Initial Environmental Examination

April 2016

LAO: Northern Rural Infrastructure Development Sector Project

Nam Beng Irrigation Subproject

Prepared by Ministry of Agriculture for the Asian Development Bank.

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Table of Contents

List of Tables

List of Figures

Attachments

List of Abbreviations

ADB	–	Asian Development Bank
AHs	–	Affected Households
AP	–	Affected Persons
ASL	–	Above Sea Level
DAFO	–	District Agriculture and Forestry Office
DCO	–	District Coordination Office
DIU	–	District Coordination Unit
DMS	–	Detailed Measurement Survey
DONRE	–	Department of Natural Resources and Environment
DPWT	–	Department of Public Works and Transport
DRC	–	District Resettlement Committee
EA	–	Executing Agency
EMDP	–	Ethnic Minority Development Plan
EMMP	–	Environmental management and monitoring plan
EPL	–	Environmental protection law
FDI	–	Foreign Direct Investment
GIC	–	Grant Implementation Consultant
GOL	–	Government of Lao PDR
GRC	–	Grievance Redress Committee
HH	–	Household
IA	–	Implementing Agency
IEE	–	Initial Environmental Examination
LAO PDR	–	Lao People's Democratic Republic
MAF	–	Ministry of Agriculture and Forestry
mg/l	–	Milligrams per liter
MONRE	–	Ministry of Natural Resources and Environment
NBCA	–	National Biodiversity Conservation Area
NGO	–	Non-Government Organization
NPC	–	National Project Committee
NPMO	–	National Project Management Office
NRIDP	–	Northern Rural Infrastructure Development Project
NTFP	–	Non Timber Forest Product
PAFO	–	Provincial Agriculture and Forestry Office
PIU	–	Project Implementation Unit
PONRE	–	Provincial Office of Natural Resources and Environment
PPO	–	Provincial Project Office

PPTA	–	Project Preparatory Technical Assistance
PSC	–	Project Steering Committee
RCS	–	Replacement Cost Study
RF	–	Resettlement Framework
RP	–	Resettlement Plan
SEDP	–	Socio Economic Development Plan
SESAH	–	Socio-Economic Survey of Affected Households
SMMP	–	Social management and monitoring plan
SPS	–	ADB Safeguard Policy Statement (2009)
STEA	–	Science Technology and Environmental Agency (now disbanded, function taken up by MONRE)
TA	–	Technical Assistance
TOR	–	Terms of Reference
VLD	–	Voluntary Land Donation
WREA	–	Water Resources and Environment Authority (now disbanded, function taken up by MONRE)
WUG	–	Water user group

1. Introduction

1. The Northern Rural Infrastructure Development Project (NRIDP) will address key constraints to rural economic growth poverty reduction in the provinces of Oudomxay, Phongsaly, LuangNamtha and Bokeo, in the north of the country, consisting of infrastructure improvements and linked initiatives to maximize the ability of beneficiaries to add value to commodities they produce, capacity building in support of institutional development within the Ministry of Agriculture and Forestry (MAF) and in support of subproject implementation, and project management services. It is a sector project, and subprojects consisting of improvements to irrigation systems and rural access roads, will be selected within the project provinces. The improvements will take account of increased frequency and intensity of extreme climatic events that are expected to result from continuing global climate change.

2. The proposed Nam Beng irrigation subproject was selected as a representative subproject in Oudomxay province, under the Small Project Preparatory Technical Assistance (S-PPTA) for additional financing for the NRIDP which will be implemented as one of twenty-two (22) subprojects subject to be approved by the government and ADB. The detailed feasibility study, including safeguards planning, are produced under the S-PPTA to demonstrate the level of subproject preparation required to meet Government of Lao and ADB requirements. The IEE is prepared according to the ADB's Safeguard Policy Statement of June 2009 and the EIA decree of April 2010.

2. Description of the Subproject

2.1 Subproject Scope

3. The Nam Beng Irrigation Subproject is composed of 3 irrigation schemes, i) Nam Beng 1, ii) Nam Met, and iii) HouayLor irrigation scheme. Nam Beng 1 and Nam Met irrigation scheme are located near each other with the same beneficiary village, Ban Namet, located at 35 km from Xai district center, Oudomxay Provincial Capital. HouayLor irrigation scheme (Ban Yor) is located at further 16 km from Ban Namet, and 51 km from Xai district center along National Road No.2.

4. Besides the irrigation improvement, productivity and impact enhancement initiatives will be delivered by the Project. These initiatives will comprise of compulsory and optional initiatives. The compulsory initiatives will include (i) support for WUGs established to operate and maintain the rehabilitated facilities; and (ii) water catchments identification and zoning. Optional initiatives will need to be further discussed with the beneficiaries during detailed design stage and could be selected from production, post-harvest handling, processing and the development of market linkage initiatives.

2.2 Area of Influence

5. Nam Beng Irrigation Subproject is located in Beng District, Oudomxay Province. **Figure 8A-1** shows the subproject location.

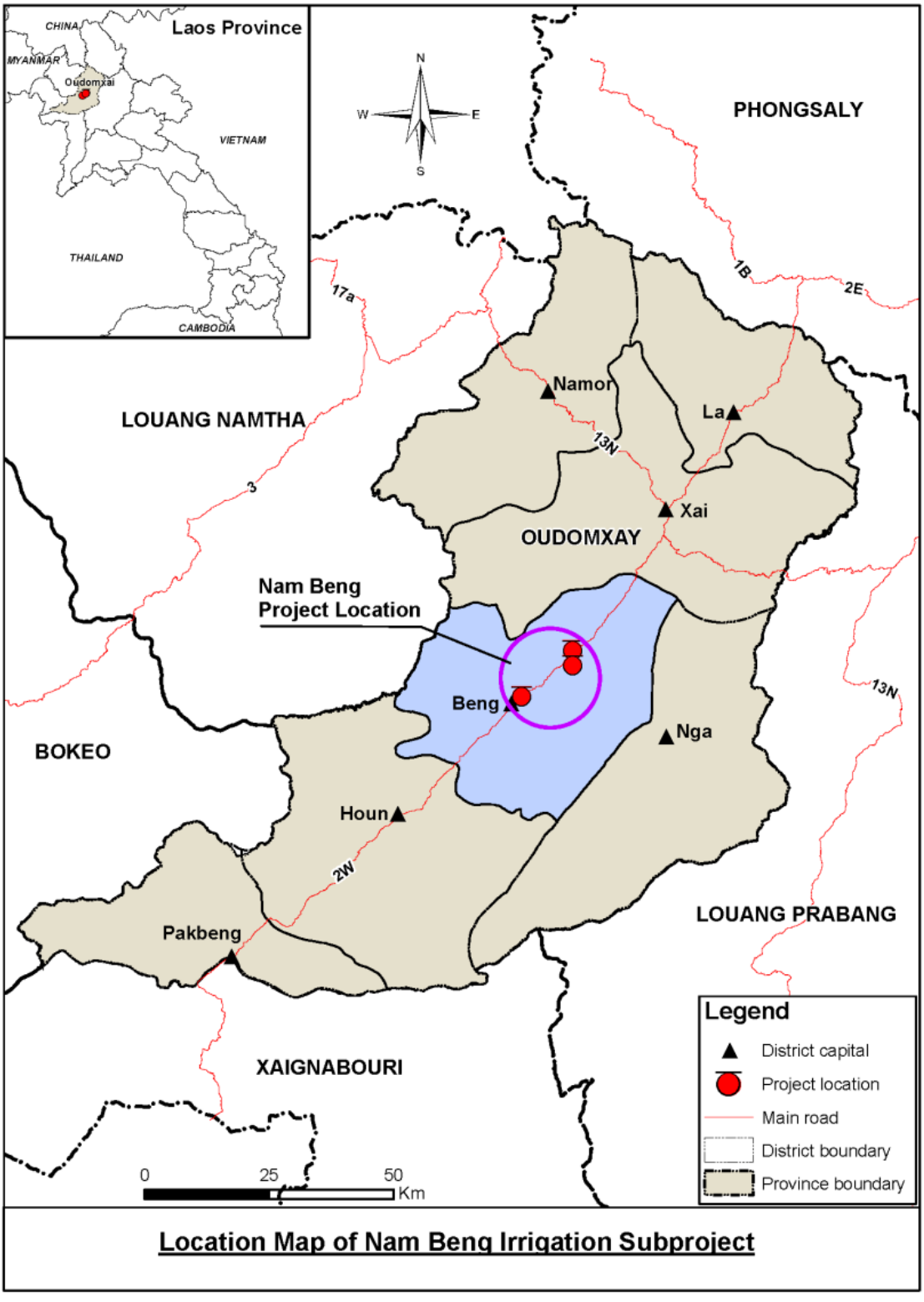


Figure 1: Location Map of Nam Beng Irrigation Subproject

5. The principal area of influence is the command area, of some existing 380 ha, out of which, 80 ha is in the Nam Beng 1 area, 44 ha in Nam Met, and 262 ha in Houay Lor.The beneficiary villages are composed of 6 villages with a total of *650 HHs*, one village of Ban Namet (*194 HHs*) for Nam Beng 1 and Nam Met scheme, and 5 villages with a total of *456 HHs*, Ban HouayLor, Ban Xienglae, Ban Yor, Ban Nalay, and Ban Pangdeua for Houay Lor scheme.

6. Further area of influence includes the weir and upper stream site. The catchment area of the Nam Beng, Nam Met and HouayLor streams will also be subject to planned usage as a result of the associated investments in catchment zoning and village land-use. **Figure 2 and 3** show the location of the catchment area and command area.

