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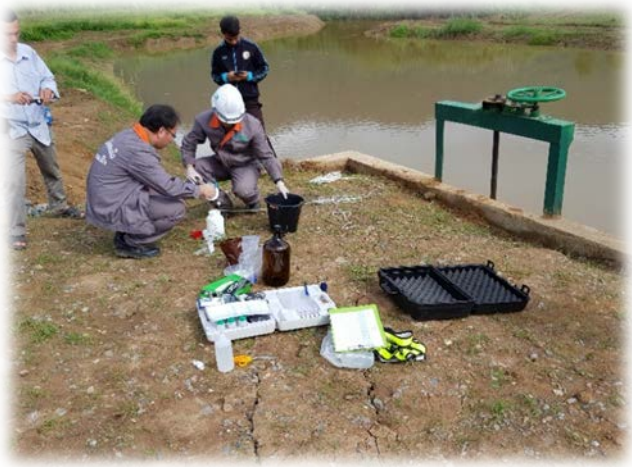

INDEPENDENT EXTERNAL SAFEGUARDS MONITORING REPORT
1ST Field Mission in June 2018

By: Faculty of Environmental Sciences

National University of Laos

Reported in August 2018

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Executive Summary

A. Introduction

In compliance with the ADB environmental and social safeguards and relevant Lao regulations, implementation of the safeguards and requirements, such as the Environmental Management Plans (EMPs), Ethnic Group Development Plans (EGDPs), Land Acquisition, and Compensation Plans (LACPs) and Gender Action Plans (GAPs) for the Project, is required. With these regards, in addition to the internal monitoring by the Project, an independent safeguards monitoring team is tasked to monitor and evaluate the implementation of the environmental and social safeguards and compliance.

This report aims to present the finding from the first safeguards monitoring and evaluation mission conducted from 24 to 30 June 2018 when the construction work of the Nam Beng subproject was completed and about 66% for Nam Oun subproject.

The purpose of the mission is to monitor and evaluate the implementation progress of the EMPs, EGDPs, GAPs, and LACPs for 2 subprojects in Beng and Houn districts of Oudomxay province. In addition to monitoring of thematic social and environmental issues, awareness raising, and demonstration of field test and analysis of water, soil and crops were conducted during the mission. The mission was participated by the representatives from PPO, DCOs, PONRE, DONREs, village authorities, villagers, site engineers of the Contractors, technical staff from the Plant Protection Center, the Department of Agriculture (to conduct field test for pesticides and demonstration on site), and representatives from Phanthamit Lab and Analysis. Com., Ltd for agrochemical parameter analysis.

At the end of the mission, a meeting for feedback session was undertaken with the PPO manager. This aims to make sure that PPO are well informed regarding the key findings from the monitoring, and mitigation measures to improve current implementation of the EMPs, EGDPs, GAPs and LACPs.

The scope of the safeguards monitoring covers both environmental and social dimensions. Thematic topics for environmental monitoring include water quality, waste management on site, erosion and sediment transport, terrestrial and aquatic resources, dust and noise nuisance. The social safeguard covers the aspects of gender equality, ethnic minority inclusion; local employments, and land acquisition for the project and compensation.

From reviews of project documents, it is noted that relevant documents concerning the environmental and social safeguards were prepared as parts of the FS reports (October

2015) and the subsequent updated land acquisition and compensation reports-LACRs (December 2017) for two subprojects of year 2018. The documents include environmental management plans (EMPs) and social safeguards management plans (EGDPs, EGPs, GAPs, and LACPs). They were submitted to the Provincial office for Natural Resources and Environment (PONRE) for review and approval, and at later stage, the IEE reports for the subprojects are certified by the PONRE.

B. Environmental compliance

While several mitigation measures were taken in compliance with the EMPs, conformity to some environmental requirements needs to be taken.

To ensure an effective implementation of the EMPs, the environmental monitoring was conducted by the PONRE and DCOs together with PPO and DCOs. This is one of main activities which is practiced by the local stakeholders in conformity to the relevant requirements. However, the monitoring focused mostly on environmental aspects underrecognizing social dimensions.

The Project has also demonstrated a considerable effort in mitigating adverse environmental concerns regarding aquatic ecosystem by introducing initiative fish passage for subprojects although the success for such initiative has been yet unconfirmed. To verify and confirm successful and effective passage of fish species, it requires proper monitoring to evaluate the effectiveness of fish passage and seeking local knowledge from local fishers regarding the fish species and migration patterns. The findings from local knowledge and monitoring results will help improve and benefit for future subprojects/schemes regarding design and construction of such facility. Unlike the aquatic animals, it was noted that hunting and consumption of some wild animals was found inside the workers' camp of Nam Oun subproject. With this concern, the construction manager for the subproject was informed regarding the prohibition of wildlife hunting and consumption by his employees. It will also be essential to cover this concern in the EMPs for future subprojects.

For in-stream waterflows in the rivers, the rehabilitation and construction work of the schemes seem to cause minimal effects. Natural flow patterns can be likely induced by the water diversion for irrigation during operation of the schemes, especially during the dry season with minimum flow in the rivers. To minimize the potential effects on hydrological regime and water quality, the Project has also taken an initial action to control erosion and sediment transport by revegetating the areas subject to erosion with local plant species. However, the action was only implemented at Nam Beng 1 scheme by WUG. Ideally, revegetation is required for all schemes.

Concerning environmental quality monitoring, field sampling and tests for soil, water and crops were conducted by the Crop Protection Centre. Results from field test show that only 2 out of 40 samples found high contamination with unsafe level (>50% inhibition)-from crop samples. 19 samples were detected with safe level (<50% inhibition) representing 5, 7, and 7 for soil, water, and crop samples respectively and other 19 samples are not detected. In addition to the field test, 4 water samples were collected from upstream and downstream of Nam Oun and Nam Beng rivers for laboratory method to analyse agrochemical parameters of four agrochemical groups. However, laboratory analysis of samples found no detection of the agrochemical parameters.

For general parameters, the ESM team collected samples from 8 stations for water quality monitoring, representing upstream and downstream of 4 schemes. Results show that values of parameters are varied within and between rivers, but all parameters and values of collected samples fall within the Lao national standards, exception for COD of Nam Oun downstream and facal coliform bacteria both upstream and downstream of Nam Oun subproject that exceed the standards.

Health and safety concern is one of the main requirements stated in the EMPs and it had been recommended by the monitoring report of PONRE and DONREs to take actions. However, it was obvious that workers are not provided with basic necessary personal protective equipment (PPE) when they are on duties, despite “safety first” sign posted on construction sites. Besides, inappropriate storage of hazardous materials, which can pose a potential risk to surrounding environment and human health, on construction site was observed during the site inspection at the construction camp of Nam Oun subproject.

C. Social compliance

Although no land loss is identified during the feasibility study (FS) report and updated land acquisition and compensation reports (LACR) for Beng subproject, one AH was reported during the construction, but the loss was compensated by replacing a new 8*15m land plot next to the AH’s existing land. For Nam Oun subproject, as documented in the updated LACRs, it is foreseen loss of about 1,710 sqm governmental land used by 6 AHs is expected, but not exceeding averaged loss of 1.3% of their total productive land. However, during the mission, new 54 AHs for Right Secondary Canal (RSC)-2 of 34 AHs and RSC-4 (17 AHs) were reported but details of losses for each AH has not been confirmed. The preliminary number of indicated AHs shall be subject to review and additional fieldwork in July and August by GIC in order to prepare a corrective action plan (CAP). Also, the detail survey and redress grievance processes were being progressed during the safeguard monitoring.

Concerning the equal participation of genders in the subproject activities, the representation of female members in the WUGs for the subprojects are well above 30%. However, the proportion of women in other committees for the subprojects are underrepresented. Likewise, underrepresentation of women is noted in the consultations meeting with beneficiary villages during this mission.

Despite the requirement for the Project to prioritize the local employment, particularly poor and female-headed HHs, actual recruitment of local villagers from the beneficiary villages is likely very limited. From discussions with local stakeholders and villagers, this concern is due to the nature of construction works and availability of alternative works in the region. In addition, the construction contractors cannot employ villagers because of unaffordability for higher pay required by the villagers than outsiders. In either case, no evidence or documents can be proofed if the Contractors offer the employment opportunities to the locals. Thus, a formal coordination with village authorities for labor is required and employment should be documented properly.

Unlike Nam Beng subproject with less diversity of ethnicity and completion of rehabilitation work, more attention shall be paid for Nam Oun subproject where more diverse minority groups represent the beneficiary population. It is noted that some minority households, for example Hmong households, have not actively participated in some consultations/meetings. Thus, more efforts are required to encourage their participation in the subproject activities.

Chapter I: Introduction

1 Project background and safeguards mission

1.1 Project background

The Northern Rural Infrastructure (NRI) Development Sector Project-Additional Funding (hereinafter called the “Project”) has been implemented in four (4) provinces of Bokeo, Luang Namtha, Phongsaly and Oudomxay. The Project has aimed to address the two fundamental constraints of low agricultural productivity and limited market access through investments in i) rural infrastructure for irrigation and rural access road, and ii) initiatives to achieve greater commercialization in agriculture by exploiting opportunities in the Lao PDR and neighbouring countries. The Project consists of 22 productive rural infrastructure (PRI) subprojects of rehabilitation of existing irrigation facilities and rural access road will be implemented. The Project aims to supply sufficient irrigation water for agricultural area with a target of 6,800 hectares and improve market accessibility with a target of 70 km of access road.

With the Bank’s requirement, in addition to the internal monitoring by the Project, the Project is required to engage an independent External Safeguards Monitor (ESM), which will monitor all safeguard activities under the Project. The ESM will focus on assessing progress and compliance with the environmental management plans (EMPs), the ethnic group development plans (EGDPs), the gender action plans (GAPs), and land acquisition and compensation plans (LACPs). The overarching aim of the ESM is to identify constraints and develop remedial actions as well as mitigation measures to effectively address such constraints.

