicals	of raw water quality. Provide laboratory test equipment and training to allow the PNP to conduct regular monitoring of raw and treated water quality parameters. Follow O&M standard operating procedures in accordance with the water treatment plant manuals. Use of potable grade chemicals, especially PAC, and request a Supplier product specification data sheet signed off by a reputable external laboratory.	Daily at the inlet to the treatment plant: turbidity, pH Daily at the reservoir: pH, turbidity, residual chlorine, temperature Weekly at several locations in the network: residual chlorine, pH, turbidity Annually after clearwater tank: chloride (Cl), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), sodium (Na), sulfate ion, zinc (Zn), conductivity, total hardness as CaCO3	
Disposal of backwash water and sediments from WTP Backwash water and sludge from the sedimentation tanks will be generated from the cleaning of filters and tanks. Backwash water and sludge contain high total suspended solids.	Filter backwash water and periodic discharges from the sedimentation tanks will be collected to a detention pond to separate the concentrated waste sludge or sediments. Land application of wastes with high dissolved solids concentrations from the detention pond is preferred over discharge to a landfill.	Check condition of detention ponds; report frequency/schedule of backwashing	
Occupational health and safety Potential hazards to WTP workers due to accidental release of chlorine	Provide secure, dry and well-ventilated storage facilities for chlorine and other hazardous chemicals. Use chlorine compounds in powder form, which is safer than gas. Training of staff and allocation of responsibility to ensure that materials are properly handled and used.	Training undertaken for staff on chemicals handling and monitoring and reporting of incidents.	
Community health and safety Potential hazards to residents in the area and school children near the intake	Facilities (Intake, WTP and Reservoir and Office and Laboratory) will be properly fenced and secured and watchmen/security personnel to be employed on a 24 hour basis.	Daily log of security personnel	

Summary of EMMP Compliance Status: _____

_____

_____

_____

B. RESULTS OF ENVIRONMENTAL MONITORING

- PNP operational report
- Complaints resolution

- EMMP implementation
- Water quality
- River level
- Backwashing activities
- Training/capacity building

C. ISSUES FOR FURTHER ACTION

ISSUE	REQUIRED ACTION	RESPONSIBILITY AND TIMING	RESOLUTION
OLD ISSUES FROM PREVIOUS REPORTS			
List of EMMP measures or activities not completed (last column of previous table)			
NEW ISSUES FROM THIS REPORT			

3. CONCLUSION

- Important results from the implementation of EMMP monitoring
- Recommendations to improve EMMP management, implementation, and monitoring

4. ATTACHMENTS

- Permits
- Monitoring data (water quality, etc.)
- Photographs
- Maps

APPENDIX H
SEMI-ANNUAL INTEGRATED SAFEGUARDS MONITORING REPORT

Safeguards Monitoring Report

Semiannual Report
xxx {month} 20xx

Lao PDR: xxx {Project name}, xxx {sub-project name, if report covers only one sub-project}

Prepared by the Project Management Unit of {complete name of Implementing Agency} for the {complete name of the borrower} and the Asian Development Bank.

NOTE

(i) In this report, "$" refers to US dollars.

This safeguards monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

1. EXECUTIVE SUMMARY

{Read and delete: Provide short summary of the following items:

- **Summary of EMP/RP Implementation**
- **Description of monitoring activities** carried out (e.g. field visits, environment effect monitoring, survey questionnaire, public consultation meetings, focus group discussions, etc)
- **Key issues**, any **corrective actions** already taken, and any **grievances**
- Key activities planned in the next reporting period
- Recommendations

Use the paragraph numbering format provided below throughout the report}

1. xxx

2. xxx

2. PROJECT OVERVIEW, GENERAL SAFEGUARD MATTERS

2.1 PROJECT OVERVIEW

{Read and delete: Briefly describe project objectives, scope and components – can be taken from PAM or other relevant document}

3. xxx

4. xxx

2.2 PROJECT PROGRESS

{Read and delete: Using most recent project progress report, describe status of project implementation, including full list of contracts, status of contract awarding and implementation, name of contractor, Engineer, Project Supervision Consultant.}