7. Some photos of the existing irrigation schemes of Nam Beng Irrigation Subproject are presented in **Figure 4**.

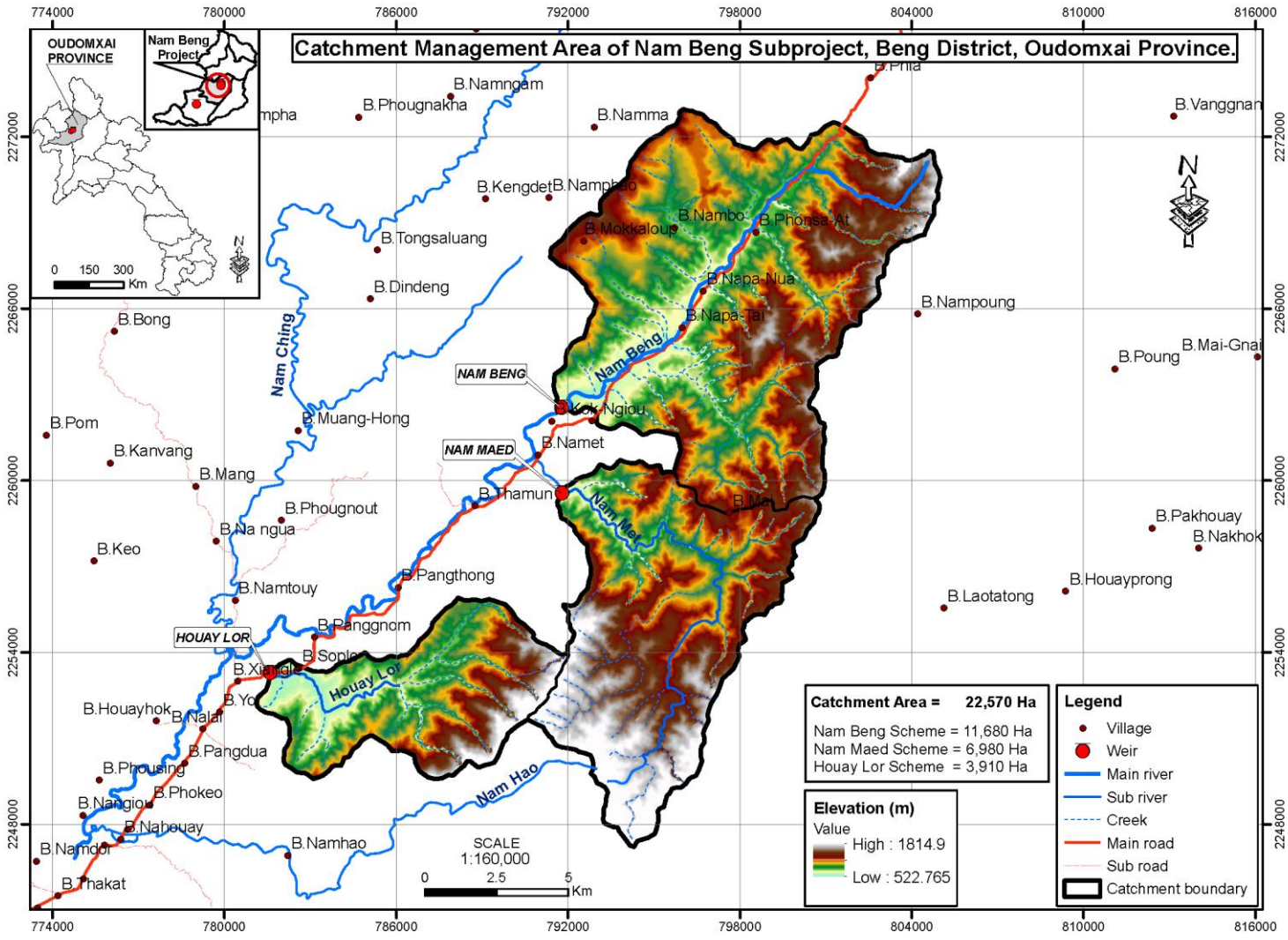


Figure 2: Catchment Area of Nam Beng Irrigation Subproject

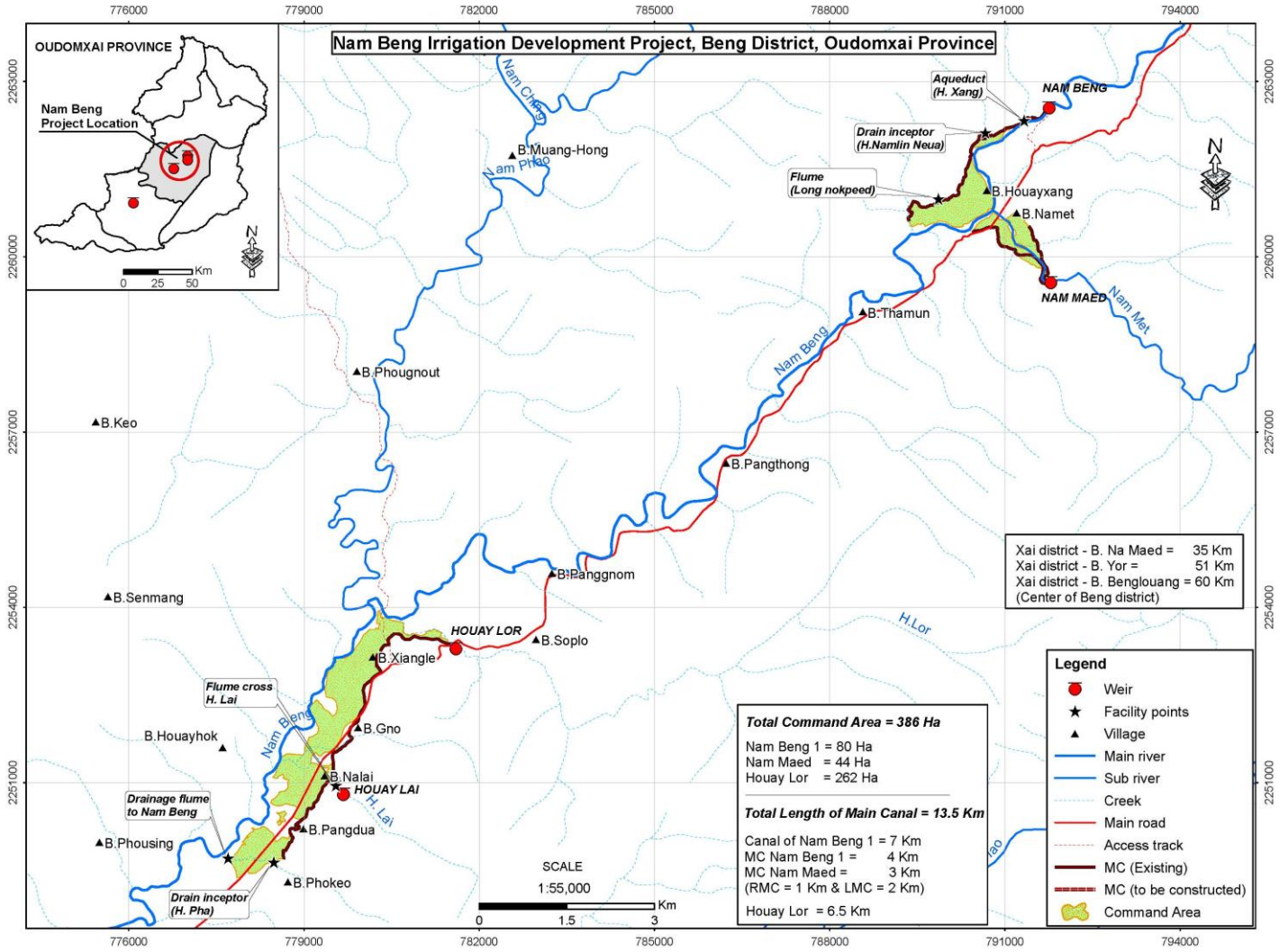


Figure 3: Command Area of Nam Beng Irrigation Subproject

	
Nam Beng 1 concrete weir was constructed in 1996. However it was flushed out by heavy floods in August 2013 (a new concrete weir will be re-constructed at the same location)	
	
The government allocated the amount of 83,000,000 Kip (US$10,000) to construct a temporary intake (Diversion intake canal) to be completed before this wet season. The farmers of Ban Namet contributed their labor for the temporary intake canal above. (March'15)	
	
Existing Nam Met wooden weir (Proposed location for new concrete weir)	Nam Met existing earth canal (RMC) (from another upper intake)
	
HouayLor concrete weir (Buttress type) constructed in 1990	LMC (earth canal) running through Ban Yor

Figure 4: Photos of the Existing Irrigation Schemes of Nam Beng Subproject

3. Policy, Legal and Administrative Framework

8. Government policy on environmental protection is expressed in the sixth National Socio-Economic Development Plan (SEDP), for the period 2006 – 2010 and statements relating to the preparation of the ensuing seventh one, for the period 2011 – 2015 confirm that environmental protection will remain a focus[1]. The formation of the Water Resources and Environment Administration (WREA) within the Prime Minister's office in 2007 was a move to strengthen environmental protection and management within government. Specific policy for environmental management of investment projects is stated in the objectives for the Decree on Environmental Impact Assessment, April 2010 which states that all investment projects 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).

9. The law governing the protection of the environment, including the assessment and management of projects, is the Environmental Protection Law (EPL), 1999 which is further elaborated on by the Decree on the Implementation of the EPL, of 2002. Responsibilities and procedures for Environmental Assessment, together with requirements for environmental monitoring of projects, have been revised and are set out in a new Decree on Environmental Impact Assessment (EIA decree), dated April 2010.

10. The decree sets out the principal institutional arrangements, assigning primary responsibility for undertaking environmental assessment of projects to the project developer, which may be an individual or private sector entity as well as a Government Department. In the case of development projects, the relevant line Ministry is responsible to review and assess draft environmental assessments and issue its own approval before submission to WREA and local administrations, as appropriate. The WREA is responsible for review and approval of environmental assessment reports, co-ordination of monitoring and evaluation, and issuance of compliance certificates, acting through the head office in Vientiane or through its provincial departments. Public participation and discussion with local administrations is required throughout the environmental assessment process.

11. Investment projects are categorized according to a schedule to the EIA decree into category 1 – small scale, requiring an initial environmental examination (IEE) or category 2 – large scale, requiring an environmental impact assessment (EIA). Where a project is of a type that is not listed, an investment application is submitted to WREA for screening. For irrigation projects, those with a command area of between 100 and 2000 ha are in category 1, and those with a command area greater than 2,000 ha are in category 2. (The corresponding category in the ADB's classification system is B, which, similarly, requires an Initial Environment Examination (IEE).

12. Lao PDR is signatory to the following international environmental agreements:

- ASEAN Agreement on the Conservation of Nature and Natural Resources
- Convention for the Protection of the World Cultural and Natural Heritage
- Agreement on the Cooperation for Sustainable Development of Mekong River Basin
- United Nations Convention to Combat Desertification
- United Nations Framework Convention for Climate Change
- Convention on Biological Diversity
- Montreal Protocol on Substances that Deplete the Ozone Layer
- Vienna Convention for the protection of theProtocol of the Ozone Layer

[1] GoL, Report on the Round Table Implementation Meeting, Vientiane, 03 Nov 2009

- Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer
- Millennium Declaration
- Convention on International Trade in Endangered Species of Wild Fauna and Flora
- Stockholm Convention on Persistent Organic Pollutants
- Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)

13. The decree sets out in detail procedures, rights and responsibilities for the preparation and approval of IEEs and the preparation, approval, implementation and verification of environmental management and monitoring plans (EMMPs).

4. Description of the Environment

4.1 Physical Resources

(1) Topography

14. The subproject area is at elevations between 340m - 365m ASL and is in gently undulating terrain. The weir point is on the elevation of 365 m ASL. The upper catchment area is in steep terrain at elevations of up to 527 m ASL, while the maximum height in the area is 1800 m ASL.

(2) Geology and Soils

15. Geological investigations made by the Agriculture and Forestry Soil Classification Center indicated that the soil layers within the district comprises of 6 soil categories. Most of the soil type is heavy clay and smallest part is sandy loam. The underlying rock in the area is primarily sedimentary rock formed from shallow water sediment, deposited in the Paleozoic era. Soils on the command area are alluvial, transported from parent material in the upper catchment that consists mainly of recently deposited, unconsolidated gravels, sand and clays. The soils are suited to intensive irrigated agriculture, though yields are significantly improved through the application of mineral fertilizer.

(3) Climate

16. The Northern part of Lao PDR has a warm temperate climate with dry winters and hot summers. The dry season occurs between November and February while the rainy 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.

17. Detailed meteorological information was sourced from Oudomxay Provincial Meteorology and Hydrology Station. Rainfall is above 160 mm between May and September, peaking in August at 354 mm. In December and February the rainfall drops below 24.2 mm and can be as low as 13.6 mm in February. The dry season is particularly pronounced in the province. Rainfall varies significantly from year to year. **Table A8-1** below present the total rainfall figures for the years 2006, 2007, 2009 and 2010 were particularly dry years.

Table 1: Rainfall in Oudomxay Province

Total Rainfall in mm **Station: Oudomxay**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2005	3.6	0.4	143.7	98.6	169.2	219.8	333.4	456.5	119.1	27.8	15.1	34.6	1,622
2006	0.0	54.8	43.6	128.2	102.1	101.4	303.7	483.7	53.0	68.6	2.1	0.0	1,341
2007	1.5	23	29.2	128.2	238.9	146	146.1	293.1	192.2	95.2	45.4	0.1	1,339
2008	65.9	29.8	73.4	115.7	103.1	218.0	452.5	384.2	327.5	145.9	74.8	13.4	2,004
2009	0.0	0.0	28.4	131.4	163.0	262.1	329.4	207.3	172.4	28.4	9.4	8.5	1,340
2010	30.4	2.6	37.3	159.2	161.3	103.0	277.1	198.9	109.5	36.7	2.1	34.5	1,153
2011	13.6	0.0	102.8	222.6	264.9	212.8	253.9	233.2	395.6	65.6	13.0	0.6	1,779
2012	56.6	2.0	12.5	117.3	254.7	204.7	357.3	478.5	72.7	54.9	69.2	1.1	1,682
2013	25.7	23.2	54.1	122.6	80.8	169.2	461.2	386.6	231.4	55.7	68.9	124.6	1,804
2014	0.1	0.0	4.9	31.6	106.2	123.5	250.4	420.1					937
Mean	19.7	13.6	53.0	125.5	164.4	176.1	316.5	354.2	185.9	64.3	33.3	24.2	1,562.6

18. Temperature averages between 17.70C and 29.10C over the year, with lowest temperatures of around 11.30C occurring in January and reaching 22.40C in August.

(4) Water Resources

19. The Nam Beng, Nam Met and HouayLor are the water resources for the relevant proposed irrigation sub-schemes. Water is relatively clean, though more turbid in the wet season and sensitive to land disturbance in the catchment areas. Flows are highly dependent on levels of rainfall and are therefore greatly reduced during the dry season. Data on stream flows has not been collected for 3 water sources of Nam Beng, Nam Met and Houay Lor river at near subproject sites.

20. Wet Season Flow: The Grant Implementation Consultant (GIC) together with the staff of Project Implementation Unit (PIU) and District Coordination Office (DCO) observed a certain large flow, estimated at about 12 m^3/sec for Nam Beng river, 10.5 m^3/sec for Nam Met river, and 2.1 m^3/sec for HouayLor river as a normal flow during the wet season.

21. Dry Season Flow: Nam Beng and Nam Met river have a certain discharge during the dry season, the catchment areas of which are 72 km^2 and 70 km^2, respectively. The GIC and the staff of PPO observed a certain flow, estimated at 1.67 m^3/s for Nam Beng and 2.0 m^3/s for Nam Met in the stream in February 2015. Based on the observation and other information, the design minimum flow of Nam Beng river and Nam Met river for this study is estimated at 1.0 m^3/s for Nam Beng, and 1.2 m^3/s for Nam Met respectively, applying a 60% of the stream flow in February.

22. On the other hand, the Houay Lor river has a very limited discharge during the dry season, the catchment area of which is 39 km^2. The GIC and the staff of PPO observed a limited flow, estimated at 0.25m^3/sin the stream in February 2015. Based on the observation and other information, the design minimum flow of Houay Lor river for this study is estimated at 0.2 m^3/s, applying 60% of the stream flow in February.

4.2 Ecological Resources

23. Land in and around the subproject site is extensively cultivated, with thickets of trees occurring around homes and alongside waterways in some areas. Slopes surrounding the area have been subject to traditional shifting cultivation but currently bear mainly shrub vegetation, as tree cover near areas of habitation is seldom allowed to develop due to continued collection of fuel-wood and poles.