With the implementation plan of the Project and ESM’s schedule, first safeguard monitoring was conducted for two subprojects in Oudomxay province, namely Nam Beng and Nam Houn in Beng and Houn districts respectively. The mission was carried out between 24-30 of June 2018 by the ESM team with the participation of relevant local stakeholders, including, the Provincial Agriculture and Forestry Office (PAFO), District Agriculture and Forestry Office (DAFO), Provincial Office of Natural Resources and Environment (PONRE), and District Office of Natural Resources and Environment (DONRE). As the scope of work for the ESM, the findings of social and environmental safeguards are incorporated into one main report.

The report is divided into four main chapters, including chapters for separate environmental and social monitoring results. Chapter III covers aspects social safeguard covering land acquisitions and compensation; equal participation and inclusion of genders and minority people in planning and decision making for subproject

implementation; progress of mitigations for social impacts carried out by the PPO and DCOs; and current social issues raised by the beneficiaries in each subproject of 2018. Chapter IV discusses current implementation of the EMPs, particularly of biophysical environment, health and safety, environmental quality monitoring, waste management, hazardous material, erosion and sediment control, etc.

1.2. Scope and purpose of safeguard monitoring and reporting

As stated in section 1.1, the first mission for 2018 covered only two subprojects out of 22 subprojects. The scope of the ESM focused on evaluating the progress and implementation of environmental and social safeguards (the EGDPs, GAPs, LACPs, and EMPs) undertaken by local stakeholders in the subprojects. From monitoring findings of this mission, the ESM team provided possible mitigation measures and actions to the PPO and DCOs ensuring conformity to the requirements. Specific scopes and purposes of the first mission were to:

- Review the FS reports of two subprojects regarding i) the EGDPs or IPPs, GAPs, and the LACPs;
- Visit the construction sites of the subprojects and evaluate the progress of environmental and social safeguards implementation in compliance with ADB's safeguard policy;
- Consult with relevant stakeholders e.g. PPOs, DCOs, beneficiary communities, and individuals who benefit from and are affected by the subprojects;
- Conduct water quality monitoring for general parameters and agrochemical parameters; and
- Demonstrate soil, crop, and water sampling and analysing with field test equipment for pesticides.

The purposes of this report are to:

- Present and reflect the facts concerning implementation of the environmental and social management plans in the subprojects during the first safeguards monitoring mission of 2018;
- Present the mitigations and actions undertaken by the PPO, DCOs, and the construction contractors of the subprojects, as per the EMPs, EGDPs, GAPs, LACPs, and other requirements;
- Report the findings of current tendency of agrochemical uses and level of contamination in water, soil, and crops in the command areas the subprojects; and
- Provide recommendations to the PPOs, DCOs, and the Contractors for improvements based on associated mitigation measures.

1.3. Methodologies and strategies for safeguards monitoring

The approaches applied for the safeguards monitoring are as follows.

- Review of FS reports; particularly the associated sections of environmental and social management plans for 2 subprojects. These include the environmental mitigation plans, land acquisition and compensation measures, gender action plan, ethnic monority groups, and vulnerable people.
- Discussions with GIC team: regular coordination for clarification and advice on the progress of project activities, documents and administrative arrangements.
- Preparation of monitoring and assessment plan as well as the draft contents for the safeguards monitoring report. This is to follow the scope of works outlined in the terms of reference; including the detailed field survey plan for this mission.
- Consultations and meetings with relevant stakeholders e.g. PPO, DCOs and village authorities by interviewing and consulting with relevant officers at different levels. The consultations also include the meeting with affected persons (APs), minority and female groups to hear and understand their perceptions through verbal communication and prepared forms.
- Site visits and field observations at construction sites and meeting with site engineers of the construction contractors. All visual evidences were recorded and photographed to prove the current situation of sites. All site visits were attended by the representatives from PPOs, DCOs, PONRE and DONREs. During the site visit, the environmental and social monitoring checklists were used to record the findings.
- Collection of water, soil and crop samples from two subprojects for agrochemical parameters tests and lab analysis (pesticides), inclduing field tests of soil, water, and plants with field test equipment.
- Awareness raising and demonstration relevant to pesticide use, impacts and preventive measures for the communities in the beneficiary villages.
- Meeting with a contractors' representatives to discuss on the health and safety, environmental and social issues on sites.

1.4. Construction progress of subprojects

As end of June 2018, the progress of civil work for Nam Beng subproject was fully completed while the Nam Oun subproject was about 66% completed.

Chapter II: Social and environmental management

2. Social and environmental compliance status

This chapter presents the key findings relevant to social issues associated with construction and rehabilitation activities gathered during the first safeguards monitoring. The findings reflect the conformity and compliance status of the subprojects in implementing the social safeguard requirements, especially the GAPs, LARCs, and EGDPs. Such findings are based on comparison of the information and criteria set out in the FS reports and updated LACRs for the subprojects and the evidence obtained during the monitoring mission.

The anticipated social impacts for both subprojects seem to be moderate and mitigatable because implementation of subprojects mainly engage the rehabilitation and improvement of existing irrigation facilities and structures and partly in new infrastructure. Nevertheless, there are a few social issues, especially, land acquisition of productive land for the Nam Oun subproject. It is also essential to discuss the participation of women and minority groups in the Project implementation for both subprojects.

Some key findings of compliance and performance concerning social and environmental safeguards are presented as follows.

2.1 Social and environmental management documents and permit/clearance

Due to the nature of the construction activities for the subprojects, it is foreseen that the subprojects reportedly have minimal impacts on local biophysical environments. As such, the subprojects are classified as Category B of ADB's standard and category I in the Laos' Ministerial Agreement on the Endorsement and Promulgation of List of Investment Projects and Activities Requiring Conducting the Initial Environmental Examination or Environmental and Social Impact Assessment, No. 8056/MONRE).

To comply with requirements, prior to implementation of the subproject the environmental and social impact assessment study shall be approved and certified by the national or provincial Natural Resources and Environment office. With this consideration, the IEE reports and social safeguards for the subprojects were prepared in English version which was subsequently translated into Lao language. The reports were submitted to the PONRE of Oudomxay province in January 2018 for review and approval. The IEEs were considered and approved by the PONRE with No. 122/PONRE-Oudomxay, dated on 16 January 2018 **(see Annex 1)**. The IEE certificate is jointly issued for both Nam Beng and Nam Oun Subprojects.

Relevant documents concerning the social and environmental safeguards are prepared as parts of the FS reports for two subprojects. The documents consists of safeguards management plans such as the EMPs, EGDPs, EGPs, GAPs, and LARCs and implementation processes in accordance with the ADB's requirements.

However, although the IEEs are approved, the DONREs of Beng and Houn districts reported that they have not yet received the IEE reports, including the EMPs neither English or Lao versions. It is expected that such document shall be available for the DONREs that have roles and responsibilities to conduct a regular social and environmental monitoring and inspection, based on the plans defined.

2.2 Institutional arrangement for social and environmental management

The Ministry of Agriculture and Forestry (MAF) is the executing agency (EA) for the Project. The agency is responsible for overall project coordination and management through its Department of Planning and Finance (DOPF) who has established the National Project Management Office (NPMO) for the day-to-day coordination and management of the Project. Like the NPMO, Provincial Project Offices (PPOs) have been established in each Provincial Agriculture and Forestry Office (PAFO) to be responsible for financial management at the provincial level, as well as coordination and management of the implementation of subprojects. To support the PPOs in implementation, District Coordination Offices (DCOs) have also been established within District Agriculture and Forestry Offices (DAFOs) to coordinate and supervise subproject activities.

The structure of the committees is varied in terms of number and representative sectors in each province. However, to ensure and adhere to the environmental and social safeguards of the ADB and Lao regulations, the established committees are composed of the representatives from all concerned offices responsible for environmental and social safeguards. These include the PONRE and DONRE, Lao Women Union (LWU), Lao Front for National Construction (LFNC), and others. Likewise, an Environmental Management Office (EMO) or its equivalent body within the PPOs with the assistance of the DCO have been established in coordination with other sectors, particularly with environmental sector.

The PPO and DCO as well as the EMO are designated to play important roles for environmental and social management and monitoring for the executive agency. The roles of the committees are to ensure that environmental and social impacts are appropriately mitigated in conformity with the approved EMPs, GAPs, EGDPs and

RAPs. The committees also have the role to ensure that good engineering practices are exercised for the environment and social protection and compliance.

2.3. Coordination between the Project and Villages

While the coordination between beneficiary communities, particularly village authorities and the DCOs and PPO has been undertaken with satisfaction, the communication between contractors and community is likely limited. This was contended by the villagers who attended the consultation meetings in the subprojects during the first safeguards monitoring. The limited coordination has entailed the misunderstanding and discontentment amongst some villagers whose lands and assets were temporary disturbed by the subproject activities. With this regard, the DCOs and PPO shall closely advise the construction contractors and site engineers to coordinate and inform the landowners regarding subproject implementation to avoid dissatisfaction of the locals especially the AHs, especially for Nam Oun subproject.

2.4 Public consultation and information dissemination

It is reported in the subproject IEE that public consultations/meetings were held in two different stages. The first consultation was carried out during the IEE baseline study with beneficial communities in the subprojects to disclose the project information. Upon completion of the IEE study, another consultation with each community was undertaken to disseminate the IEE findings regarding the potential impacts and some mitigation measures for various stages of the subproject implementation.

To confirm their participation to such consultations, the ESM team did ask the villagers in each beneficiary community if they participated and were informed about the subproject information. Some participants confirmed that they attended eithers of the consultations. From the consultations during the first safeguards monitoring, it is also noted that there are challenges for active participation of the beneficiaries to any consultations or meetings. For instance, based on the discussion with some participants, participation of women and minority groups (e.g. Hmong households), especially in Nam Oun subproject, is quite limited.