5. xxx

6. xxx

Table 1: Project Overview, Snapshot of Project Progress

Project Number and Title:		
Safeguards Category	Environment	
	Indigenous Peoples	
	Involuntary Resettlement	
Reporting period:		
Last report date:		

Key sub-project activities since last report:	*{Read and delete: This section should include, among others, the following:}* • Contract awarding • Progress of Work (% physical completion) • Status of Safeguard Approvals / Permits / Consents
Report prepared by:	

2.3 SAFEGUARD PLANS IMPLEMENTATION ARRANGEMENTS

{Read and delete: Describe institutional arrangements and responsibilities for EMP and RP implementation, internal and external monitoring, and reporting, defining roles of PMU, Engineer, Implementation Consultant, Contractors. (Table format as needed)}

7. xxx

8. xxx

2.4 UPDATED EMPS AND RPS, INCORPORATION OF SAFEGUARDS REQUIREMENTS INTO PROJECT CONTRACTUAL ARRANGEMENTS

{Read and delete: Define manner by which EMP and RP requirements are incorporated into bidding documents, contracts.
Indicate when updated EMPs and RPs were submitted for approval to ADB (Table format appropriate).}

9. xxx

10. xxx

3. ENVIRONMENTAL PERFORMANCE MONITORING

3.1 STATUS OF EMP IMPLEMENTATION (MITIGATION MEASURES)

{Read and delete: Summarize main mitigation/protection measures implemented in the reporting period (narrative section). Structure in accordance to phases (detailed design, construction preparation, construction, and operation).}

11. xxx

12. xxx

{Read and delete: Include EMP table or updated EMP table if applicable. Assess compliance of environmental management activities with the original or updated EMP. For that purpose, include additional columns entitled "Compliance Status", "Comment or Reasons for Non-Compliance", and "Issues for Further Action". Example is provided below.}

Table 2: Compliance with EMP Requirements (Environmental Performance)

EMP Requirements	Compliance Status (Yes, No, Partial)	Comment or Reasons for Non-Compliance	Issues for Further Action
Use environmental impact as main heading and EMP as listing (see example below)	Use EMP list as basis for rating/evaluating compliance (see example below)		

Rise of employment opportunities: • Job openings of the project should give priority to local communities. • Recruitment of local laborers should be stipulated in the contract for construction	• Field inspections and interviews with communities - DONE • Note each complaint case in the field – 3 COMPLAINTS RECEIVED • Set up grievance centre and report as part of monitoring action plan – NOT DONE		

Table 3: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			
List of EMP measures or activities not completed (last column of previous table)			
New Issues from This Report			

3.2 HEALTH AND SAFETY

{Read and delete: Provide narrative of occupational and community health and safety issues that occurred during the reporting period. Any accident involving injury or death of workers or community members must be reported. Include investigation report of DOLISA as attachment to the report. Provide details in the Table below}.

13. xxx

14. xxx

Table 4: Health and Safety Issues

Issue	Required Action	Responsibility and Timing	Resolution
Old Issues from Previous Reports			

New Issues from This Report			

3.3 ENVIRONMENT EFFECT MONITORING

15. **Monitoring plan.** xxx *{Read and delete: Present the environment effect monitoring plan as defined in the EMP or the updated monitoring plan. Refer to Table 4. Describe monitoring responsibilities}*

16. **Monitoring activities in the reporting period.** Xxx *{Read and delete: Describe the environment effect monitoring activities in the reporting period, including number of monitoring campaigns, number of samples, etc. Confirm compliance with the monitoring plan, or justify any deviation from the plan}*

Table 4: Environment Effect Monitoring Results in the Reporting Period

{Read and delete: Present monitoring result in a Table (see example below, adjust as needed). Any non-compliance should be highlighted for attention and follow-up.}

Location	Parameter	Date	Monitoring value	Relevant government standard, standard value

17. **Assessment.** *Xxx {Read and delete: Compare monitoring results with baseline conditions (if baseline data is available) and relevant government standards in qualitative terms. Additional explanatory comments should be provided as necessary. Possible reasons for non-compliance should be identified.}*

4. INVOLUNTARY RESETTLEMENT PERFORMANCE MONITORING

{Read and delete: Provide narrative of status of implementation of the RP(s), including but not limited to: status of RP or Resettlement Framework updating; number of households relocated during the reporting period; outstanding resettlement activities; etc}.