24. Increasingly, land that is not used for irrigated agriculture is used for commercial crops and tree plantations. The commercial crops include water melon and corn, the tree crops include stands of rubber trees and banana. In more distant areas formerly cleared land has been left for longer, dense secondary forest is developing, and is inhabited by common birds and reptiles. There is no National Biodiversity Conservation Area (NBCA) around or within the project area.

25. Pesticides use in the area is observed quite extensively in Oudomxay province as well as other northern provinces, especially for commercial crops and tree plantations. A recent study by the National Agriculture and Forestry Research Institute showed that the negative impacts from banana plantations like use of chemicals and plastic piping (which, allegedly in the lease terms with landowners, is not removed when the lessor engaging in banana cultivation leaves the land) throughout the production process could be outweighing the benefits, confirming results from missions to the province. The use of pesticides for subsistence farming is a far less significant impact. However, the intensification and commercialization of agriculture due to the development of irrigation systems potentially leads to increasing chemical input. Environmental pollution due the use of herbicides impacts in particular water quality of rivers and irrigation canals and the (occupational) health of farmers and workers on plantations. Pesticides and other agro-chemicals are imported legally or illegally from China and Thailand. Farmers can buy these products easily in most provincial towns, where labeling is poor, and shopkeepers' knowledge correspondingly poor[2]. Although there are regulations and decrees on pesticide control and application, many of the chemicals that are stocked contain substances that are banned in Lao PDR. The Department of Agriculture within the Ministry of Agriculture and Forestry (MAF) has the mandate to control and manage the supply and trading of pesticides, and dealers are required to register at the Provincial Departments of Agriculture.

26. Aquaculture is practiced in and around the subproject area, mainly on a household scale. According to the reports of the villagers, the amount of fish caught in the stream is very low, enough to serve for families' consumption only and not enough to sell in the market. Further, DCO reported that the aquatic resource particularly fish in the stream have somewhat decreased over the last 10 years potentially due to prohibited fishing techniques (electro fishing) by local people, but likely due to a multitude of reasons. Occasional sudden fish kill in irrigation channels and rivers in the province was reported by PONRE, yet, not having the capacities to ascertain the cause.

27. Further threats to aquatic ecosystems include over fishing, the use of damaging fishing techniques such as blasting and poisoning, upstream use of pesticides, release of pollutants and the introduction of exotic fish species for aquaculture.

28. Head works and other irrigation infrastructure impacts the aquatic ecology and in particular fish migration and thus also impacting sustainable livelihoods through reduced fish stocks. DCO, village authorities and villagers confirmed that there are no long distance migratory fish species (white fish). During the dry season, the population of fish is low at upstream due to the low level of water, thus fish will not migrate upstream. However, more fish can be caught upstream during the wet season because the weir crest is under the water level. Some fish species need to migrate before the onset of the wet season, meaning that the weir is a barrier for their upstream passage. The increase of fish at upstream shows that fish can migrate upstream due to high flow level of water during the wet season. According to the villagers, by comparison of the number of fish caught at upstream and downstream of the weir is quite similar in the wet season.

[2] Louanglath, K., Tiapangnavong, T and van der Wulp, H (2008). Pesticide Survey Northern Lao PDR, FAO project publication: GCP/RAS/229/SWE: Pesticide Risk Reduction in South East Asia.

4.3 Economic, Social and Cultural Resources

29. The Subproject is expected to benefit six (6) villages with a total of 650 households. The six villages of the subproject area are: (i) Ban Namaed 194 HHs); ii) Ban Yor (140 HHs); (iii) Ban Xiengle (59 HHs); (iv) Ban Hoaylor (92 HHs); (v) Ban Pagdeua (88 HHs); and (vi) Ban Nalai (77 HHs).

30. Livelihood Sources: The main source of HH income is agriculture (crop production, livestock, fish and poultry). This is validated by the result of the Household Interview showing that 59% of the average annual income of sample households is from agriculture sources and 41% from non-agriculture sources. Almost all of the HHs, however, are also involved in other sources of income to augment their income from agriculture. Other sources of income includes farm labor, labor outside the farm, salaries/wages from employment, sale of non-timber forest products, handicraft and small business.

31. The total average annual income of the interviewed sample households is Kips33,375,873 or Kips561,032 per capita per month, which is above the declared Lao PDR poverty line in 2009 and the 2012 rural poverty line of Kips180,000/capita per month. It must be noted, however, that 8% of the sample HHs are poor, 18% are middle income level and 73% are found to have income above the 2009 and 2012 rural poverty line.

32. Poverty: Based on the Village Household Masterlist, 90% of HHs in the area are classified to be at medium income level, 4% are reported to be poor and 90% are of the middle income category[3]. The trend on the type of houses[4] reflects the same trend wherein 83% are medium houses made of combination of local materials, concrete and iron roofing, 7% of houses are small to medium ordinary houses made of local materials and 10% are modern houses made of concrete and iron/tile roofing.

33. In comparison to the data from the Village HH Masterlist, the results of the Sample Household Interview show that the HH average income for the six villages is above the 2009/2012 poverty line. However, 8% of the sample HHs are poor, 18% are middle income level and 73% are found to have income above the 2009 and 2012 rural poverty line.

34. Considering the above, it can be concluded that about 3% to 8% of the HHs in the area poor, 80% to 90% are of the middle income category but still below the 2009/2012 poverty line.

35. Ethnic Minorities: The households and population in the six villages are of the Lue (more than 99%) and Lao Loum (less than 1%) ethnic groups, which belongs to the Lao-Tai Ethno-Linguistic Group. The ethnic groups practice Buddhism, and have similar culture, customs and traditions. There are no issues on ethnic group differences or conflicts within the Subproject. Both ethnic groups speak the Lao National Language. Since majority of the HHs within the subproject are Lue ethnic minority group, an EMDP will be prepared for the subproject to safeguard the needs and interest of the Lue ethnic group.

36. The Subproject is classified under Category B (IP Screening Checklist) as the Subproject is expected to benefit Lue ethnic minority group of the Lao-Tai ethno-linguistic group. However, the subproject will not impact or interfere with the socio-cultural patterns or

[3]Poverty Status: "1" - Poor or Low Income Level, household income is below 2001 poverty line income of 85,000 kips/month/person; "2" – Middle Income Level, household income is within 2005-2009 poverty line income of 85,000 to 180,000 kips per month per person; "3" - High Income Level, income is above the 2009 poverty line of 180,000 kips per month per person

[4]Type of Houses: "1" - Houses purely made of bamboo, wood, roof of grasses and other local materials; "2" - Houses made of combination concrete, wood, bamboo, and grass/iron roofing; "3" - Modern houses made of concrete and iron or tile roofing

qualities of the ethnic groups in the area. The subproject is expected to improve irrigation water availability and expand irrigated area, hence, yield and production of agricultural crops (rice and other crops), as well as income of farmers. Indirect benefits will accrue to villagers in the form of additional demand of farm labor as well as potential employment during subproject construction.

4.4 Land Use

37. While irrigated agriculture can take place in lowland areas and valley floors, hilly areas were previously heavily forested and subject to a level of shifting cultivation that probably did not threaten the integrity of forest reserves. However with increases in population and economic activity, the pressure on land subject to shifting cultivation has intensified, leading to a search for more sedentary forms of land use. The GoL's Strategy for Agricultural Development places emphasis on sustainable production pattterns, stabilization of shifting agriculture, adapted to the specific socioeconomic and agro-ecological conditions in each region[5]. For the Northern Highland Zone, where the project is situated, the issue of forest depletion from intensived shifting cultivation is highlighted. The current transition from subsistence based systems to market orientated systems is also recognized, Agricultural policies and measures to stabilize shifting cultivation are to have a greater social and environmental orientation, and to strengthen the agriculture and natural resources sector's resilience to climate change.

38. A further strategic vision on integrated watershed management (IWSM) is founded on the cause-impact linkage between land use practices in upper watersheds and their impacts on water downstream, and formed the basis of a "landscape continuum planning framework" developed by the Ministry of Agriculture and Forestry (MAF), which translates the IWSM into local level operational procedures. Participatory tools for planning that leads to improved and more sustainable land use include Agro-ecological zoning and participatory land use planning, preventing conflicts among land and resource users. The combination of the implementation of government policy in the uplands and developing markets has accelerated the transition from traditional livelihoods towards more productive and cash crop oriented agriculture systems. Besides the implementation of government policy and market development, changes to sustainable land use patterns also require assurance of security of land tenure for rural households. A detailed analysis of constraints and opportunities for sustainable upland development and the role of land use planning and the development of zones for appropriate land uses has been undertaken as part of the PPTA and will guide support to land use planning to be undertaken during the sector project.

39. However changes in the overall land-use patterns have taken place more rapidly in recent decades, featuring a reduction in cover and degradation in the quality of the natural forest with a decline of 27% in area and the unsustainable extraction of timber and non timber forest products (NTFPs). In the past 4-5 years, growing demand for land from neighboring countries has attracted investors either through contract farming and foreign direct investment (FDI) in plantations such as concessions for rubber, sugar, and cassava production. While FDI should have positive impacts in terms of capital, technology transfer, and market access, such investments can also be a threat to biodiversity and long term integrity of soil cover, as well as unfavorable for local smallholders. This added pressure on land resources has further undermined smallholder access to their basic productive resource and in some instances, has contributed to further poverty.

[5] Ministry of Agriculture and Forestry, Lao PDR (2010), Strategy for Agricultural Development 2011 to 2020: Sector Framework, Vision and Goals Agriculture and Forestry for Sustainable Development, Food and Income Security. Vientiane.

4.5 Unexploded Ordinance

40. 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 the Nam Beng Irrigation weir sites or command area. Records on any ordinance arising from ground fighting or from bombings by Southern Vietnamese, Lao or Thai air forces, are not available. However, on initial consultations respondents report no known occurrence of unexploded ordinance in the vicinity of the towns, or knowledge of ground or air strikes from which items of unexploded ordinance may remain.

5. Anticipated Environmental Impacts and Mitigation Measures

5.1 Method of Assessment

41. Potential impacts have been assessed by means of site visits, discussions with local authorities and beneficiaries and the use of secondary sources of information. This section summarises the potential environmental impacts and required mitigation, which is incorporated into the Environmental Management Plan prepared for this subproject.

5.2 Environmental Impacts Related to Location

42. This subproject involves physical changes through rehabilitation works within the existing corridor of impact and access. It comprises the combination of rehabilitation and new construction of 3 weirs, 11 gates, 6,460 m main canal mainly lining, and 103 new related structures. As no substantial widening of the canal network is planned, no permanent restrictions on the movement of people and animals are likely. At present, not all canals in the network are lined, and prone to substantial seepage losses, which will be significantly reduced by the proposed improvements. Surplus water flows into streams at the periphery of the network. With reduced seepage losses, more water will flow into these streams, however this is not likely to significantly affect the receiving waters, either positively or negatively.

43. The feasibility study design for these improvements does not lead to requirements for acquisition of private assets. At feasibility study stage, the rehabilitation works of this subproject will result in: i) No loss of agricultural and residential land; ii) No loss of crops and trees; iii) No loss of primary and secondary structures. Thus no relocation of houses; iv) No cases of economic resettlement and vulnerable people caused, v) No loss of common property.

44. There are no areas of special ecological or biodiversity significance in or around the command area or within the catchment. Local communities confirm that buildings or artefacts of cultural significance do not occur in the subproject area and that no fighting took place during the years of conflict that may have led to the placing of military ordnance in the subproject area.

5.3 Environmental Impacts Related to Construction

45. Impacts related to construction will be temporary in nature, and can in most cases be mitigated. Mitigation measures are listed in the EMP which is to be included in the bidding documents for contractors, so that the cost of compliance with the mitigation can be included in the bid price.

46. Excavation work, to prepare canals for the installation of lining and of borrow areas will release silt, except when works take place during dry conditions. However if the works are controlled, quantities will be small, and will either be carried away by the irrigation water when the scheme is completed, or will settle on roads, paths and fields where it will not

cause a problem . The use of silt fences will probably not be necessary for canal lining operations, but may be justified at borrow sites, if there is a risk of releasing significant quantities of silt from these. Mitigation of any risks of silt runoff will be achieved by (i) the placement, by the Contractor, of a site supervisor for all excavation work, (ii) confining excavation operations to the dry season (iii) use of silt traps where warranted, according to instructions from the construction supervisors and (iv) disposal of spoil from excavation works at sites approved by the construction supervision agency. To the extent possible, spoil should be used as fill, for example backfilling of culvert walls.

47. Construction operations may also involve the temporary closure of irrigation systems. Because construction will take place mainly during the dry season, this may have significant impacts on crops and livestock and on local livelihoods. In some situations this can be mitigated by the use of temporary diversions, either in channels or by the use of flexible pipes and pumps where necessary, however it is unlikely to be feasible to maintain full irrigation flows while the works are taking place. User communities will also be involved in scheme planning and construction, ensuring that local farmers are aware of the construction schedule will further mitigate the effects of temporary closure.

48. Excavation works will also release dust, which will be a potentially significant nuisance where it takes place close to peoples' homes. Where excavation operations carried out during dry and windy weather are within 50m of an occupied dwelling, excavated sites should be sprayed with water to control dust release. The operation of plant is not expected to cause a significant increase in air pollution, as most construction tasks are likely to involve hand labour. Only light plant such as cement mixers and water pumps are likely to be used.