It is also noted that while the IEE reports and EMPs of Lao version for the subprojects have been submitted to the PONREs, the reports have not been available for the DONREs. AS such, to support effective monitoring of the PONRE and DONREs, it is essential to disseminate such reports to the DONREs and DCOs as reference for their monitoring purpose.

Chapter III: Social safeguard monitoring

3. Key findings from social safeguard monitoring

3.1. Internal social safeguard monitoring

It is noted that a monitoring and site inspection on various schemes of the subprojects was conducted by the district and provincial stakeholders, including DCOs, PPO, PONRE, and DONREs. Such inspection is evident from the monitoring report **(Annex 4)** which prepared by the PONRE. However, the monitoring seems to focus more on environmental concerns and disregard social aspects which are supposed to be part of the internal monitoring. It is recommended that future monitoring of the local stakeholders should cover consultations or discussions with beneficiary communities, especially with the AHs. The consultations will help to track the progress of remediations for the AHs.

3.2. Land acquisition, asset losses, and compensation

3.2.1. Nam Beng subproject

The subproject is in Beng District, Oudomxay Province. The subproject is designed to benefit six (6) villages: Ban Namaed, Ban Yor, Ban Xiengle, Ban Houaylor, Ban Pangdeua, and Ban Nalai; comprising a total of *650 HHs*. Ban Namet of *194 HHs* benefits from both Nam Beng 1 and Nam Met schemes while other 5 villages with a total of *456 HHs* share irrigation water from Houay Lor scheme. Other key information regarding anticipated social and environmental impacts which presented in the FS report for the subproject is briefed as follows.

At feasibility stage, as outlined in the FS, the assessment of land acquisition and anticipated impacts from the subproject was conducted. The results of the assessment indicated that neither agricultural nor residential lands and infrastructure are required for the rehabilitation or construction activities for the subproject. As such, no compensation is required, and the subproject falls in the **Category C**.

Despite no anticipated land loss or acquisitions for the subproject during the FS stage and detailed survey as outlined in the LACR, two landowners whose land are located next to the Nam Met weir structure had claimed of impacts due to rehabilitation activities of the scheme. These include the land of Mr. Mai Tark (located on the right bank-Figure 2) which was affected by spoil disposal and land acquisition for main canals and bank protection embarkment on Mr. Maipheng's land located on the left bank. The land loss of Mr. Maipheng was noted during the ADB mission in June 2018 although it was not discussed in the subproject FS and the LACR. Upon the consultations between the

owners and the DCO and PPO, the concerns were addressed by cleaning the spoil from Mr. Mai Tark's land and replacement of a land plot of 8*15 sqm productive land for Mr. Maipheng, which is just next to his existing land (see Figure 1). It was told that Maipheng's land become more protected from seasonal floods which he always experienced prior to project presence.

Figure 1: Replacement area of land loss for Mr. Maipheng, on the left bank embarkment of the Nam Met Scheme, 29 June 2018

Figure 2: area used to be a temporary spoil disposal owned by Mr. Mai Tark, on the right bank of Nam Met Scheme, 29 June 2018

3.2.2. Nam Oun subproject

The subproject aims to increase the effective irrigated crop area of the system from 250 ha to 420 ha. The subproject aims to supply irrigated water for 5 beneficiary villages which are Ban Nam Oun, Ban Fen, Ban Chantai, Ban Nongdinh, and Ban Nathong with a total beneficiary of 1,208 HHs. However, the number of village has become 4 because Chanthai and Nongdinh are consolidated after the IEE study.

Based on the updated LACR for the subproject, it is anticipated that the rehabilitation works of this subproject will result in loss of agricultural land of about 1,710 sqm owned by 6 AHs - two of which are vulnerable households (female-headed households). The affected lands represent an average loss of 1.3% of AHs' total productive land. Nevertheless, there are no severely AHs losing more than 10% of their productive land. Also, there are no loss of crops and trees, residential land, and structures are foreseen for the subproject. With this regard, it was expected that such loss of production land would be voluntarily donated as the owners' contribution to the subproject through a proper grievance mechanism.

Unlike the Nam Beng subproject, as highlighted in section 1.4.2, the agricultural land of about 900 sqm which owned by 6 AHs and one of which is vulnerable household. It is estimated that affected lands would account for less than 10% of total productive land of

each AH. For redress of the impacts, the village authorities of affected households, DCO, and PPO (or grievance committee) had held consultations with land owners concerning their losses. Through the grievance processes and consultations, the landowners were reportedly willing to voluntarily donate the pieces of their lost lands to the subproject activities. such voluntary donations were documented and signed by concerned stakeholders **(see Annex 5)**.

However, during the implementation stage, there happened to be approximately 54 AHs reportedly to be affected by the Nam Oun subproject, in addition to the original 6 AHs. The new AHs are expected to be affected due to construction and rehabilitation of the RSC-2 and RSC-4 alignments which will be constructed after the end of the wet season. During the monitoring, detail surveys and consultations were being proceeded with the owners at Chanthai and Fen villages by the Grievance committee. The ESM team met with some of these AHs and had site visit to their land plots on the ground (Figures 3-8).

Figure 3: Discussion with an AH at Nam Met village, 26 June 2018	Figure 4: Site visit and discussion with an AH at Fen village, 28 June 2018	Figure 5: Site visit and discussion with AHs at Fen village, 28 June 2018
Figure 6: Discussion with an AH at Fen village, 27 June 2018	Figure 7: Site visit and discussion with an AH at Chantai village, 28 June 2018	Figure 8: Site visit and discussion with an AH at Chantai village, 28 June 2018

The interviewed AHs confirmed that they had been consulted and ground check for verification with individual AHs was undertaken by the committee. Thus, no any information was confirmed in terms of exact land size of each AH to be acquired for the

RSC-2 and RSC-4. In addition, the preliminary number of indicated AHs shall be subject to review and additional fieldwork in July and August by GIC in order to prepare a corrective action plan (CAP). It is expected that details information can be available and redress process will complete prior to recommencing the construction work for the subproject at the end of wet season.

For proper mitigation measures for such impacts, the potential land loss for both alignments needs to be thoroughly investigated and verified, ensuring all potential AHs are inclusive. All AHs are well informed of their involvement in the grievance, redress and compensation processes, both individually and as a group. They need to be clearly explained about the content of voluntary donation sheet prior to signature for compensation or their voluntary to avoid their misunderstanding at later stage. It is also recommended that the consultation and compensation should be settled with the affected landowners prior to commencement of rehabilitation or construction activities for the subproject.

3.3 Ethnic group development plan (EGDP)

3.3.1 Nam Beng subproject

As outlined in the FS report, about 99% of the residents in the beneficiary communities of 6 villages are the Lue ethnicity, and only less than 1% representing the Lao Loum. Both groups are classified as the Lao-Tai Ethno-Linguistic group and speak the Lao National Language. The ethnic groups commonly practice Buddhism and have similar culture, customs, and traditions. Since a large majority of the HHs within the subproject are Lue ethnic group, consequently the subproject is considered Category B. With this regard, the EGDP is prepared as annex document to the FS to protect the needs and interests of the Lue ethnic group from the subproject.

From consultations with DCOs and village authorities, it is confirmed that various ethnic groups in the beneficiary communities have been engaged in different activities such as consultations and WUGs. While the implementation of the EGDPs for the Nam Beng subproject may not be of concerns because more than 99% are Lue ethic groups.

3.3.2 Nam Oun subproject

Unlike Nam Beng subproject, the population in five beneficiary villages is very diverse, and representing 12 different ethnic and sub-ethnic groups. Of the 1,212 HHs, 559 HHs (46%) belong to the Lao-Tai Ethno-Linguistic group with 6 sub-ethnic groups (Lao/Lao Loum, Tai Lue, Tai Phuan, Tai Daeng and Tai Dam); 393 HHs (32%) are Mone- Khmer Ethno-Linguistic group - comprising 3 sub-ethnic groups (Khmu, Khmu Rok and Khmu

Ou); 218 HHs (18%) are Hmong Iu-Mien with 5 ethnic groups (Hmong, Hmong Dam, Hmong Khao and Phunoi); and 42 HHs (3%) Tibeto-Chinese of Phunoi ethnic group.

Considering diverse ethnic and sub-ethnic groups within the subproject, the subproject is classified as Category B. As a result, an Ethnic Group Development Plan (EGDP) and a Gender Action Plan (GAP) are developed and attached to the subproject FS report.

For the Nam Oun subproject, although it aims to benefit minority groups, some minority households have not fully participated. For instance, some villagers told the ESM team that the beneficiary Hmong households from Nathong village has not inactively participated in the consultations and other subproject activities. With this concern, the ESM team has recommended the DCO and PPO to put more efforts to encourage their participation in the subproject implementation. It is also essential to seek their feedback concerning the benefits and effects from the subproject.

3.4 Gender action plans (GAPs)

It is a requirement that at least 30% of participants engaged in implementation of the subproject must be women. The representation of women shall be demonstrated in the Water User Association (WUA) Executive Committee and their attendance in subproject consultations, meetings, trainings, and study tours.

To ensure maximal benefits to the FHHs, the Project sets priority target for local employments during subproject construction and for the production enhancement and livelihood initiatives that will be delivered through the subproject.

From the baseline study, within six villages for the Nam Beng subproject, there are 21 FHHs and of which only 15% (3 HHs) are insufficient with rice, and 10% (2 HHs) are classified as poor. In Nam Oun subproject, Out of the total 55 FHHS, only 39 FHHs are considered sufficient with rice while 16 are not sufficient with rice. Out of the 16 FHHs with rice insufficiency, Hmong-Iu Mien FHHs are comprised of 3 households while another 6 and 2 for Mone-Khmer and Lao-Tai FHHs, respectively.