18. xxx

19. xxx

Table 6: Summary of Compliance with RP Requirements

RP Requirements	Compliance status Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action[12]
Establishment of personnel in PMU/PIU			
Public consultation and socialization process		*Provide information on:* • *Public consultation, participation activities carried out* • *Inclusive dates of these activities* *To be elaborated on in Item 5*	
Land area to be acquired is identified and finalized			
Resettlement plan(s) updated after detailed design			
Land acquisition completed			
Establishment of Resettlement Site(s)		*Please state:* • *Number of AHs to be relocated as per agreed RP* • *Number of AHs already relocated* • *Number of houses built* • *Status of installation of community facilities to be provided as per agreed RP*	
Compensation payments for affected assets is completed		*Please state:* • *Total Number of Eligible AHs and APs (as per agreed RP)* • *Number of AHs and APs compensated as of this monitoring period* • *Total Budget allocation as per agreed RP* • *Total budget disbursed to AHs as of this monitoring period*	
Transport assistance for relocating affected households		*As above*	
Additional assistance to vulnerable affected		*Please state:* • *Total Number of*	

[12] *To be elaborated further in table 3.b (Issues for Further Action)*

household		*vulnerable AHs and APs (as per agreed RP)* • *Agreed forms of assistance as per RP* • *Number of AHs and APs assisted as of this monitoring period*	
Income Restoration Program		*Please state progress per income restoration feature/activity and actual period of implementation*	
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)		*Please state:* • *Total Number of AHs affected by temporary impacts as per agreed RP* • *Actual Number of AHs and total area affected by temporary impacts (if this differs from the projected number, such as in cases of unforeseen project impacts)* • *Status of restoring affected property*	
Capacity building activities			

Table 7: Issues for Further Action

Issue	**Required Action**	**Responsibility and Timing**	**Resolution**
Old Issues from Previous Reports			
List of RP activities not completed (last column of previous table)			
New Issues from This Report			

5. COMPLIANCE WITH SAFEGUARDS RELATED PROJECT COVENANTS

{Read and delete: List all environment and resettlement related loan covenants, and assess project's compliance with the covenants (Table format is appropriate, with concluding

statement on compliance, partial compliance or non-compliance, and corrective actions as needed)

Schedule	Para No.	Covenant	Remarks/Issues (Status of Compliance)
Schedule 5	xxx		Complied with / Partially complied with / Not complied with. *{Identify reason for partial or non-compliance}*

6. PUBLIC CONSULTATION, INFORMATION DISCLOSURE, CAPABILITY BUILDING

{Read and delete: Describe public consultation activities during the reporting period. Confirm compliance with consultation plan defined in the IEE/EMP and the RP(s), or justify deviation from these plans. Present planned consultation activities in next reporting period. Use Tables as appropriate.}

- Field Visits (sites visited, dates, persons met)
- Public Consultations and meetings (Date; time; location; agenda; number of participants disaggregated by sex and ethnic group, not including project staff; Issues raised by participants and how these were addressed by the project team)
- Training (Nature of training, number of participants disaggregated by gender and ethnicity, date, location, etc.)
- Press/Media Releases
- Material development/production (e.g., brochure, leaflet, posters)
- Information disclosure

7. GRIEVANCE REDRESS MECHANISM

{Read and delete: Describe mechanisms established to address and redress public complaints and grievances related to social and environment safeguards. Summarize grievances received, if any, and measures implemented to redress them.}

- Number of new grievances, if any, since last monitoring period: ____
- Number of grievances resolved: _____
- Number of outstanding grievances: _____

Type of Grievance	Details (Date, person, address, contact details, etc.)	Required Action, Responsibility and Timing	Resolution
Old Issues from Previous Reports			
New Issues from This Report			

8. CONCLUSION

{Read and delete: Highlight important results from the implementation of EMP and RP monitoring; recommendations to improve EMP and RP management, implementation, and monitoring; key activities planned in next reporting period}.

20. xxx

21. xxx

9. ATTACHMENTS

- Consents / permits
- Monitoring data (water quality, air quality, etc.)
- Inspection checklists
- Photographs
- Others