49. Similarly, as most construction will involve hand labour or small plant, noise nuisance is not expected to be significant. The location of the new weir is about 2 km away from the nearest village.

50. Temporary use of land, including the construction of a temporary track for vehicular access to the weir site, will receive compensation in the form of rents payable during scheme construction period and land will be re-instated in accordance with the RF.

51. The proposed of the temporary vehicle access track has yet to be identified. Due to the relief in the area, it is likely that some significant earthworks will be involved in constructing the track from the nearest road head. Spoil from earthworks must be re-used to the extent possible, provided to local users for re-use, stockpiled for use when the site is reinstated, or disposed of at a suitable location approved by the supervising engineers. On completion of the works the track should be reinstated in accordance with the wishes of the affected landowners.

52. While the Contractor will be encouraged to engage local people for the works, some skilled workers and possibly supplementary labour will need to be brought to the site from elsewhere in Lao PDR. These workers are likely to be accommodated in buildings rented by the Contractor, though temporary accommodation may also be built. Interactions with local residents can potentially lead to the spread of communicable diseases, or incidences of disharmony, and temporary toilet facilities can release raw sewage. These potential effects can be avoided or mitigated by (i) consultation with local people on acceptable areas for siting of facilities, (ii) installation of suitable toilets such as pit latrines and grey water drainage facilities such as soakage pits (iii) arrangements for collection of solid waste, (iv) briefing of workers and awareness raising of the local population on dangers of communicable diseases and (v) assignment of responsibility for worker and local peoples' welfare to a senior member of the Contractor's staff.

53. Some construction operations, including excavations and use of plant and the use and handling of fuels or other hazardous materials will pose a small safety risk to workers and to local people. These will be mitigated by the allocation of responsibility for site safety to the Contractor's site supervisory staff, who will ensure that all reasonable safety measures, such as use of safety clothing and equipment and placing of hazard warnings are taken.

54. Fuels and hazardous materials may also cause soil contamination or pollution of waterways. These and safety hazards will be prevented either by exclusive use of commercial fuel providers operating nearby, or by the storage of fuel in designated, supervised areas that are clearly marked and have restricted access. These areas should be at least 20m from the nearest watercourse. All machine waste will be deposited in sealed containers and removed from the site for recycling or safe disposal as appropriate.

5.4 Environmental Impacts Related to Operation

55. Agriculture practiced by beneficiary farmers will intensify in areas beyond the current effective command area. This will bring significant long term benefit to users. Users who are not currently using water pumps to obtain irrigation water will begin to practice irrigated agriculture, or to resume irrigated agriculture if they were in areas where irrigation water was formerly available. Any increase in the use of agro-chemicals, particularly pesticides, can affect plant, animal and insect populations and lead to loss of biodiversity. Adverse effects may occur as a result over-application of agro-chemicals, poor or unsafe storage, and improper handling including washing of equipment used to dispense chemicals in rivers or irrigation channels. Since groundwater is not used for drinking water in the visited sub-projects, potential groundwater contamination is not a priority issue and will be also reduced through the proposed mitigation measures. A tendency to apply excessive agro-chemicals, and risks associated with poor storage and handling (sometimes based on misconceptions, such as the belief that chemicals in powder form do not leave lasting residues on utensils) can be mitigated by the promotion of sustainable land use practices such as (i) the use of organic based pest control methods, informed use of mineral fertilizers, (ii) promotion of the concept of integrated pest management, focusing on cost effective and environmentally friendly or benign pest management techniques and (iii) emphatic discouragement of the use of persistent pesticides through awareness raising and training on the proper use of agro-chemicals through PAFO and DAFO. In this connection it is noted that rapid expansion of plantations, particularly banana and rubber, has taken place in the project area over recent years. There is an extensive existing banana plantation adjoining the command area. Management of the banana plantation is chemical intensive, and follows banana culture methods now used extensively in Oudomxay and other northern provinces. Invariably, industrial banana plantations involve foreign investment and management, and a temporary lease covering one rotation of banana plants for a limited number of years. Agreements with landowners typically do not include removal of plastic pipes and rubbish left on site following banana cultivation. A recent study has reviewed the negative impacts of banana plantation cultivation has highlighted potential issues related to soil damage, effects of abandoned plastic piping and other materials, and of intense agro-chemical use.

56. Long term effects on the aquatic ecosystem will result from the expansion of the command area, the greater obstruction of fish movements from construction of permanent weirs, and effects of any increased use and improper handling of agro-chemicals. While the increase of the extent of paddy fields which are seasonally inhabited by fish, molluscs, crustaceans and aquatic insects and the improved water storage resulting by the replacement of the weir will increase the extent of the aquatic habitat, aquatic ecology and in particular fish migration will be impaired, thus also impacting sustainable livelihoods through reduced fish stocks. This will be mitigated by a standard design of weirs, which integrates a fish ramp as a passage for aquatic species. Increased use of agro-chemicals will also potentially have effects on the long term health of the aquatic ecosystem, again to be

mitigated by promotion of organic based pest control methods, use of integrated pest management and related capacity development measures as described in the preceding paragraph.

57. The intensification of agriculture will also lead to greater use of fertilizers. Surplus fertilizer, such as nitrogen compounds that are not taken up by plants or bound in the soil will raise the nutrient status of the water released at the outflow of the system, increasing the chemical oxygen demand of the water. If allowed to accumulate, or if insufficiently diluted when released into the receiving waters, the increased nutrient status may affect the aquatic ecosystem and lead to eutrophication and algal blooms. This risk can be reduced by information and training of farmers in informed use of mineral fertilizers, so that they are applied at optimal levels. This should be provided in the context of good agricultural practices, so that farmers can gain a basic understanding of nutrient needs in relation to soil type and site characteristics, leading to sound decisions about fertilizer type and dosage rate prior to planting and also in response to signs of growth deficiencies. Besides reducing environmental risks, this has the added advantage of reducing farmers' input costs.

58. The incidence of waterborne diseases in local communes is significant. Irrigation water is used as a supplementary source for domestic purposes, and this practice will increase after construction when the more water may be flowing through the system. Risks will come both from waterborne pathogens, and from any increase in ponding that may result from wastages, as ponds provide a habitat for insect vectors of disease. These risks can be mitigated by (i) promoting improved operation and maintenance of the schemes as part of training and support to water user groups so that blockages and ruptures causing water logging are rapidly repaired, and (ii) raising awareness, during training and support to water user groups, on the hazards posed by poor sanitation, water logging and use of untreated irrigation water for drinking.

59. Competition with other water uses. Population growth and increasing incomes will place increasing demands for domestic water supply, as well as for irrigation. This becomes critical during the dry season, and in particular when dry years occur. It is important to allow a minimum stream flow to maintain the aquatic ecosystem as well as meet the demands of users. Hydropower is a further potential use of water, although this use does not compete as such (because water is returned to the stream course) but can modify flows, particularly for systems which use dams, to reduce the variability of flows over the annual cycle. At present, the water for domestic use is obtained from a variety of sources including open wells and gravity fed supplies from streams. Water from the irrigation canals is used for washing and in some cases, drinking and cooking. For the purposes of design, a minimum flow has been estimated (see para 21) although there is an absence of data on dry season flows and their variability from year to year. However, should plans be made to develop intakes for rural water supplies on the streams that feed the irrigation systems, improved data is important as well as formal communication and cooperation to resolve potential conflicts. Improved data could be obtained by systematic recording of water levels in the reservoir. Should a rural water supply scheme be proposed in the area, it will be subject to environmental assessment under the Environmental Protection Law (1999) and EIA Decre (2010) and also the Water and Water Resources Law (1996). The latter is under revision to reflect recent institutional changes and growing use of water for hydropower and irrigation. Article 11 of the draft revised version of the Water and Water Resources Law states that "the allocation of water sources and catchments shall be based on surveys and on data collected, in order that water and water resources are distributed, managed and used effectively and in accordance with their purposes". However, as yet the draft does not provide detail on water resource allocation, or means of arriving at allocation decisions. Future users such as water supply schemes will be obliged under law to assess the resource and the issue of allocation of water to different uses. This will of necessity involve greater data on stream flows, gathering of

further data such as downstream uses and discussion on options such as limits on use during the dry season.

60. Also with increasing population and use of irrigated agriculture, the demand for irrigation water will grow and potentially lead to conflict among users. This can be substantially reduced by collaborative action among users to optimize the use of irrigation water and to ensure that allocations to all users, including those situated at the periphery of the network, are fair.

61. As with all irrigation schemes, soil salinization may occur as a result of the accumulation of salts that are dissolved in the irrigation water, and upward transport of salt deposits in lower soil horizons in the case of over-irrigation. These risks are low for the scheme, as any salt not taken up by growing plants will be subject to natural flushing by rainwater in the wet season, and users consulted during the field visits confirmed that over-irrigation rarely takes place. Over-irrigation is prevented both by the relative shortage of irrigation water towards the edges of the command area, by water regulation for areas closer to the primary canal. While salt build-up may occur in these areas, risks of widespread build-up over irrigated fields are low.

62. Risks of increasing erosion and scour are minimal. Land either side of the canal alignment is gently sloping and not readily prone to erosion. In critical areas in the watersheds (e.g. river banks), bio-engineering concepts are used to design measures to stabilize environments near the infrastructure. There may be some risk to water flows by the deposition of material excavated for house building or other construction purposes, or from dumping of solid waste into the system.

5.5 Key Data Gaps

63. Only present day data is available on stream flows in the Nam Beng, Nam Met and Houay Lor. The amount of water than can be extracted for irrigation use without depleting minimum flows to the extent that they cause the lower reaches of the stream to dry up and damage the aquatic ecosystem, are not known. For reliable planning on levels of permissible extraction, the flow levels in dry years need to be known, and dry years appear to recur on a cycle of between 6 to 10 years approximately. It is therefore not practicable to await long term flow data before stream construction. However, systematic recording of flow rates prior to, during and after construction will serve to guide water users as to maximum permissible extraction rates.

5.6 Uncertainties

64. The principal uncertainty related to this initial environmental examination relates to the lack of information over stream flows and its fluctuation within and between years. Other, though less important uncertainties relate to (i) the effectiveness of the operation of the Water User Group (WUG) for the scheme, and (ii) the effectiveness of extension on the use of pesticides, fertilizers and improved agriculture techniques to take place during implementation and (iii) the effectiveness of land use planning in protecting or enhancing the integrity of the catchment as well as safeguarding livelihoods for people living in and around the subproject area.

5.7 Global, Transboundary and Cumulative Impacts

65. The controlled use of irrigation water and the use of potentially harmful chemicals in pest control are, to some extent, transboundary issues. Risks of the use of harmful substances or excessive use of less harmful substances in irrigated agriculture are heightened by ready availability from neighbouring countries. In particular, Chinese products

that provide no information on active ingredients, hazard warnings or instructions in Lao and English are regularly purchased and used in the subproject area. These risks can be reduced by improved regulation of the agro-chemical industry within China, and improved control over the trading of these over the China / Lao PDR border, as well as by improved information collection on agrochemicals available on the local market, and dissemination on their proper use.

66. Irrigation schemes always cause some reduction in downstream water flows, due to increased losses to evapotranspiration. For a small scheme such as the Nam Beng, the transboundary impact is minimal but any successful promotion of efficient use of irrigation water will both minimize wastage in the scheme itself and also provide a source of knowledge for adoption by practitioners of irrigated agriculture in the neighboring area.

67. Similarly, any improvements in managing irrigation, use of agro-chemicals and in group capacities for co-operative action will have a potentially cumulative impact in the area, by contributing to a build-up of knowledge and skills among communities who interact with neighboring communities. The spread of this knowledge and capability can be enhanced by organizing visits of by new WUGs to villages where WUGs have been in place for some years and have shown capabilities. These may be those formed earlier during NRIDP or under preceding projects. Appropriate plans for such visits can be made by liaising with the PPO in the project provinces to identify stronger WUGs, and arrange consents for the field visits to take place.

6. Analysis of Alternatives

68. The Nam Beng Irrigation Subproject is one of a number of candidate irrigation subprojects selected for the NRIDP under additional financing. Alternative subprojects are also other irrigation schemes. The Nam Beng Irrigation Subproject has been selected on the basis of the number of beneficiaries, the relatively advanced stage of concept design and its situation within Beng district, Oudomxay province, which has been identified as a NRIDP target area under additional financing.

69. The existing irrigation system is gravity fed, utilizing a weir and canal network. There may be no other alternative water sources than Nam Beng, Nam Met and Houay Lor nearby. As a gravity fed scheme, it will be relatively simple to construct and maintain and inexpensive to operate. The use of a weir is necessary in order to provide sufficiently regular flows for irrigated agriculture to be feasible.

70. The “no project” alternative would, in this case, simply mean the substitution of the Nam Beng with an alternative scheme within Beng district or another project target area.

7. Information Disclosure, Consultation and Participation

7.1 Consultations and Information Disclosure during Subproject Design

71. Two public consultations/meetings were carried out for the preparation of the IEE document. The first consultation took place during the introductory meetings conducted at Yor village on 26 February 2015, then at Nam Met village on 27 February 2015. Mainly, the subproject information and participating district and scheme selection were discussed with the PAFO, DAFO officials and with the subproject villagers. The second consultation was organized on 15 May 2015 with representatives from the villages of Nammet, Houay Lor, Yor and Xienglae which included the consultation for IEE.