While the composition of women in the WUGs accounts for more than 30% for each subproject, representation of female members in other committees, for instance, female membership in the DCOs and grievance committees, for the subprojects is not proportionately designated or allocated. Such underrepresentation of women in the committees would be due to the fact that there are limited qualified female staff members in relevant public sectors. However, more participation of women in the committees should be further encouraged.

Besides the engagement in the administrative structures, similar tendency of less female representation was noted during the first safeguard monitoring. The monitoring engaged 6 staff members from the PPO, DCOs, PONRE and DONREs but none of them are female participants. It is also found that, based on registration during the meetings with beneficiary villages, only approximately 28% are female participants **(see Annex 6)**.

With this regard, the PPO and DCOs shall take this concern into account more seriously by encouraging and promoting more female participation in the subproject implementation, especially for the future subprojects in upcoming years although it is understandable that it is quite difficult to convince them to participate to attain the target of 30% as required.

3.5 Employment opportunity for APs

It is required that recruitment of labor should be prioritized for people from the beneficiary villages, particularly poor and female-headed HHs. Further, it is also recommended to have a proper coordination between the Project, particularly the local committees and village authorities regarding the employment.

However, in practice, it is found that the employment of local workforce by the subprojects is very limited and effectively managed. This may be explained based on two justifications which seem to be common in the villages in which the ESM team consulted with. First, the villagers are not interested to work with the subprojects due to nature of construction works which are not attractive to the villagers and availability of more alternative jobs in their villages. Second, despite their interest, the construction contractors cannot engage villagers to work because of incapability to afford higher pay required by the villagers, as claimed by the Contractors and the DCOs, compared to outsiders. Consequently, the contractor could not source local labors, and thus hiring outside labors.

In either case, there is no evidence of how local employment are coordinated and recruited available to verify the claims. With this in mind, it is necessary for the Construction Contractors to have a formal request or offer to local authorities for labor needs and employment opportunities. This will help record if opportunities and priorities are given to the villagers and acceptance or refusal of the offer. It is also essential to have a record of local employment, including number of laborers, types of job, gender, village, wage, etc.

Besides, there is a concern arisen from a group of villagers (4-5 people) of Nam Met who have not been paid a large amount of subcontracted money (more than 50 million kip) between the group and the Construction Contractor of the Nam Beng subproject. Although a request has been submitted to the Contractor for more than two months for payment of remaining 85% of total contractual price upon completion of the subcontracted work, the group claimed that they have not been paid. It is strongly recommended that the PPO and DCO should carefully examine with these villagers and the Contractor whether the claim is valid. If it is true, then the problem should be remediated for the villagers as an urgent matter.

2.9 Social complaints and grievance redress mechanism

It is the ADB's safeguard policies that any individuals, who may be adversely affected by implementation of the Project activities, must be informed early to be ready for making complaints through Grievance Mechanism (GRM) regarding their livelihoods or health. As per requirement for the Project, the GRM was prepared for the subprojects as parts of IEE and SIA with the detailed procedures for the GRM, complementary to the FS reports for the subprojects. The Project GRM is an essential tool during the project implementation, which is very helpful for the AHs to redress the grievances in a timely and effective way.

The GRM seems to be practiced in the Project implementation. Nevertheless, to ensure more effective enforcement of the GRM, it will be useful to provide logbook or diagram (in Lao) in the village offices/halls so that the beneficiary villagers can use the procedure and understand the importance of the GRM.

From the consultations and discussion with the beneficiary communities, it was confirmed by the village authorities that no formal complaints had been raised. They also informed that all verbally complained issues related to social safeguards were addressed by village-level grievance committee.

Chapter IV: Environment safeguard monitoring

4. Key findings from Environmental monitoring

4.1 Background of environmental information for subprojects

Nam Beng

According to the subproject FS, it is anticipated that the subproject will not cause significant adverse environmental impacts and, thus, no further special study, or a full environmental impact assessment is required. The subproject is therefore classified as **Category B** according to the ADB's classification system, which is considered to have some adverse environmental impacts but of lesser degree or significance. As a result, only Initial Environmental Examination (IEE) is required and conducted for the subproject. Potential negative impacts relevant to the construction phase can be managed and mitigated to acceptable levels through the implementation of an Environmental Management Plans (EMPs).

From IEE findings, the anticipated impacts from the subproject activities will mainly associated with soil erosion-sediment transport, change of water flows in the canals, workers' health and dust nuisance during the construction period. However, the potential impacts can be minimized through recommended mitigation measures and implementation of environmental management plans (EMPs) of the subproject. The anticipated impacts during the operation include increasing use of agrochemicals, particularly pesticides and herbicides, which can affect plants, animals, and insect populations, resulting biodiversity loss in the subproject areas.

Nam Oun

The IEE study for the subproject was carried out by the PPO and DCO staff and the NRI-GIC Environmental Consultants, following the relevant regulatory frameworks and Guidelines of Lao government and the ADB. From the IEE report, there are no areas of special ecological or biodiversity significance in or proximity of the command areas or within the catchment. In addition, from the engineering design, existing land use data, and discussions with the subproject beneficiaries and local officers, the subproject is classified as Category B of ADB's standard due to minimal anticipated environmental impacts.

Most of the impacts are likely occurred during the construction period. Like the other subproject, the impacts may include soil erosion, silt and sediment deposit, disturbance of river water flow, workers' health and sanitation system. In this regard, the proper and

timely implementation of the mitigation measures could help minimize environmental effects. Details of the mitigation measures are proposed in the EMP for the subproject.

4.2 Environmental monitoring system

Environmental monitoring is required for subproject implementation both during construction and operational phases. As specified in the EMP of each subproject, the monitoring shall cover (i) compliance monitoring conforming to the safeguard requirements specified in the EMPs, (ii) community feedback to obtain views and information on relevant environmental parameters and (iii) water quality testing.

It is evident that there was a monitoring undertaken between 15 and 16 May 2018 by the PONRE and DONREs in cooperation with the PPO and DCOs for both subprojects. The monitoring was proposed by the PONRE with reference to the approved IEEs and EMPs for the subprojects. A minute of meeting attached to the monitoring report **(see Annex 4)** was prepared and signed by all parties involved in the monitoring, including the construction contractors to the subprojects. The monitoring recommended the contractors to take some corrective actions. During the first safeguards monitoring, discussions with PPO, DCOs, PONRE, and DONREs were taken to encourage regular monitoring based on the requirements defined in the EMPs.

In addition to their monitoring, officials from PONRE and DONREs were invited to participate in this first safeguard monitoring and evaluation together with the ESM team. This aims to strengthen their existing limited capacity for safeguards monitoring. Their participation to the monitoring will increase their skills and knowledge in implementing the EMPs effectively and also their confidence to undertaking future internal environmental and social monitoring. From their participation, they have learned and been demonstrated of how to collect samples of water, crops, and soil; use field test kits; and interpreting the results. Likewise, they have learned how to monitor and evaluate social impacts, for instances, land losses, compensation, grievance redress mechanism (GRM), and equal participation of ethnic minority groups and genders in the project implementation.

4.3 Environmental safeguard compliance status of subprojects

The first safeguards monitoring of 2018 was carried out at the end of June, thus, this report presents key environmental compliance status of the construction sites during wet season. The construction activities for the Nam Oun subproject was ready for rainy-season suspension, while the Nam Beng subproject reached 100% completion just before the mission. The key environmental findings and compliance status are thematically discussed as follows.

Erosion and revegetation

As a nature of the construction activities during the rainy season, erosion and sediment transportation were observed in various sites of the subprojects. However, erosion is not significant because of local topographical condition with less steepness of cut slopes. All river-based construction works of weir structures were also completed. Potential erosion and siltation associated with the subproject activities are from earth works for canals such as cleaning and excavation. Besides, the erosion and siltation may be also attributed to the local agricultural practices within the subproject catchments. The status of siltation and sediment transport in the rivers of the schemes can be monitored from the value of TDS **(see section 5 and Annex 2)**.

To reduce erosion and sediment load in the rivers of the subprojects, revegetation in the slope areas, particularly, along embarkment areas (Figures 9 and10) for weir structures can help reduce erosion. During the visits to four schemes of the subprojects, revegetation was only observed on riverbanks at the upstream of the Nam Beng 1 scheme (Figure 11). The PPO reported that the WUGs and DCOs are designated to be responsible for revegetation rather than the construction contractors. It is recommended that the revegetation shall be considered and immediately practiced in other schemes with plant species locally available. For instance, Arundo Donax which was already planted for slope stabilization at Nam Beng 1 scheme by the WUG of Nam Beng subproject. The DCOs shall encourage other WUGs to follow the method applied at the Nam Beng 1 for their schemes with the Arundo Donax or similar local species easily available.

Figure 9: Areas subject to erosion at Nam Oun scheme; 29 June 2018

Figure 10: Areas subject to erosion at Nam Met Scheme; 30 June 2018

Figure 11: Areas subject to erosion at Nam Beng 1 Scheme and revegetation; 30 June 2018

Water flow

All schemes are only engaged in rehabilitation of existing weir structures. As such, activities are not anticipated to create new significant barriers for water flows in the rivers where these schemes are built on. Thus, impacts on in-stream waterflows seem to be affected mainly by upcoming diversions of water for irrigation uses during the operation phase of the schemes. Despite diversion for irrigation uses, the waterflows at downstream of schemes remain available for downstream aquatic ecosystem during the wet season (Figures 12 and 13). However, the flows might be uncertain during the dry season in spite of no diversion of water for agricultural uses, in particular, smaller streams such as Houay Lor and Nam Met. The natural low flow during the dry season may affect downstream ecosystem despite no rehabilitation of the structures and diversion for irrigation purpose.