72. Overall, the GIC consultation and public participation presented the following agenda and information about the proposed subproject. The presentations were followed by discussions to collect opinions from people who may be affected:

- Summary of the proposed works under the subproject;
- Summary of subproject objectives and likely positive and negative environmental impacts during the construction and operational phases;
- Any areas of concern that they may have during project implementation; and
- Acceptability of the proposed works to the public.

73. The attendance of the subproject beneficiaries during the consultations/meetings has been recorded. Attendance sheets are included as **Attachment 1**, and the Photos of the public consultations are presented in **Attachment 2**. Findings of the consultations are summarized in **Attachment 3.** The consultations confirmed the desire for subproject components including improved, permanent headworks, WUG formation, catchment management planning, training/awareness raising on use of pesticides, improvements of the irrigation canal system, training in high yield varieties as part of training in irrigated agriculture, training in animal husbandry, training in basic concepts of rural development and gender awareness raising and related training, Participants also called for restrictions on imports of chemical fertilizers and herbicides.

7.2 Further Information Disclosure

74. This draft IEE will be presented to the village officials and the subproject beneficiaries, to district administrations and to the PAFO and PONRE in Oudomxay again to invite comment from the public in accordance with the EIA Decree No. 112/PM, dated 16 April 2012. Copies will be left for review for a period of 30 days.

75. During construction and operation, communities in and around the subproject area will kept informed of construction activities that are likely to cause noise and dust nuisance, or disruption to irrigation flows or roads and pathways.

8. Grievance Redress Mechanism

8.1 Requirements

76. These mechanisms are defined in the Project's Resettlement Framework aiming at the participation of APs throughout the various stages of LARC planning and implementation of subprojects. The information for APs about entitlements, compensation and supportive mitigation options and grievance mechanisms shall be provided by the Project's relevant agencies and committees. Extensive meetings with APs also allow the implementing agencies to identify the needs and preferences of APs pertaining to compensation and rehabilitation assistance and to reduce any negative potential impacts caused by the proposed subproject.

77. In terms of grievance redresses, the villagers have been briefed about rights to grievance and the procedures during feasibility and detailed design stages in case LARC items would become a subproject related issue. This shall be repeated at the start of construction phase. The APs 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 APs are not satisfied with the decisions made by the village and district levels/committees. APs will be exempted from all taxes, administrative and legal fees associated with their claims and grievance redress.

8.2 Grievance Approach

78. The main steps outlined below serve as an orientation for the grievance main approach. Additional steps can be incorporated as appropriate. For each step details shall be described, agreed and explained to both resettlement responsible committees and the residents of affected villages.

79. In general, APs are entitled to lodge complaints regarding any aspect of the preparation and implementation of this LAC Report without prejudice to their right to file complaints with the court of law at any point in the process. The implementing agencies will shoulder all administrative and legal fees that will be incurred in the resolution of grievances and complaints.

80. It is recognized that members of AHs might not have writing skills or ability to articulate their grievances verbally, however, then AHs are encouraged to seek assistance from the subproject and/or nominated local non-governmental organizations and/or other family members, village heads to have their grievances recorded in writing and to have access to the LARC documentation, and to any survey or valuation of assets, to ensure that where disputes do occur all the details have been recorded accurately enabling all parties to be treated fairly.

81. All complaints and resolutions will be properly documented by the PPO/DCO and be available for (a) the public and (b) review for monitoring purposes.

Table 2: NRIDSP Main Steps of Grievance Mechanisms

Serial No.	Procedural Steps
1	In each village existing mediation committees would be the first contact for APs to address their concerns. It is recommended that in agreement with villages either this committee would be responsible for LARC issues or the village would establish a project related LARC committee. The village shall decide about its community internal approach.
▼	
2	APs would address their complaints to committee/s that would have to react within a defined time (5 days to be defined by village) after submission of the complaint.
▼	
3	In case provided responses are not satisfying to affected people the grievance applications would be forwarded to the district council for resolution within a defined time (5 days) from the date of filing the complaint with this court.
▼	
4	In case APs are still not satisfied next steps could involve provincial authorities that would have to issue a final decision within a defined time (10 days).
▼	
5	If subproject APs are still not satisfied with the response given or decisions made, the complaint can be elevated at national level either to the national court, if legal decision at provincial level will require this, or to the NPMO which is to be established by the DOP through which the MAF will be responsible for the overall project management for final clarification in this matter within 15 days.

9. Environmental Management Plan

9.1 Responsibilities for Environmental Management

82. Table **3** describes the mitigation measures required for design, construction and operation of the scheme, as well as the cost and responsibility allocation arrangements. Overall responsibility for implementing the Environmental Management Plan rests with

PAFO, which during design and construction will be supported by the provincial project office (PPO) in Oudomxay province, and during operation will involve co-operation with scheme users. Responsibility for incorporating mitigation into scheme design rests with PAFO, supported by the project implementation consultants who will have appropriate specialists based at the national project management office (NPMO) in Vientiane.

83. Responsibility for carrying out environmental mitigation of construction impacts again rests with the PAFO, as the agency responsible for construction supervision. However, the EMP should form part of the works contract documentation so that the contractor in each case incorporates the cost of mitigation into the bid price, including provision of staff and equipment n necessary to carry out all mitigation tasks in full.

84. During scheme operation, responsibility for mitigation rests primarily with the scheme users, supported by PAFO.

Table 3: Environmental Management Plan Summary

Potential Environmental Impact	Mitigation measure(s)	Cost Allocation	Responsibility for Implementation
Pre-Construction Stage			
Safety Hazards to workers and local people, and effects of temporary worker populations in the area	Preparation of plans by the Contractor, allocating responsibilities for safety, health and welfare to senior staff; preparation of plans for first aid and emergency procedures; preparation of plans for satisfactory accommodation of workers, and of information and instruction to be disseminated to workers regarding risks of communicable diseases.	Construction Cost	Contractor
Effects on homes and property	Completion of land acquisition and compensation tasks as detailed in the Resettlement Framework for the sector project	RF budget	NPMO / Consultants
Effects of the construction of a temporary vehicle access track	Selection of the alignment of the access track to minimize extent of earthworks necessary; securing of agreements with affected landowners	Design task (negligible cost)	PPO/DCO
Possible social conflicts, noise and air pollution due to site selection for work camps.	Proper site selection, observing criteria which primarily protect the general public. Observe a minimum distance (buffer zone) between camp site and nearest residential area. Employ mediators to curb social conflicts.	Construction Cost	Contractor
Environmental problems associated with location/selection and abandonment of quarry sites, such as erosion, landslides, sedimentation, soil contamination, damage or loss of habitats and biodiversity.	(i) Preparation of site management plan, indicating rehabilitation options and requirements to observe environmental safeguards, especially for adjacent water resources and crop lands. (ii) Contractor must present a decommission plan for each quarry site, to be approved by the Engineer.	Construction Cost	Contractor
Impacts from Construction			
Effects associated with the extraction of materials	(i) re-use of excavated material to the extent practicable, (ii) obtaining materials from licensed quarries and (iii) forming appropriate agreements with landowners for borrow sites, and landscaping works to used borrow sites, in accordance with the agreements made with landowners.	Construction Cost	Contractor

Potential Environmental Impact	Mitigation measure(s)	Cost Allocation	Responsibility for Implementation
Release of silt	(i) Adequate supervision of the works, (confining excavation works to the dry months, (iii) discretionary use of silt traps where warranted and (iv) careful placing of excavated material	Construction Cost	Contractor
Temporary closure of the irrigation system	Use of temporary diversions using pipes and pumps where necessary; involvement of scheme users in planning of the works	Construction Cost	Contractor
Dust generation and noise nuisance	(i) Wetting of excavation sites and stockpiled material during dry and windy weather, when within 50m of an occupied dwelling (ii) Excessive noise from construction activities is not expected to be an issue, since the works are not located near residential areas. Where there is excessive noise disturbance, agreement shall be made with local communities on restriction of working hours	Construction Cost	Contractor
Use of land for storage and as works depots	Compensation to landowners according to the LARP and restoration of land to former condition or better, according to agreements formed with landowners	Construction Cost	Contractor
Effects of construction of temporary vehicle access track	(i) careful supervision of earthworks to ensure minimal damage to farmland and vegetation, (ii) reuse of surplus spoil, distribution to users in or near the subproject area, or disposal at a site approved by the PAFO / PPO.	Construction Cost	Contractor
Effects of temporary worker populations	(i) consultation with local people on acceptable areas for siting of facilities, (ii) installation of suitable toilets such as pit latrines and grey water drainage facilities such as soakage pits (iii) arrangements for collection of solid waste, (iv) briefing of workers and awareness raising of the local population on dangers of communicable diseases and (v) assignment of responsibility for worker and local peoples' welfare to a senior member of the Contractor's staff.	Construction Cost	Contractor
Safety hazards to workers and local people	Allocation of responsibility for site safety to the Contractor's site supervisors staff, who will ensure that all reasonable safety measures, such as use of safety clothing and equipment and placing of hazard warnings are taken.	Construction Cost	Contractor
Storage, handling and use of fuels and other hazardous materials	Storage of fuels and any other hazardous materials at prescribed secure locations. Responsibility of security and tidiness of store and operation of fuel refilling equipment to be allocated to designated personnel.	Construction Cost	Contractor

Potential Environmental Impact	Mitigation measure(s)	Cost Allocation	Responsibility for Implementation
Impacts from Operation			
Effects of intensified agricultural production	(i) instruction in good agricultural practice including purchase and use of pesticides, promotion of the informed use of mineral fertilizers, promotion of the concept of integrated pest management, and emphatic discouragement of the use of persistent pesticides. (ii) Enforcement and monitoring of proper use of fertilizers and pesticides	Included in Capacity Building budget (for training) and associated investments	PPO/DCO WUG (Head of Production Group) NPMO/Consultant for Training
Obstruction of water flows in the canals from sediment or other deposits	Support to water user groups so that users discourage or prevent any placing of material or solid waste in the canals.	Included in associated investments	PPO/DCO
Competition for use of irrigation water and with other water uses	(i) Reliable collection of information on water levels in the canal system, to enable sound planning of further water use and distribution among WUG. (ii) Mechanism developed for formal communication to resolve conflicts between upstream and downstream water users. (iii) Possible management measure during dry years when flows run low, ensuring environmental flow to maintain the riparian ecosystem.	Included in Capacity Building budget (for training)and associated investments	PPO/DCO WUG (Head of water management group) NPMO/Consultant for Training
Collapse of canals	Routine and periodic maintenance, according to a well designed and adequately resourced maintenance program	Included in associated investments	PPO/DCO WUG
Leaching of nutrients	Promotion of sustainable irrigated agriculture and soil management methods	Included in associated investments	PPO/DCO
Occurrence of water related diseases	(i) promoting improved operation and maintenance of the schemes through water user groups (ii) raising awareness on hazards posed by poor sanitation, water logging and hazard of using of irrigation water in the canal system for drinking.	Included in associated investments	PPO/DCO

9.2 Approach to Environmental Monitoring

85. Environmental monitoring will cover (i) compliance monitoring, to ensure that mitigation specified in the EMP is carried out to an adequate standard, (ii) community feedback to obtain views and information on relevant environmental parameters and (iii) water quality testing.

86. Water quality testing is necessary to detect any deterioration of water quality and in view of the fact that some scheme users use the scheme water as a supplementary source of domestic water supply, to ensure that it is not dangerous for that purpose although the hazards of using water in the canal system for drinking need to be made clear as part of awareness raising. Testing has therefore been designed to gauge suitability for irrigation, rather than for drinking water quality. In order to determine the safety of the water, it should be tested for levels of coliform bacteria, chemical and biological oxygen demand. The following parameters and limits are recommended:

Parameters	**Maximum Value**
Ph	5.5 - 9
Faecal Coliforms	<1,000 per 100 ml
Biological Oxygen Demand (20oC)	<25 mg/l
Chemical Oxygen Demand	<35 mg/l

87. Samples should be taken from behind the weir, within the canal system, and at a point downstream of the irrigation network. This should be done prior to, during and after construction, and taken to an appropriate laboratory for analysis.

88. Environmental pollution due the use of pesticides impacts in particular water quality of rivers and irrigation canals. Yet, measuring and analyzing pesticides in water samples is a highly sophisticated process, and thus the capacities and laboratories for such complex analyses are frequently missing. Therefore a simple and inexpensive method for indicating overall water quality is used. For improving water quality monitoring, a straightforward and low-cost assessment tool is to evaluate water quality by using macro invertebrates. It is a proven method in Europe and other countries and has been introduced in Lao PDR in 2014 by the Asia Foundation and FISHBIO for community based water quality monitoring. Ten communities in central Laos use the tool for assessing the possible impact e.g. from cassava and cement production, gold mining and small hydropower development. This method will be used for the water quality baseline assessment upstream and downstream of the planned irrigation systems before the construction, as well as annually during the operation phase.