Figure 12: waterflow condition at the Nam Beng scheme; 29 June 2018

Figure 13: waterflow condition at the Nam Met scheme; 29 June 2018

Aquatic and terrestrial resources

It is worth presenting the initiative and innovative design and construction of fish passage (see Figure 14-15), aiming for fish migration from and to up and down streams of the subproject rivers. Such initiative might help minimize potential adverse impacts on aquatic biodiversity, particularly viable passage of fish species. Nevertheless, as the design and presence of structures is new for local fish species. Although the structures may facilitate fewer local species during the wet season, the structures would be much less effective during the dry season due to natural low flow in the streams.

Besides, from the observation on site during site visit, it is interesting and questionable if slope and flow design of the structures can indeed facilitate fish to migrate to upstream reach of the rivers. Also, there seems to be only small-size species would exist in the rivers because of pre-project variation of seasonal flow regime in the rivers of subprojects, exception for Nam Beng 1. To verify and confirm successful and effective passage of fish species, it may require proper monitoring to evaluate the effectiveness fish passage and seeking local knowledge from local fishers regarding the fish species and migration. The findings from local knowledge and monitoring results will help improve and benefit design and construction of fish ladder/passage for future subprojects/schemes.

For the terrestrial animals, wildlife hunting and eating is commonly prohibited for the contractors' employees. However, during the site inspection at the workers' camp of Nam Oun subproject, an evidence of the collection of some animal species such as snake and frogs for food was found inside the camp (Figure 16). From the evidence, the construction manager was informed regarding the prohibition of wildlife hunting and consumption for all workers involved in the subproject construction. It is also recommended that the EMPs for future subprojects, especially table A8-3 and A8-4 of the IEE reports shall include this regard.

Hazardous and chemical use

Few drums of oil-gasoline were observed storing in an inappropriate place at the main construction camp of Nam Oun subproject (Figure 17). With this concern, the construction manager was advised to transfer the containers to a proper storage with roof and bunding prior to temporary site closure during rainy season. No storage of hazardous material and waste was observed at Nam Beng subproject, and the construction work was completed.

Figure 14: Fish ladder at the Nam Beng 1 scheme; 29 June 2018	Figure 15: Fish passage at Nam Met scheme; 29 June 2018
Figure 16: Smoked snakes and frogs at the workers' camp of Nam Oun subproject; 28 June 2018	Figure 17: improper storage of hazardous material nearby the workers' camp of Nam Oun subproject; 28 June 2018

Dust and noise nuisance

Site inspections to the construction sites of two subprojects were conducted during rainy season, and thus no dust issues were observed on construction sites. During the consultations with beneficiary communities, the villagers confirmed that they were not concerned with dust caused by construction activities because the construction sites of main structures which require heavy machineries are located quite far away from residential areas.

There also seems to be minimal noise nuisance to the communities due to distance between construction sites and residential compounds. A possible source of noise nuisance to local residents is mainly from excavation works of irrigation canals which

run through residential areas. However, it is reported by the villagers that the excavation works were carried out during the day time.

General waste management

It is found that general waste management is acceptable for construction sites of both subprojects. Such good waste management would be partly a result of the recommendation made by the PONRE and DONREs during their site inspection in May 2018. Despite such improved waste management, more actions are required, especially for construction waste, including cement bags and wood wastes along irrigation canal corridors of Nam Oun subproject.

Health and safety

It is noted that the signs regarding health and safety and environment are posted at construction sites and camps (Figure 18). Concerns of health and safety are also documented in the monitoring report of PONRE and DONREs signed by the Contractors, PPO, and DCOs. However, it is obvious that workers are not provided with basic necessary personal protective equipment (PPE) (Figure 19) when they are on duties although no major issues related to health and safety as well as accidents were reported. Therefore, it is strongly recommended that at least the PPE should be provided for workers as instructed in poster and the EMPs.

Figure 18: Safety sign and EMP table at the Nam Oun construction site; 29 June 2018

Figure 19: Workers on their duties without PPE at the construction site of Houay Lor scheme; 29 June 2018

4.4 Compliance and non-compliance

In general, no significant environmental non-compliance issues were observed and reported during site inspection to the construction sites and workers' camps. Nevertheless, in compliance with EMPs, ADB safeguards, and Lao national

environmental regulations for the Project, some minor issues related to environmental and safety concerns need to be properly and promptly mitigated by the Contractors under the advice and supervision of the PPO and DCOs. The pending issues which need corrective actions in conforming to the requirements, mainly for the Nam Oun subproject, include inappropriate storage of chemical materials; some debris/rubbish at construction sites and workers' camps; hunting and consumption of wild animals by workers and engineers at the camp of Nam Oun. Besides, neglect to provide the PPEs for workers in both Nam Beng and Nam Oun subprojects.

Some of the raised issues are already recommended in the monitoring report prepared by the PONRE and signed by all parties engaged in the inspection, but such issues have not properly addressed so far.

4.5 Environmental complaints and grievance

No any verbal or written environmental complaints from the local communities regarding the environmental problems associated with construction activities. An increasing and emerging environmental concern amongst each consulted community is the effects of agrochemical uses.

5. Environmental quality monitoring

5.1 General water quality parameters

Temperature, DO, and TDS, which commonly can be tested with field equipment, are complementary for monitoring of general water quality parameters, in addition to 4 parameters (PH, Faecal coliform, BOD, and COD) recommended in the EMPs. Total 8 samples were collected both up and down streams of four schemes of the subprojects and sampling stations are illustrated in figures 03, 04, and 05 of annex 2 in order to monitor the change of water quality which may be induced by construction activities of the schemes. Details of methods and tools employed for the sample analysis and results are presented in section 4 of **Annex 2**.

The levels of pH are similar for all collected samples, within and between the rivers where the schemes are located, during the monitoring period. The upstream and downstream samples are generally ranging from 8.2 – 8.5. Median pH levels for all the rivers are well within the lower and upper guideline levels.

Water temperature during the monitoring period was generally similar amongst the samples collected from stations. The highest value recorded is 30.4°C at downstream of Houay Lor, that was measured in late afternoon. A similar trend is found for DO levels

which are generally similar within and between the rivers. The highest DO value reading is 9.55mg/L at downstream Houay Lor (NB6), and lowest value is recorded for Nam Oun downstream and Nam Met downstream 8.15mg/L.

TDS levels are generally similar between samples, although the results for Nam Oun upstream-NO1 and Downstream-NO2) and upstream Nam Beng-NB1) are recorded slightly higher than the other sites. Occurrence of higher values in the stations might potentially due to the weathering of sedimentary rocks and the erosion of the earth's surface in the catchment areas of the rivers due because of agricultural practices of local farmers and non-farming development projects. However, the TDS levels are within the national standards

BOD5 levels were typically lower than 1.0 mg/L, with most sites in this monitoring area. The upstream of Nam Beng (NB2) recorded higher levels across more sites.

The highest COD value was recorded for downstream of Nam Oun (NO2) at 14.6mg/L, where the site was located nearby the community. Such high value might be attributed to the effluent from domestic wastewater. COD values for other stations are generally below 4.0 mg/L.

The analysis results also show that the Fecal Coliform Bacteria levels between sites were generally similar. Although upstream and downstream of Nam Oun were recorded highest levels compared to the other sites. The highest recorded value is 35,000 MPN/100mL and 22,000 MPN/100mL for Nam Oun upstream and downstream respectively. The high concentration of Fecal Coliform Bacteria might be affected by overflow from nonpoint sources of human and animal waste.

Figure 20: Water sampling and field parameters test at upstream Nam Oun subproject; 29 June 2018

Figure 21: Water sampling at downstream locations of Nam Met and Nam Beng 1 schemes -Nam Beng subproject; 29 June 2018

5.2 Agrochemical parameters

Sampling and analysis of agrochemical parameters were processed in two different methods-field test and laboratory techniques, particularly for water samples, which discussed below.

5.2.1 Field test method

The field test approach was conducted for crop, soil, and water samples to examine the residues of pesticides in the collected samples using different solvents (Solvent 1, Solvent 2, GT1, GT2 & GT2.1, GT3 & GT3.1, GT4, and GT5). The method has its capability for only two main pesticide groups which are: **Organophosphate** and **Carbamate groups** through GT-Pesticide test kit. According to its handbook (www.gttestkit.com; 2007), the GT-Pesticide test kit is only the best approach for screening and detecting toxic residues in vegetable, fruits and other agricultural products. In addition to agricultural products, the kit is also a useful tool to screen some toxic residues in the soil and water prior to analysis in the laboratory.

During the first safeguards monitoring, total of 40 samples were collected for soil, water, and crops from 4 villages (namely Xiang Lae, Na Met, Fen and Chantai villages) from two subprojects. These include 15, 9, and 16 samples for soil, water, and crops respectively. The samples were collected inside the irrigation command areas and catchments of subprojects. The areas partly used to be banana plantations which are now cropped with rice; operating banana plantations, corn fields which are leased to Chinese investors for water melon cultivation during the dry season. Details of sampling locations and techniques and analysis methods are presented in the **Annex 3.**

The results from field test and analysis show that only 2 out of 40 samples detected high contamination with unsafe level (>50% inhibition) for the Garlic Chives and chilli samples collected from the garden close to footslope of operating banana plantation along the lower reach of Nam Oun river (downstream of Nam Oun Weir) at Fen village. 19 samples were detected with safe level (<50% inhibition) representing 5, 7, and 7 for soil, water, and crop samples respectively. The water samples for field test are mainly collected from canals and drainage ditches nearby and within banana plantations. No detection (0% inhibition) for other 19 samples. Details of test results and sample locations are presented in the **Annex 3**.