Table 4: Environmental Monitoring Plan

Impact to be Monitored	Parameters	Location	Measurements	Frequency	Responsibilities
Design and Preconstruction Phase					
Level of pathogens in water for irrigation / domestic use	Ph; Faecal Coliforms; Biological Oxygen Demand (20oC) and Chemical Oxygen Demand	Selected sample sites in the command area	Collection of sample and laboratory analysis	Quarterly, approximately 12 months prior to construction	PPO/DCO
Overall water quality	Macro invertebrates	Sampling above and below the command area	Collection of sample and analysis	Once before construction	PPO/DCO/ Villagers
Health and safety and welfare of workers and the public	Compliance with EMP	All work sites / worker accommodation	Compliance	Once	PPO/DCO
Construction Phase					
Prevention of accumulation of excessive pathogens in water for irrigation / domestic use	Changes as perceived by irrigation scheme users	Participating villages	Consultations	To be decided by PAFO / PPO at the start of the works	PPO/ DCO
	Ph; Faecal Coliforms; Biological Oxygen Demand (20oC) and Chemical Oxygen Demand	Selected sample sites in the command area	Collection of sample and laboratory analysis	Before construction and at two-monthly intervals during construction	PPO/DCO
Adequacy of and effectiveness of the scheme: quantity of water; increases in crop yields; occurrence of disputes	Opinions of users	Participating villages	Consultations	To be decided by PAFO / PPO at the start of the works	PPO/DCO
Implementation of construction mitigation measures detailed above	Compliance	All work sites	Consultations	To be decided by PAFO / PPO at the start of the works	PPO/DCO

Operation Phase					
Prevention of accumulation of excessive pathogens in water for irrigation / domestic use	Changes as perceived by irrigation scheme users	Participating villages	Consultations	To be decided by PAFO / PPO at the start of the works	PPO/DCO
	Ph; Faecal Coliforms; Biological Oxygen Demand (20oC) and Chemical Oxygen Demand	Selected sample sites in the command area	Collection of sample and laboratory analysis	Quarterly	PPO /DCO/WUG
Overall water quality/ use of agro-chemicals	Macro invertebrates	Sampling above and below the command area and if warranted on selected sites in the command area	Collection of sample and analysis	Annually	PPO/DCO/ Villagers
Adequacy of and effectiveness of the scheme: quantity of water; increases in crop yields; occurrence of disputes	Opinions of users	Participating villages	Consultations	To be decided by PAFO / PPO at the start of the works	PPO/DCO
	Water flow monitoring	Water level behind the weir	Measurements	Continuously, by use of automatic water level meter and data logger	PPO/DCO
Capacity building / awareness raising choice, use, handling and storage of agro-chemicals	Types of agro-chemical purchased, standard of storage and handling, dosage levels	Participation	Observations and Consultations	Quarterly	PPO/DCO
Obstruction to water flows	Occurrence of sediment or other deposit in the canal system	Canal networks	Observations	Quarterly	PPO/DCO
Competition for use of irrigation water with other uses	Occurrence of new users e.g. water supplies / micro hydro schemes	Participating villagers	Observations and Consultations	As and when this may occur	PPO/DCO

Failures in routine maintenance (eg collapse of canals)	Collapse of canals and similar	Participating schemes	Observations	Quarterly	PPO/DCO
Occurrence of water related diseases	Increases / decreases in Incidence of water related diseases	Participating villages	Observations and Consultations with villagers and health workers	Quarterly	PPO/DCO

10. Conclusion and Recommendation

89. The initial environmental examination process has found that the subproject will not cause significant negative environmental impacts. Potential negative impacts relate mainly to the construction phase and can be managed and brought to acceptable levels through the implementation of the Environmental Management Plan. No further environmental assessment is therefore required.

90. The subproject is therefore be classified as Category B according to the ADB's classification system. This refers to projects that are judged to have some adverse environmental impacts, but of lesser degree or significance than those for Category A projects.

91. It is recommended that the Environmental Management Plan is included in contract documentation for works contracts, and in agreements formed with water user groups. Emphasis should be placed on regular monitoring of stream water flows.

Attachment 1: Consultation Attendance Sheet (1/13)

23February 2015 at PAFO, Xay District, Oudomxay Province

Participated by the staff of PAFO, DCOs of Beng and Houn Districts

Lao People's Democratic Republic
MINISTRY OF AGRICULTURE AND FORESTRY
DEPARTMENT OF PLANNING AND COOPERATION

NORTHERN RURAL INFRASTRUCTURE DEVELOPMENT SECTOR PROJECT ADB Grant NO. 0235-LAO (SF)

Unit 7, Ne Rhu Road, Ban Phonexay, Xaysettha District, Vientiane Capital, Lao PDR Telefax: +856 21 990 249 Email: npmo.nri@gmail.com

Village consultation for subproject (ກອງປະຊຸມປຶກສາຫາລື)..................

ວັນທີ (Date):.........23/2/2015

ສະຖານທີ່ປະຊຸມ (Location):......[illegible]

ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
[redacted]	[redacted] [illegible]	[illegible]	ລາວ [illegible]	[illegible]	NRI [illegible]	96902848	Beng.NRI@gmail.com
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	99366588	
3	[illegible]	[illegible]	[illegible]	[illegible]	NRI	55444477	Simounthi@yahoo.com
4	[illegible]	[illegible]	[illegible]	[illegible]	NRI	55611591	[signature]
5	[illegible]	[illegible]	[illegible]	[illegible]	NRI	55362163	[signature]
6	[illegible]	[illegible]	ລາວ	[illegible]	NRI-GIC	22337238	[signature]
7	[illegible]	[illegible]	ລາວ	[illegible]	[illegible]	28184456	[signature]
8	[illegible]	[illegible]	ລາວ	[illegible]	[illegible]	55926715	[signature]
9	[illegible]	[illegible]	ລາວ	PPO	[illegible]	55480135	[signature]

ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
10	[illegible]	[illegible]	ລາວ	[illegible]	[illegible]	23677555	[signature]
11	[illegible]	[illegible]	ລາວ	[illegible]	[illegible]	52554175	[signature]
12	[illegible]	[illegible]	ລາວ	[illegible]	[illegible]	22614283	[signature]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	53609763	[signature]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	55376855	[signature]
15	[illegible]	[illegible]	ລາວ (ໄທ)	[illegible]	[illegible]	22661488	[signature]
16	[illegible] (Yeng yer)	[illegible]	[illegible]	CD/PBME	GIC	55411860	[signature]
17	[illegible]	[illegible]	ລາວ	[illegible]	NPMO/NRI	[illegible]	[signature]
18	[illegible]	[illegible]	ລາວ	[illegible]	[illegible]	22841939	[signature]
19							
20							
21							
22							
23							
24							
25							
26							
27							

ຄຳຫລ້າ [illegible]

Attachment 1: Consultation Attendance Sheet (2/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (1/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

ເຂົ້າຮ່ວມ 248 ຄົນ
ຍິງ 117 ຄົນ

ໂຄງການພັດທະນາ ໂຄງລ່າງຊົນນະບົດພາກເໜືອ (ພຊຮ)

ກອງປະຊຸມ [illegible]

ວັນທີ 26/2/2015

ສະຖານທີ່ [illegible]

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຕິກ (√) ຫຼື ຂຽນຊົນເຜົ່າຂອງທ່ານເອງໃສ່ຫ້ອງລຸ່ມນີ້			ເບີໂທລະສັບ	ເຊັນ
					ຊົນເຜົ່າຕາມພອດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມພອດ ພາສາມົງ-ຂະແມ	ຊົນເຜົ່າຕາມພອດ ພາສາມົ້ງ-ອິ້ວມ່ຽນ		
1	[illegible]	ຊາຍ		[illegible]		[illegible]		0304829178	[illegible]
2	[illegible]	ຊາຍ		[illegible]		[illegible]			[illegible]
3	[illegible]	ຊາຍ		[illegible]		[illegible]			[illegible]
[redacted]		[illegible]		[illegible]	[illegible]			[illegible]	[illegible]
5	[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	[illegible]
6	[illegible]	√		[illegible]		[illegible]			[illegible]
7	[illegible]	[illegible]		[illegible]		[illegible]		020 56634556	[illegible]
8	[illegible]	[illegible]		[illegible]		[illegible]		02059264016	[illegible]
9	[illegible]	√		[illegible]		[illegible]			[illegible]
10	[illegible]	[illegible]		[illegible]		[illegible]			[illegible]

ໝາຍເຫດ: ຂໍອາໄພສໍາລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາກໍາລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 1

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສໍາລັບການຕິດຕໍ່ພົວພັນ Contact address
11	28	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]
12	29	[illegible]						[illegible]
13	30	[illegible]						[illegible]
14	31	[illegible]						[illegible]
15	32	[illegible]						[illegible]
16	33	[illegible]						[illegible]
17	34	[illegible]						[illegible]
18	35	[illegible]						[illegible]
19	36	[redacted]						[illegible]
20	37	[illegible]						[illegible]
21	38	[illegible]						[illegible]
22	39	[illegible]						[illegible]
23	40	[illegible]						[illegible]
24	41	[illegible]						[illegible]
25	42	[illegible]						[illegible]
26	43	[illegible]	[illegible]			[illegible]		[illegible]
27	44	[illegible]	[illegible]					[illegible]
	45							

3

Attachment 1: Consultation Attendance Sheet (3/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (2/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

	ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຕິກ (✓) ຫຼື ຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້: ຊົນເຜົ່າການພູດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າການພູດ ພາສາມົ້ງ-ອິວມຽນ	ຊົນເຜົ່າການພູດ ພາສາມອນ-ຂະແມ	ເບີໂທລະສັບ	ເຊັນ
28	11	[illegible]	[illegible]		[illegible]		[illegible]		0309[illegible]	[illegible]
29	12	[illegible]	✓		[illegible]		[illegible]			[illegible]
30	13	[illegible]	✓		[illegible]		[illegible]		0205231[illegible]	[illegible]
31	14	[illegible]	✓		[illegible]		[illegible]		[illegible]	[illegible]
32	15	[illegible]	✓		[illegible]		✓		0305898218[illegible]	[illegible]
33	16	[illegible]	✓		[illegible]				02056844922	[illegible]
34	17	[illegible]	✓		[illegible]				02055447271	[illegible]
35	18	[illegible]	✓		[illegible]					[illegible]
36	19	[illegible]	✓		[illegible]		✓			[illegible]
37	20	[illegible]	✓		[illegible]		✓		5489[illegible]	[illegible]
38	21	[illegible]	✓		[illegible]		✓			[illegible]
39	22	[illegible]								
	23									
	24									

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□າລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 2

ໂຄງການພັດທະນາ ໂຄງລ່າງຊົນນະບົດພາກເໜືອ (ພຊຮ)

ກອງປະຊຸມ...

ວັນທີ.......................

ສະຖານທີ່.......................................

	ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຕິກ (✓) ຫຼື ຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້: ຊົນເຜົ່າການພູດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າການພູດ ພາສາມົ້ງ-ອິວມຽນ	ຊົນເຜົ່າການພູດ ພາສາມອນ-ຂະແມ	ເບີໂທລະສັບ	ເຊັນ
40	1	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
41	2	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
42	3	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
43	4	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
44	5	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
45	6	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
46	7	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
47	8	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
48	9	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]
49	10	[illegible]	ຍິງ	ຊາວນາ	ບ້ານຍໍ		[illegible]			[illegible]

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□າລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 1

Attachment 1: Consultation Attendance Sheet (4/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (3/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
50	46	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
51	47	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]	ນາຍບ້ານ ບ້ານ ຍໍ	[illegible]
52	48	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
53	49	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
54	50	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
55	51	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
56	52	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
57	53	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
58	54	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
59	55	[illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
60	56	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
61	57	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
62	58	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
63	59	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
64	60	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
65	61	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
66	62	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]
67	63	ນ. [illegible]	ຍິງ	[illegible]	ບ້ານຍໍ	[illegible]		[illegible]

4

	ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາໝາຍ (√) ຖ້າ ທ່ານຖືວ່າຕົນເອງໄດ້ເປັນ: ຊົນເຜົ່າກຸ່ມພາສາລາວ-ໄຕ	ຊົນເຜົ່າກຸ່ມພາສາມົ້ງ-ອິ້ວມຽນ	ຊົນເຜົ່າກຸ່ມພາສາມອນ-ຂະແມ	ເບີໂທລະສັບ	ເຊັນ
68	11	ນ. [illegible]	ຍິງ	√		[illegible]				
69	12	ນ. [illegible]	ຍິງ	"		" "	ນາຍບ້ານ ບ້ານ ຍໍ			
70	13	[illegible]	ຊາຍ	—		—			580595 20	[illegible]
71	14	[illegible]	ຊາຍ	—		—			55127992	[illegible]
72	15	[illegible]	ຊາຍ	—		—				
73	16	[illegible]	ຊາຍ	—		—				
74	17	[illegible]	ຊາຍ							
75	18	[illegible]	ຊາຍ	—		—				
76	19	[illegible]	ຊາຍ	—						
77	20	ນ. [illegible]	ຍິງ	—						
78	21	ນ. [illegible]	ຍິງ	—						
79	22	ນ. [illegible]	ຍິງ	—						
80	23	[illegible]	ຊາຍ	—		—				
81	24	[illegible]	ຊາຍ	—	[illegible]	—				

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□ຈຳເປັນຕ້ອງຈັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 2

Attachment 1: Consultation Attendance Sheet (5/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (4/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

ໂຄງການພັດທະນາ ໂຄງລ່າງຊົນນະບົດພາກເໜືອ (ພຄຊ)

ກອງປະຊຸມ...