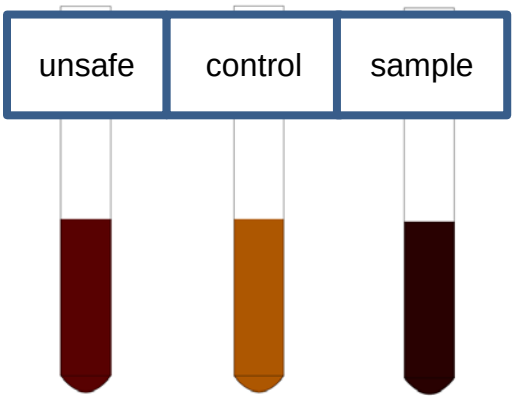

Figure 22: A Chart for contamination indication

Figure 23: Preparation of samples for field test and analysis with TG-Test kit at Yor village; 27 June 2018

Figure 24: Presenting test results of samples collected from Nam Beng subproject at Yor village; 27 June 2018

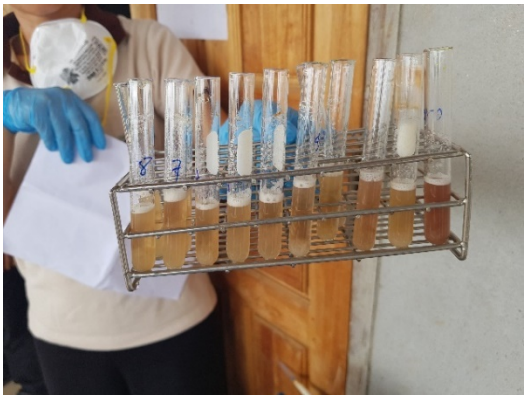

Figure 25: Presenting test results of samples collected from Nam Oun subproject at Chantai village; 28 June 2018

5.2.2. Laboratory method

Four water samples were collected from upstream and downstream of each subproject (upstream and downstream of Nam Oun, upstream of Nam Beng, and downstream after after Houay Lor flows into Nam Beng), where the pesticides and chemical fertilizers are widely used. The lab method for 4 samples aims for analysis of four groups of agrochemical parameters (carbamate, organochlorine, organophosphate, and pyrethroid). The methods and tools applied for analysis of the groups are presented in section 3 of **Annex 2**.

Analysis result shows there is no detection of agrochemical parameters of 4 groups in the rivers of the subprojects.

5.2.3 Demonstration and awareness raising on agrochemical use

During the tests of water, soil and crop samples, some PPO and DCO staff and villagers who participated the consultations were demonstrated and presented about methods for sample collection, analysis, and results. The demonstrations were taken place in beneficiary villages, aiming to increase awareness for the participants regarding potential risks and impacts from uses of pesticides and herbicides and protective measures through the demonstrations.

Figure 26: Demonstration of pesticide test and results at Yor village; 27 June 2018

Figure 27: Demonstration of pesticide test and results for Chantai village; 28 June 2018

Chapter V: Conclusion

6. Conclusion, recommendation, and follow up plan

6.1 Social safeguard

In general, the Project has demonstrated considerable progressive implementation of social impact management plans for the LACPs, EGDPs, and GAPs. On the other hand, several areas of improvements are needed for the subprojects, especially the Nam Oun subproject which need to continue its construction works after wet-season suspension. The main achievements and required improvements can be concluded as follows.

LACP: While the issues relevant to land loss and effect for 6 households have been addressed, additional land acquisition and compensation for new households affected by the RSC-2 and RSC-4 for Nam Oun subproject are regarded as a major social issue which needs to be redressed urgently. It is also essential to improve the coordination between the construction contractors and village authorities or land owners in terms of the land acquisition for the subproject activities to minimize any potential new land losses and impacts during the construction or rehabilitation of the subprojects. It is strongly recommended that the new land losses shall be thoroughly investigated and surveyed. Likewise, the AHs shall be well informed and consulted prior to compensation or their voluntary donations, especially the content the involuntary donation sheet.

GAP: Concerning the gender equality, although the female representation in the executive board of the WUGs for the subproject achieve more than 30%, the participation of women in other committees remain underrepresented. Such underrepresentation is also recorded in the consultations with the beneficiary communities during the first safeguard monitoring. It is highly recommended to engage more female participants in different level of committees and consultations/meetings as outlined in the GAPs. Importantly, this should be seriously taken into account for future subprojects.

EGDP: In addition to female participation, it is also required to encourage the participation of minority ethnic groups in the meetings or consultations associated with the subproject implementation. This is even more vital for the Nam Oun subproject where more diverse minority groups, for instance, Hmong households, are expected to benefit from the subproject. The PPO and DCOs shall try to encourage their participation in different consultations and other activities at various stages of the subproject implementation.

Employment: Conforming to the requirements regarding the employment of local workforce seems to be quite far from the plan. Very limited workers have been reportedly sourced from the beneficiary villages. However, it is understandable and sensible that such low local employment rate is due to either less interest or attractiveness of the construction work to the villagers or the neglect of the Construction Contractors to recruit local laborers with higher required wage and limited skills. With this concern, the PPOs and DCOs shall advise the Contractors to formally coordinate with the village authorities of employment needs and requirements through proper documentations. It is also recommended to take employment records for future reference.

It is also a crucial social concern for unpaid employment for local subcontractors from Nam Met village associated with Nam Beng subproject. The PPO and the DCO shall investigate and remediate such concern in coordination with the affected persons and the Contractor.

Safeguards monitoring: It is evident that while the monitoring was conducted by the local stakeholders, including PONRE and DONREs for environmental issues on the construction, social issues, particularly concerns of the villagers, are likely not included.

6.2 Environmental safeguard

From the findings of the first safeguards monitoring, implementation of the EMPs for the subprojects is moderately satisfied although some additional actions and mitigations are required for further actions in compliance with the EMP and relevant requirements for the Project. The required actions are more particular for Nam Oun subproject which its rehabilitation and construction work has not yet been completed. Main findings and recommendations are discussed as follows.

Environmental monitoring activities: An environmental monitoring was conducted by the PONRE and DONREs in partner with the PPO and DCOs of respective province and districts. The monitoring was conducted during 15-16 May 2018 for the construction sites of 4 schemes. The monitoring report was developed and signed by all parties involved. Main findings and recommendations from the monitoring include general waste management on sites and health and safety concerns. It is recommended additional monitoring shall be encouraged with inclusion of social aspects.

Erosion and sediment control: Erosion control is a main issue for construction sites, especially excavation works for canals during the rainy season. The erosion and sediment transport are also triggered by the agricultural practices in the subproject

catchment. For erosion and sediment control, the revegetation was carried out for the Nam Beng 1 scheme by the WUG for subprojects. It is recommended that revegetation should be extended to other schemes aiming for erosion control and slope protection.

Aquatic and terrestrial biodiversity: The Project has put a significant effort for minimization of anticipated effects on aquatic resources, particularly fish species. This can be demonstrated by providing a fish ladder for each scheme to enable fish species migrate upstream of the scheme. However, despite availability of the facility, the structures may facilitate only fewer local species during the wet season, the structures would be ineffective during the dry season due to natural low flow in the streams. To verify the success of fish passage, it is essential to properly monitor and evaluate the effectiveness fish passage and seeking local knowledge from local fishers regarding the fish species and migration. The knowledge and monitoring result may help improve design and construction of fish ladder/passage for future subprojects/schemes.

While local wildlife threats which are likely affected by the subproject construction activities are not anticipated, hunting and consumption of the wild animals was found at the construction camp of Nam Oun subproject. It is strongly recommended that the threats to natural habitants must be strictly prohibited and this should be inclusive in the EMPs for future
subprojects.

Water quality: Analysis results of the water samples collected from 8 stations of 4 schemes fall within the range of national water quality standard, with exception for faecal coliform bacteria for Nam Oun upstream and downstream and COD for Nam Oun downstream. Concerning the agrochemical parameters, based on field method, some water samples were detected with safe level (<50% inhibition). However, the agrochemical-detected samples were collected from the small drainage ditches within and nearby the banana plantations and irrigation canals close to the plantations. Unlike the field method, the lab-based analysis result shows no detection of residues of pesticides and herbicides in all samples collected from the rivers of the subprojects. To compare the results from field-based and laboratory methods, future water sampling for agrochemical parameters need to be designated and collected at the same place and time to improve analysis results.

Health and Safety: Although they are regarded as key indicators in the EMP for the subprojects, health and safety management plans on sites were not adequately follow by the Contractors. This include neglect of providing very basic PPEs to their employees. It is recommended that the PPEs shall be available for both engineers and workers during their duties at the construction sites.

6.3 Follow up plan

The second safeguards monitoring mission for 2018 will be undertaken at the end of November 2018. The key social safeguard issues to be monitored and evaluated for the next mission are as follows.

- Review of the results of land loss survey and investigation of the AHs caused by the RSC-2 and RSC-4 of the Nam Oun subproject, and grievance redress mechanism to be carried out by the grievance committee.
- Participation of women and minority ethnic groups in consultations and training activities of the subprojects.
- Status of local employment, including the documentation for seeking local employment and recording system, and progress of payment for pending unpaid contract price for local subcontractors in Nam Met village.
- Consultations with new AHs in the Nam Oun subproject, village authorities, WUGs, the DCOs of Beng and Houn district, and the PPO of Oudomxay.
- Availability of PPEs for engineers and workers for Nam Oun subproject
- Discussions with local villagers regarding the fish migration pattern and benefits of fish passage attached to the schemes.
- Site inspections of the construction sites and camps regarding the wild animal hunting and consumption by the Contractors' personnel; storage of hazardous material; general waste management;
- Water sampling for basic parameters for Nam Oun subproject
- Follow up revegetation of the slope areas disturbed by the subproject activities, particularly embarkment areas close to the weir structures.

Annex 1: The IEE certificate for Nam Beng and Nam Oun subproject

Annex 1: The IEE certificate for Nam Beng and Nam Oun subproject

Annex 1: IEE certificate for Nam Oun and Nam Beng 1 subprojects

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ
ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ

ເລກທີ 182/ພຊສ-ອຊ
ອຸດົມໄຊ, ວັນທີ 16 ມັງກອນ 2018

ໃບຢັ້ງຢືນດ້ານສິ່ງແວດລ້ອມ

- **ອີງຕາມ** ກົດໝາຍ ວ່າດ້ວຍ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ (ສະບັບປັບປຸງ) ເລກທີ 29/ສພຊ, ລົງວັນທີ 18 ທັນວາ ປີ 2012;
- **ອີງຕາມ** ຂໍ້ຕົກລົງ ວ່າດ້ວຍການຈັດຕັ້ງ ແລະ ການເຄື່ອນໄຫວ ຂອງພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແຂວງອຸດົມໄຊ ສະບັບເລກທີ 1467/ກຊສ, ລົງວັນທີ 9 ມິນາ 2012;
- **ອີງຕາມ** ຄຳແນະນຳຂະບວນການສຶກສາເບື້ອງຕົ້ນ ກ່ຽວກັບ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມຈາກໂຄງການລົງທຶນ ແລະ ກິດຈະການຕ່າງໆ ສະບັບເລກທີ 8029/ກຊສ, ລົງວັນທີ 17/12/ 2013;

ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງອຸດົມໄຊ ຕົກລົງ:

1. ຮັບຮອງເອົາ ບົດລາຍງານ ການສຶກສາເບື້ອງຕົ້ນ ກ່ຽວກັບ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ, ລວມທັງແຜນຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາສິ່ງແວດລ້ອມສັງຄົມ ແລະ ທຳມະຊາດ, ສຳລັບໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງຊຶ້ນລະປະທານນ້ຳແບ ເມືອງແບ ແລະ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ;
2. ເຈົ້າຂອງໂຄງການ ຕ້ອງປະຕິບັດບັນດາເງື່ອນໄຂ ທີ່ໄດ້ກຳນົດໄວ້ ໃນເອກະສານຊ້ອນທ້າຍຂອງໃບຢັ້ງຢືນສິ່ງແວດລ້ອມ ສະບັບນີ້ຢ່າງເຂັ້ມງວດ;
3. ໃບຢັ້ງຢືນດ້ານສິ່ງແວດລ້ອມ ສະບັບນີ້ ມີອາຍຸນຳໃຊ້ໄດ້ ຕະຫຼອດໄລຍະການກໍ່ສ້າງໂຄງການ ແລະ ມີຜົນສັກສິດນັບຕັ້ງແຕ່ວັນລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ຫົວໜ້າພະແນກ

ສົມແກ້ວ ມະນີວັນ

Annex 2: Water quality monitoring report

Northern Rural Infrastructure Development Sector Project

Nam Beng Irrigation Subproject, Beng District, and
Nam Oun Irrigation Subproject, Houn District
Oudomxay Province

Environmental Monitoring Report

Prepared by

Faculty of Environmental Sciences, National University of Laos

Phanthamit Analytical Lab Co., Ltd.

Vientiane
July 2018

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1 Introduction

The Northern Rural Infrastructure Development Sector Project Additional Financing (NRI-AF) main aim is to provide the rural community with access to and participation in the market economy. This is to be realized through the increase in incremental production in saleable commodities and promotion of agricultural productivity.

2 Scope of Work

According to the Environmental Management Plan of Nam Beng and Nam Oun Irrigation Subprojects, the water quality monitoring was one of program regularly undertaken during the operation period. In this reason, the water sampling was conducted both at upstream and downstream of the subproject on 29 June 2018. The sites and parameters were shown in Table 1.

Table 1 Environmental Quality Monitoring Plan

Item	Water quality Parameters	Water sampling point	
1	pH	NB2, NB3, NB4, NB5	NO1, NO2, NB1, NB6
2	Temperature		
3	Dissolved Oxygen (DO)		
4	Total Dissolved Solids		
5	Biochemical Oxygen Demand (BOD5)		
6	Chemical Oxygen Demand (COD)		
7	Fecal Coliform Bacteria		
8	Organochlorine Pesticide		
9	Organophosphate Pesticides		
10	Pyrethroid Pesticides		
11	Carbamate Pesticides		

3 Location of sampling

The water sampling was conducted at upstream and downstream of the Nam Oun and Nam Beng subproject. Figure 1 was shown overall locations of sampling points in Oudomxay Province northern part Laos.

Nam Beng Irrigation Subproject is located in Beng District, Oudomxay Province. The Nam Beng Irrigation Subproject is composed of 3 irrigation schemes, i) Nam Beng 1, ii) Nam Met, and iii) Houy Lor irrigation scheme. Nam Oun Irrigation Subproject is in Huon District, Oudomxay Province and composed of one (1) irrigation scheme, “Nam Oun irrigation scheme”. The location of the monitoring stations is shown in Table 2 and Figure 1.

Table 2 : Coordinates of All Environmental Quality Monitoring Stations

Water sampling Point	Location			Coordinate	
	River	Village	District	N	E
NO1	Nam Oun (Upstream)	Fan	Beng	20° 8'15.35"N	101°24'55.45"E
NO2	Nam Oun (Downstream)	Nam Oun	Beng	20° 7'35.51"N	101°26'11.87"E
NB1	Nam Beng (Upstream)	Kiousangvan	Houn	20°26'20.68"N	101°47'49.23"E
NB2	Nam Beng (Downstream)	Nam Met	Houn	20°25'24.99"N	101°47'12.12"E
NB3	Nam Met (Upstream)	Nam Met	Houn	20°25'24.20"N	101°47'12.42"E
NB4	Nam Met (Downstream)	Nam Met	Houn	20°24'42.78"N	101°47'45.63"E
NB5	Houy Lor (Upstream)	Houay Lor	Houn	20°21'26.50"N	101°41'51.15"E
NB6	Houy Lor (Downstream)	Xieng Le	Houn	20°21'48.12"N	101°41'8.61"E

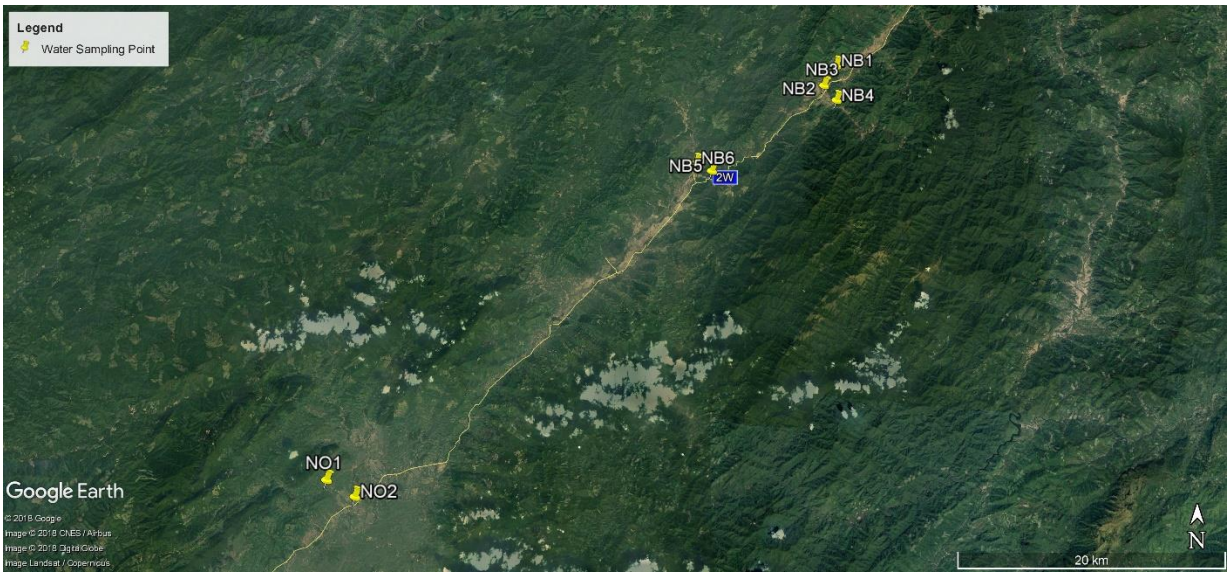


Figure 1 Sampling location map

3 Environmental monitoring methods

3.1 Sampling

In order to standardize the sampling techniques, the monitoring team has worked with Phanthamit Analytical Laboratory to conducted the water sampling and water quality analysis. The sampling team has identified appropriate sampling techniques for water sampling, sample preservation, sample transportation and storage. That would be carried out in accordance with methods outlined in the Standard Methods for the Examination of Water and Wastewater, or in accordance with national standards complying with the requirements of method validation of ISO/IEC 17025:2005. After sampling, the waster samples were delivers to Laboratory in Vientiane for analysis. Table 03 and Figure 02 was shown the water sampling procedure for water volume and preservation requirement.

Total eight (8) water samples were collected on 29 June 2018 between 8 a.m. and 4 p.m. based on the site and weather conditions where surface water was collected by water sampler. At each sampling location, the sampling sites were located by GPS and recorded in water sample field note (Annex 01).

Table 03 water sampling procedure

Parameter	Minimum required vol. (ml)	Container (P-Plastic G-Glass)	Preservation
pH	-	-	None Req.
Temperature	-	-	None Req.
Dissolved Oxygen (DO)	300	G	$MnSO_4$ 2ml + AIA 2ml
Total Dissolved Solids (TDS)	100	P	None Req.
Biochemical Oxygen Demand (BOD_5)	1,000	P	None Req.
Chemical Oxygen Demand (COD)	500	G	Cool, 4°C, H_2SO_4 to pH<2
Fecal Coliform Bacteria	300	G	None Req.
Organochlorine	4,000	G	None Req.
Organophosphate		G	None Req.
Pyrethroid		G	None Req.
Carbamate		G	None Req.

Figure 02 water sample container

3.2 Laboratory analyses

The designed parameters of water quality monitoring consist of pH, Temperature, DO, TDS, BOD, COD Faecal Coliforms. In addition to these basic parameters, at the upstream and downstream of Nam Oun (NO1, NO2), upstream of Nam Beng (NB1), and downstream of Houay Lor (NB6), Agrochemical parameters including Organochlorine Pesticide Group, Carbamate Pesticide Group, Pyrethroid Pesticide Group and Organophosphate Pesticide Group were required to monitored.