ວັນທີ......................................

ສະຖານທີ່..

	ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຕິກ (√) ຖ້າ ຂ່ານຊື່ເຜົ່າຂອງທ່ານເອງໃສ່ຊ່ອງລຸ່ມນີ້: ຊົນເຜົ່າໃນໝວດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າໃນໝວດ ພາສາປົ້ງ-ອີລາບຽນ	ຊົນເຜົ່າໃນໝວດ ພາສາມອນ-ຂະແມ	ເປັນໂລະສິນ	ເຊັນ
82	1	[illegible]	[illegible]	[illegible]		[illegible]				
83	2	[illegible]	[illegible]	〃		〃 〃				
84	3	[illegible]	[illegible]	〃		〃 〃				
85	4	[redacted] [illegible]	[illegible]	〃		〃 〃				
86	5	[illegible]	[illegible]	〃		〃 〃				
87	6	[illegible]	[illegible]	〃		〃 〃				
88	7	[illegible]	[illegible]	〃		〃 〃				
89	8	[illegible]	[illegible]	〃		〃 〃				
90	9	[illegible]	[illegible]	〃		〃 〃				
91	10	[illegible]	[illegible]	〃		〃				

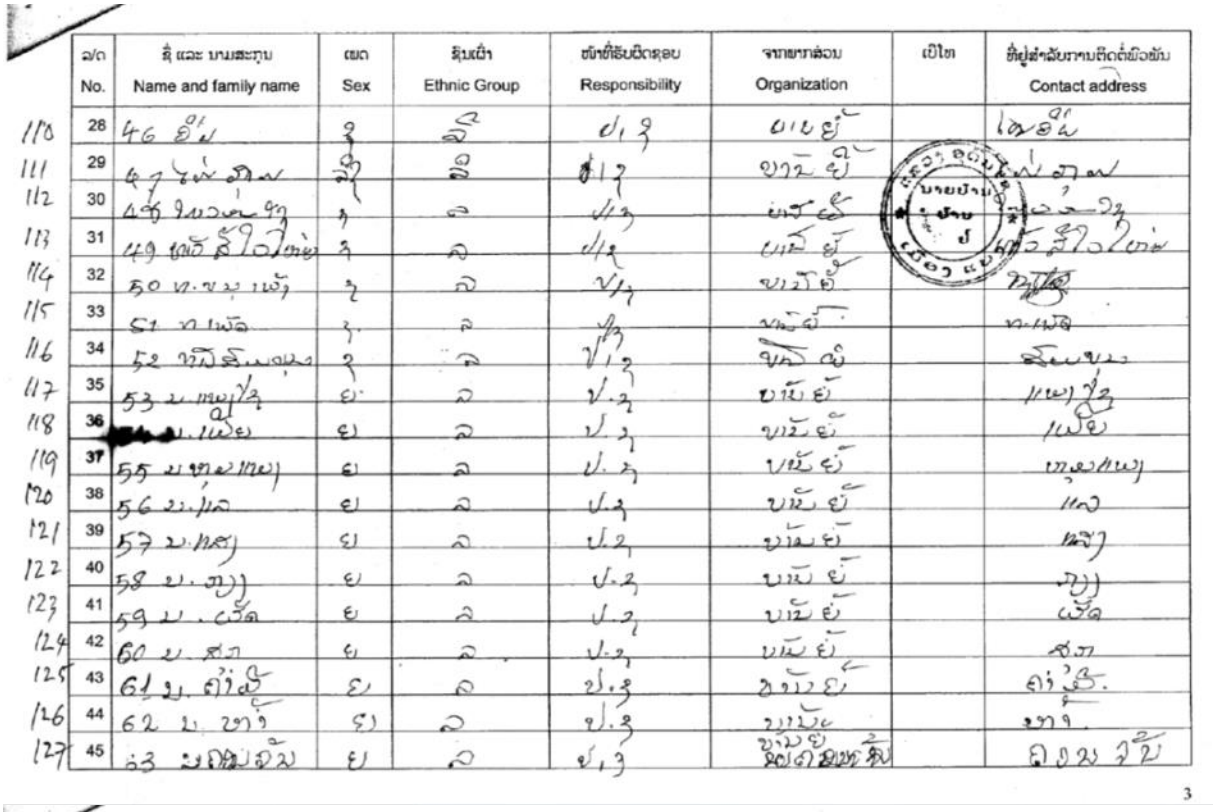
ໝາຍເຫດ: ຂໍ້ອາໄສສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□າລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 1

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
92	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22841939	[illegible]
93	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52554135	[illegible]
94	30	[illegible]			[illegible]	[illegible]	54609763	[illegible]
95	31	[illegible]			[illegible]	[illegible]	54934348	[illegible]
96	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
97	33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
98	34	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
99	35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	02 05960 5480	[illegible]
100	36	[redacted] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
101	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
102	38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
103	39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
104	40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
105	41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
106	42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
107	43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
108	44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
109	45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

3

Attachment 1: Consultation Attendance Sheet (6/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (5/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)



ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກຫາກ່ອນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
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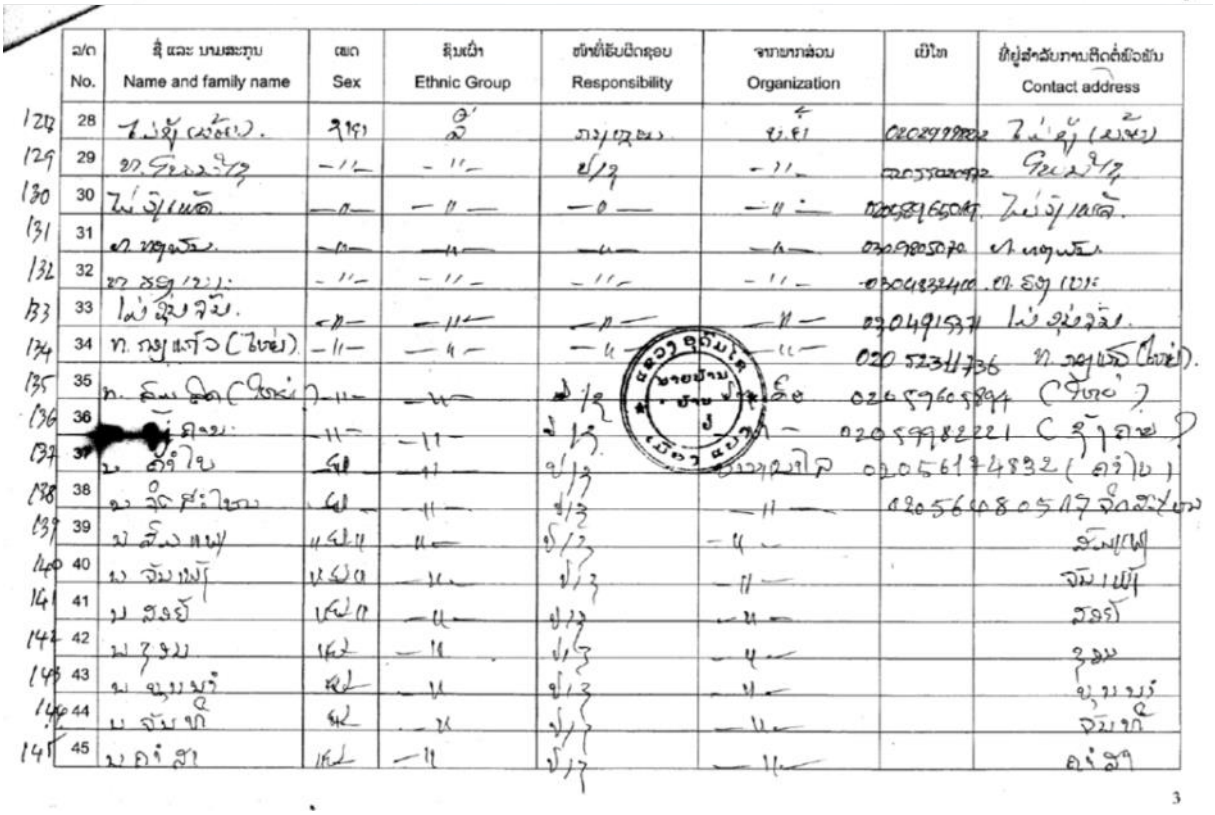

ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກຫາກ່ອນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
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Attachment 1: Consultation Attendance Sheet (7/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (6/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
146	28	[illegible]	[illegible]	[illegible]	PPC	[illegible]	55480135	[illegible]
147	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56447597	[illegible]
148	30	[illegible]	–	–	[illegible]	[illegible]	5644847[illegible]	[illegible]
149	31	[illegible]	–	–	–	–		[illegible]
150	32	[illegible]	–	–	–	–		
151	33	[illegible]	–	–	–	–	56803649	[illegible]
152	34	[illegible]	–	–	–	–		[illegible]
153	35	[illegible]	–	–	–	[illegible]	97349633	[illegible]
154	36	[illegible]	–	–	–	[illegible]	55183965	[illegible]
155	37	[illegible]	–	–	–	[illegible]	56456452	[illegible]
156	38	[illegible]	–	–	–	–	54463976	[illegible]
157	39	[illegible]	–	–	–	–	0305475390	[illegible]
158	40	[illegible]	–	–	–	–		[illegible]
159	41	[illegible]	–	–	–	–		[illegible]
160	42	[illegible]	–	–	–	–	9795003	[illegible]
161	43	[illegible]	–	–	–	–		[illegible]
162	44	[illegible]	–	–	–	–		[illegible]
163	45	[illegible]	–	–	–	[illegible]	94567845	[illegible]

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19D.

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
164	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56175480	[illegible]
165	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
166	30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58455886	[illegible]
167	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
168	32	[illegible]	[illegible]	–	[illegible]	[illegible]	99366788	[illegible]
169	33	[illegible]	[illegible]	–	[illegible]	[illegible]	54133243	[illegible]
170	34	[illegible]	[illegible]	–	[illegible]	[illegible]	~~5413~~	[illegible]
171	35	[illegible]	[illegible]	–	[illegible]	[illegible]		[illegible]
172	36	[illegible]	[illegible]	–	[illegible]	[illegible]	56447634	[illegible]
173	37	[illegible]	[illegible]	–	[illegible]	[illegible]	58051279	[illegible]
174	38	[illegible]	[illegible]	–	[illegible]	[illegible]		[illegible]
175	39	[illegible]	[illegible]		–	–	59699253	[illegible]
176	40	[illegible]	[illegible]		–	–	55108296	[illegible]
177	41	[illegible]	[illegible]		–	–		[illegible]
178	42	[illegible]	[illegible]	–	–	–		[illegible]
179	43	[illegible]	[illegible]	–	[illegible]	[illegible]	54951334	[illegible]
180	44	[illegible]	[illegible]	–	[illegible]	–	98910618	[illegible]
181	45	[illegible]	[illegible]	–	[illegible]	–	54539704	[illegible]

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Attachment 1: Consultation Attendance Sheet (8/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (7/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
182 28							
183 29							
184 30							
185 31							
186 32							
187 33							
188 34							
189 35							
190 36							
191 37							
192 38							
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196 42							
197 43							
198 44							
199 45							

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ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
200 28							
201 29							
202 30							
203 31							
204 32							
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206 34							
207 35							
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209 37							
210 38							
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212 40							
213 41							
214 42							
215 43							
216 44							
217 45							

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Attachment 1: Consultation Attendance Sheet (9/13)

26February 2015 at Yor Village, Beng District, Oudomxay Province
Participated by the villagers of 259 persons (124 females) (8/8)
(Ban Yor, Ban HouayLor, Ban Na Lai, Ban Pangdeuane, Ban Xienglae)

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
228	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22661488	[illegible]
229	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97169624	[illegible]
230	30	[illegible]	[illegible]	[illegible]	—	—		[illegible]
231	31	[illegible]	[illegible]	[illegible]	—	—		[illegible]
232	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
233	33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
234	34	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
235	35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
236	36	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
237	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5883594	[illegible]
238	38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
239	39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	58093442	[illegible]
240	40	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]
241	41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
242	42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
243	43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
244	44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56001505	[illegible]
245	45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22836584	[illegible]

3

	ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຂີດ (√) ຫຼື ຂຽນຊື່ເຜົ່າຂອງທ່ານເອງໃສ່ຊ່ອງລຸ່ມນີ້: ຊົນເຜົ່າພາສາ ລາວ-ໄຕ	ຊົນເຜົ່າພາສາ ມົ້ງ-ອິວມຽນ	ຊົນເຜົ່າພາສາ ມອນ-ຂະແມ	ເບີໂທລະສັບ	ເຊັນ
246	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
247	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
248	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	
249	14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
250	15	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]		58069383	[illegible]
251	16	[illegible]	[illegible]		[illegible]	[illegible]			91?04044	[illegible]
252	17	[illegible]	[illegible]		[illegible]	[illegible]			99292594	[illegible]
253	18	[illegible]	[illegible]		[illegible]				58695631	[illegible]
254	19	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]			58096376	[illegible]
255	20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			97750971	[illegible]
256	21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			5336161	[illegible]
257	22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
258	23	[illegible]	—	—	—	—			5058229	[illegible]
259	24	[illegible]	—	—	—	—			54035408	[illegible]

25

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຊາຕິຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາຈຳເປັນຕ້ອງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 2

Attachment 1: Consultation Attendance Sheet (10/13)

27February 2015 at Nam Met Village, Beng District, Oudomxay Province
Participated by the villagers of 78 persons (28 females) (1/4)
(Ban Nam Met)

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຂີດ (√)			ເບີໂທລະສັບ	ເຊັນ
1	[illegible]	[illegible]	[illegible]	[illegible]				56078907	[illegible]
2	[illegible]	[illegible]	[illegible]	2	2	2	2	2	[illegible]
3	[illegible]	[illegible]	[illegible]	2	2	2	2	2	[illegible]
[redacted]	[redacted]	[illegible]	[illegible]	2	2	2	2	2	[illegible]
5	[illegible]	[illegible]	[illegible]	2	✓	✓	✓	✓	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]		✓	✓	59726679	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]		✓		54184193	[illegible]
8	[illegible]	✓	[illegible]	✓				98129335	[illegible]
9	[illegible]	✓	[illegible]	✓	2	✓	✓	56438813	[illegible]
10	[illegible]	✓	[illegible]	[illegible]				54934348	[illegible]

ໝາຍເຫດ: ຂໍ້ອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□າລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 1

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຂີດ (√)			ເບີໂທລະສັບ	ເຊັນ
11	[illegible]	[illegible]	[illegible]	[illegible]	✓				[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			55177963	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			56147677	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			96653796	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]			52333462	[illegible]
20	[illegible]	[illegible]	[illegible]	✓	✓				[illegible]
21	[illegible]	[illegible]	✓	✓	✓				[illegible]
22	[illegible]	[illegible]	✓	✓	✓				[illegible]
23	[illegible]	[illegible]	✓	✓	✓				[illegible]
24	[illegible]	[illegible]	✓	✓	✓				[illegible]

ໝາຍເຫດ: ຂໍ້ອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□າລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 2

Attachment 1: Consultation Attendance Sheet (11/13)

27February 2015 at Nam Met Village, Beng District, Oudomxay Province
Participated by the villagers of 78 persons (28 females) (2/4)
(Ban Nam Met)

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
25	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
26	29	[illegible]		[illegible]	[illegible]	[illegible]	95181148	[illegible]
27	30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28184447	[illegible]
28	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22661458	[illegible]
29	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	22061483	[illegible]
30	33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
31	34	[illegible]	[illegible]	—	[illegible]	—		[illegible]
32	35	[illegible]	[illegible]	—	—	—		[illegible]
33	36	[illegible]	[illegible]	—	—	—		[illegible]
34	[redacted]	[redacted] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52554175	[illegible]
35	38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28222775	[illegible]
36	39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	030989780	[illegible]
37	40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	55284519	[illegible]
38	41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	020 5046825	[illegible]
39	42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
40	43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
41	44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59922061	[illegible]
42	45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54066492	[illegible]

3

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
43	28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
44	29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59694202	[illegible]
45	30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
46	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
47	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
48	33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
49	34	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
50	35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
51	[redacted]	[redacted] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
52	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	96653[illegible]	[illegible]
53	38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	56062150	[illegible]
54	39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5990[illegible]	[illegible]
55	40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0309331905	[illegible]
56	41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54889949	[illegible]
57	42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
58	43	[illegible]	[illegible]	[illegible]	PDO	[illegible]	55480135	[illegible]
59	44							
60	45							

3

Attachment 1: Consultation Attendance Sheet (12/13)

27February 2015 at Nam Met Village, Beng District, Oudomxay Province
Participated by the villagers of 78 persons (28 females) (3/4)
(Ban Nam Met)

	ລ/ດ No.	ຊື່ ແລະ ນາມສະກຸນ Name and family name	ເພດ Sex	ຊົນເຜົ່າ Ethnic Group	ໜ້າທີ່ຮັບຜິດຊອບ Responsibility	ຈາກພາກສ່ວນ Organization	ເບີໂທ	ທີ່ຢູ່ສຳລັບການຕິດຕໍ່ພົວພັນ Contact address
61	~~28~~	[illegible]	ຍິງ	[illegible]	[illegible]	[illegible]		[illegible]
62	~~29~~	[illegible]	ຊາຍ	✓	✓	✓		[illegible]
63	~~30~~	[illegible]	ຊາຍ	✓	✓	✓		[illegible]
64	31	[illegible]	ຍິງ	✓	✓	✓		[illegible]
65	~~32~~	[illegible]	ຍິງ	✓	✓	✓		[illegible]
66	~~33~~	[illegible]	✓	✓	✓	✓		[illegible]
67	~~34~~	[illegible]	ຊາຍ	✓	✓	✓		[illegible]
68	~~35~~	[illegible]	✓	✓	✓	✓		[illegible]
69	~~36~~	[illegible]	✓	✓	✓	✓		[illegible]
70	~~37~~	[illegible]	✓	✓	✓	✓		[illegible]
71	~~38~~	[illegible]	✓	✓	✓	✓		[illegible]
72	~~39~~	[illegible]	ຍິງ	✓	✓	✓		[illegible]
73	~~40~~	[illegible]	✓	✓	✓	✓		[illegible]
74	~~41~~	[illegible]	✓	✓	✓	✓		[illegible]
75	~~42~~	[illegible]	✓	✓	✓	✓		[illegible]
76	~~43~~	[illegible]	✓	✓	✓	✓		[illegible]
77	~~44~~	[illegible]	✓	✓	✓	✓		[illegible]
78	~~45~~	[illegible]	ຊາຍ	✓	✓	✓		[illegible]

3

ໂຄງການພັດທະນາ ໂຄງລ່າງຊົນນະບົດພາກເໜືອ (ພກຊ)

ກອງປະຊຸມ...

ວັນທີ.................................

ສະຖານທີ່...

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	[illegible]				ເຊັນ
					[illegible]	[illegible]	[illegible]	ເປັນໄທລະບື	
1	[illegible]	ຊາຍ	[illegible]	[illegible]		[illegible]			[illegible]
2	[illegible]	ຍິງ	[illegible]	✓		✓			[illegible]
3	[illegible]	✓	✓	✓		✓			[illegible]
[illegible]	[illegible]	✓	✓	✓		✓			[illegible]
5	[illegible]	✓	✓	✓		✓			[illegible]
6	[illegible]	✓	✓	✓		✓			[illegible]
7	[illegible]	ຊາຍ	✓	✓		✓			[illegible]
8	[illegible]	✓	✓	✓		✓			[illegible]
9	[illegible]	✓	✓	✓		✓			[illegible]
10	[illegible]	✓	✓	✓		✓			[illegible]

ໝາຍເຫດ: [illegible] ADB [illegible] 1

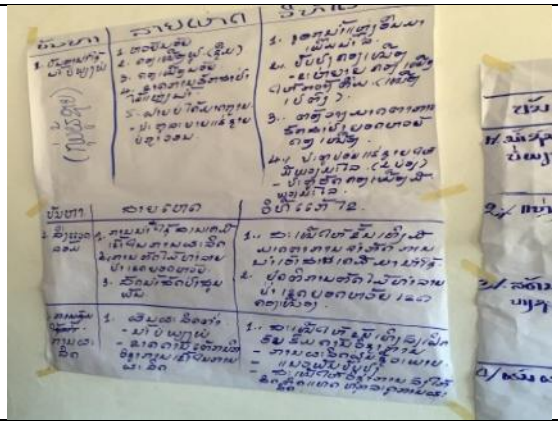
Attachment 1: Consultation Attendance Sheet (13/13)

27February 2015 at Nam Met Village, Beng District, Oudomxay Province
Participated by the villagers of 78 persons (28 females) (4/4)
(Ban Nam Met)

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາກສ່ວນ	ກະລຸນາຂີດ (√) ຫຼື ຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຕ່ອງລຸ່ມນີ້				ເຊັນ
					ຊົນເຜົ່າກຸ່ມພາສາ ລາວ-ໄຕ	ຊົນເຜົ່າກຸ່ມພາສາ ມົ້ງ-ອີ່ວມຽນ	ຊົນເຜົ່າກຸ່ມພາສາ ມອນ-ຂະແມ	ເຜົ່າອື່ນ	
11	[illegible]	[illegible]	[illegible]	NAI [illegible]		[illegible]			–
12	[illegible]	[illegible]	[illegible]	NAI [illegible]		[illegible]			
13	[illegible]	[illegible]	[illegible]	NAI [illegible]		[illegible]			
14	[illegible]	[illegible]	[illegible]	NAI [illegible]		[illegible]			
15	[illegible]	[illegible]	[illegible]	NAI [illegible]		[illegible]			[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			[illegible]
17	[illegible]	—	[illegible]	[illegible]		[illegible]			[illegible]
18	[illegible]	—	[illegible]	[illegible]		[illegible]		94607763	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]						
20									
21									
22									
23									
24									

ໝາຍເຫດ: ຂໍ້ມູນໃຫ້ສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ - ເພາະພວກເຮົາ□ກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້) 2

Attachment 2:Photos of Public Consultation

<table>
<tr><td colspan="2">The first day of the village public consultation meeting was held
on 23 Feb. 2015 at the Agriculture and Forestry Department Office</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Meeting with PPOs and DCOs</td><td>Meeting with PPOs and DCOs</td></tr>
<tr><td colspan="2">Village Public Consultation
on 26 Feb 2015 at Ban Yor, Beng District</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Mr. BontheumTeummany, Chief Deputy of Beng District (Chairman of Meeting)</td><td>Village consultation at Yor Village, Beng District Nam Beng Subproject</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Women Group Discussion by the facilitator</td><td>Results of the public consultation for IEE</td></tr>
</table>

	
Participants proposed to the meeting for mitigation measures during construction	Representative presented the result of group discussion

Village Public Consultation **on 27 Feb 2015 at Ban Namet, Beng District**	
	
Mr. SonePhethInthaphanyasack, Chief PAFO of Beng District (Chairman of the Meeting)	Village consultation at Namet Village, Beng District (Nam Beng Subproject)
	
Representative presented the result of the group discussion	IEE Public Consultation (Participants agreed and accepted the subproject)

Attachment 3: Summary of Findings of Consultations

Group discussions took place with four groups from among the villagers: a village authority group, a female group, an ethnic group, and a WUG farmer group, facilitated by GIC, PPO, and DCO staff. Each group discussed their current problems, causes, and solutions (including activities sought for inclusion in the project). Flipcharts were used to help focus on the social infrastructure agriculture, environmental management and marketing problems, causes and solutions. Findings were discussed and presented

Problems	Causes	Solutions/ Improve suggestion
a. Insufficiency water for paddy field (Both wet season and dry season).	• Existing weir was damaged by flooding. • MC constructed with Earth canal, not properly Operation and maintenance, some part leak of water and some part low canal make water not reach the downstream part of the rice field area. • No official WUG was organized to manage of the irrigation system, no role and regulation. WUG have no fund for O&M. • Catchment area was complete shifting cultivation which is affected to lack water source of for Irrigation system (Particularly very low water source during the dry season).	• Improve (new construction) including of river Basin, main concrete canal lining, canal turnout gate and etc..,) • Establishment WUG including develop rule, role, regulation, farmer registration and adopting and Improvement of WUG capacity building such as WUG management, financial accounting and Operation and maintenance. • Collection of ISF to ensure that WUG have sufficiency fund for rehabilitation of the Irrigation system. • Development of Catchments Management plan and request district concerned office to adopting in appropriate.
b. People in the area lack of knowledge and Use chemicals for agriculture activities and now become to affect to their health.	• A lot of Chemical fertilizer and Herbicides was imported by trader and Chinese to sell in the area. • A lot of Using Chemical fertilizer and Herbicides in Water melon cropping and banana planting. • All of instruction and sticker was completely in Chinese which is farmer very limited to access to information, and as well as no appropriate training.	• Requirement for organization concern to restrict of import of Chemical fertilizer and Herbicides • Need project to find appropriate training and awareness to ensure that farmers have enough knowledge of Chemical in agriculture activities.
c. Low rice production yield (2.5 – 3 tone per hectares only).	• Insufficiency of water for paddy rice field (particularly lower part) • Farmer use only local varieties. • None high yield variety (HYV) • Lack of new agriculture technique • Pest attack (snail and caterpillar, grasshopper and etc...) • A lot of weeds as insufficiency of water.	• Improve the irrigation system to ensure that sufficiency water for agriculture cropping. • Demonstrate of HYV and training on new agriculture technique • Training on pest and weed control and as well as organic fertilizer Production.
d. Female in the area Lack of incomes	• All villages women and men Lack of Gender development concept • Lack of concept of rural development • Women still work hard, no time to	• Gender development training to Villages Authorities • Basic concept of gender development awareness raising to all men and

	take care themselves • Women in the village lack of job to increase they incomes	women in the village • Develop and training basic concept of rural development • Promote gender animal raising to all women poor vulnerable and indigenous people