Organochlorine pesticides are chlorinated hydrocarbons used extensively in agriculture and mosquito control. Representative compounds in this group including a-BHC, DDT, methoxychlor, dieldrin, chlordane, etc… Total of 23 compounds to be analyzed that was shown in Table 5.

Carbamate pesticides are derived from carbamic acid and kill insects in a similar fashion as organophosphate insecticides. They are widely used in homes, gardens, and agriculture. Like the organophosphates, their mode of action is inhibition of cholinesterase enzymes, affecting nerve impulse transmission. There are 10 compounds in this analysis as shown in Table 5.

Pyrethroids comprise a family of broad spectrum insecticides and are widely used because they are believed to be relatively safe for humans, their insecticidal potency is elevated at low dosages and they exhibit a rapid immobilization effect. Pyrethroids are used against a wide range of insects considered pests. There are 6 compounds in this analysis as shown in Table 5.

Organophosphate pesticides are being most widely used as insecticides in commercial agriculture to control pests on fruit and vegetable crops. There are 29 compounds in this analysis, the detail of each compounds is shown in Table 5.

Every parameter was analyzed in accordance with the procedures suggested in the Standard Analytical Procedure Manual for water samples which is based on 'Standard Methods for the Examination of Water and Wastewater' 23th edition, APHA, AWWA. Quantification of the various parameters were made according to the methods specified as Table 4.

Table 04 Water quality parameters measured

Parameter	Unit	Method
In Situ Measurements		
pH		Electrometric Method (4500-H^+B)
Temperature	^oC	Laboratory and field (2500B)
Laboratory Measurements		
Dissolved Oxygen (DO)	mg/L	Membrane Electrode Method (4500-OG)
Total Dissolved Solids (TDS)	mg/L	Dried at 180^oC (2540C)
Biochemical Oxygen Demand (BO	mg/L	5-Day BOD Test, Membrane Electrode Method (5210B)
Chemical Oxygen Demand (COD)	mg/L	Close Reflux, Titrimetric Method (5220-C)
Fecal Coliform Bacteria	MPN/100ml	MPN Test Method (9221E)
Organochlorine Pestiside	µg/L	EPA Method 507 (1995) Revision 2.1 and EAP Method 508 (1995) Revision 3.1
Organophosphate Pesticides	µg/L	EPA Method 507 (1995) Revision 2.1 and EAP Method 508 (1995) Revision 3.1
Pyrethroid Pesticides	µg/L	EPA Method 507 (1995) Revision 2.1 and EAP Method 508 (1995) Revision 3.1
Carbamate Pesticides	µg/L	EPA Method 507 (1995) Revision 2.1 and EAP Method 508 (1995) Revision 3.1

4 Environmental Monitoring Results

The water quality result of monitoring was summarized and shown in Table 04. Generally, it has been found that every testing result of all parameters in the up and downstream stations of each river show minor difference. Even though that of those parameters of some stations gives higher values. The results of the water quality analysis are shown in the Tables 5 and Annex 2. The explanations of detail are described as blow.

4.1 Nam Oun (NO1, NO2)

At the Nam Oun river, the water quality monitoring point at the upstream where the dam of irrigation has been built at Fan village. And the monitoring points for downstream of Nam Oun is at Nam Oun village. Both sampling points condition were presented in Figure 03

The optimal range of pH for most freshwater organisms is between 6.0 and 9.0. The pH of upstream and downstream of Nam Oun was within this optimal range, the value of pH was 8.3 and 8.2 respectively. The temperature of water both in upstream and downstream was 24.4 ^oC and 25.4 ^oC respectively.

Adequate dissolved oxygen (DO) is necessary for acceptable water quality. As dissolved oxygen concentrations fall below 4.0 mg/L, aquatic life might put under stress. The 29 June 2018 sampling event, DO in upstream and downstream was higher than the standard value (NO1 = 8.95 mg/L and NO2 = 8.15mg/L).

Total Dissolved Solids (TDS) is a measure of the amount of dissolved material in the water column. The most common source of dissolved solids in water is from the weathering of sedimentary rocks and the erosion of the earth's surface. The concentration of TDS at Nam Beng was slightly different 214 mg/L at upstream and 212 mg/L at downstream.

The biochemical oxygen demand (BOD) is an approximate measure of the amount of biochemically degradable organic matter present in a water sample. The result of BOD at upstream and downstream was below 1 mg/l.

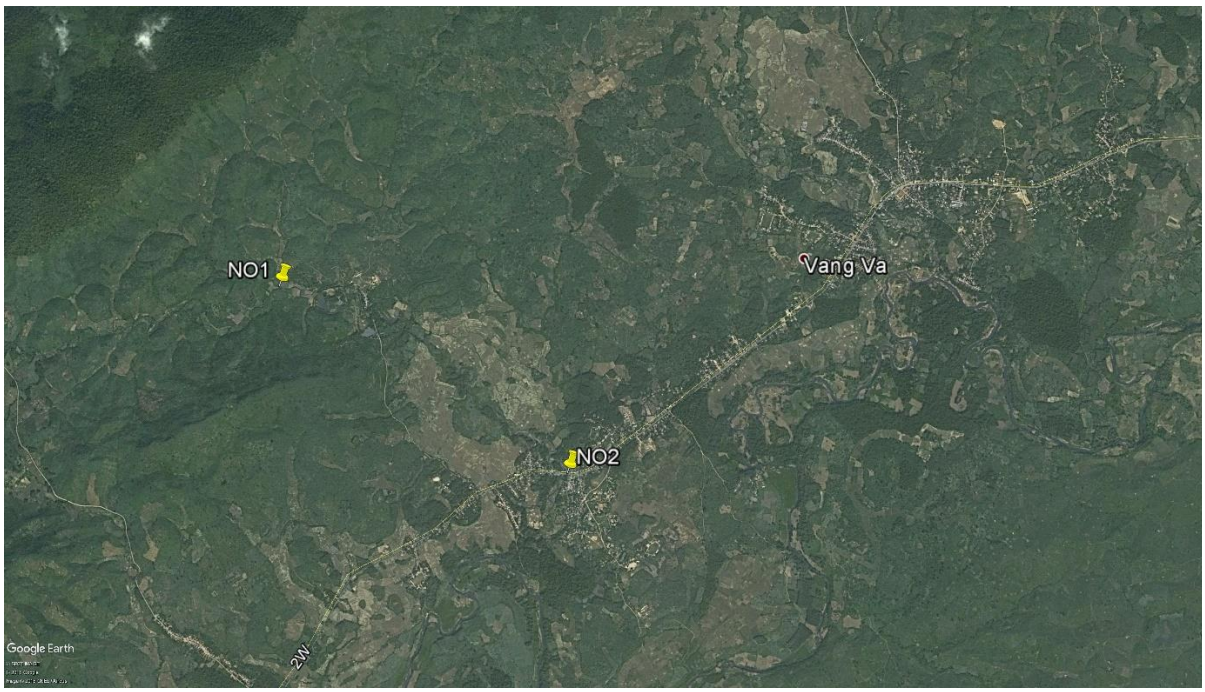
The COD is widely used as a measure of the susceptibility to oxidation of the organic and inorganic materials present in water bodies. The concentrations of COD observed at upstream was less than 4.0 mg/L, but at downstream COD concentrations was exceeded the standard value (7-9mg/L) 14.6 mg/L. The high concentration of COD at NO2 might be the effluent of domestic wastewater flowed into the Nam Beng near the sampling point.

The value of fecal coliform at NO1 and NO2 were 35,000 and 22,000 MPN/100mL. These testing results was exceeded National Environment Standard value (22,000 MPN/100mL). The presence of fecal coliform bacteria in aquatic environments indicates that the water has been contaminated with the fecal material of man or other animals. Fecal coliform bacteria may occur in ambient water as a result of the overflow of nonpoint sources of human and animal waste.

Agrochemical testing for water sample at upstream and downstream of Nam Beng; where the pesticides and chemical fertilizers would potentially use in the agriculture area were not detected.

(a) Upper part of sampling point NO1

(b) Lower part of sampling point NO2



(c) Samping location map of Nam Oun

(d) Upper part of sampling point NO2

(e) Lower part of sampling point NO2

Figure 03 Monitoring location of Nam Oun

4.2 Nam Beng (NB1, NB2)

The water quality monitoring point of Nam Beng river was at upstream NB1 where the dam of irrigation was built at Kiousangvan village, Houn District. And monitoring point for downstream was at Nam Met village as presented the condition in Figure 04.

The pH for upstream and downstream of Nam Beng was within this optimal range, both was 8.5. The water temperature at upstream and downstream was 29.6 ^{o}C and 29.6 ^{o}C respectively. The concentration of TDS in upstream was 241 mg/L, and downstream was lower as 183 mg/L

The concentration of DO at upstream NB1 and downstream NB2 were 9.00 mg/L and 8.85 mg/L respectively. this value was complied with environmental standard. The BOD levels was typically lower at upstream and downstream was 0.95 and 1.05 mg/l respectively. The concentrations of COD observed at upstream was 4.86 mg/L, but at downstream COD was < 4.0 mg/L.

The value of fecal coliform generally recorded lower levels compare to the standard value. 33 MPN/100mL at upstream and 130 MPN/100mL at downstream.

Only the upstream of Nam Beng NB1, parameters of agrochemical were monitored; but the result was also confirmed that there were no any pesticide compounds detected during the monitoring period.

(a) Upper part of sampling point NB1

(b) Lower part of sampling point NB1

(c) Sampling location map of Nam Beng

(d) Upper part of sampling point NB2

(e) Lower part of sampling point NB2

Figure 04 Monitoring location of Nam Beng

4.3 Nam Met (NB3, NB4)

The water quality monitoring point of Nam Met river was at upstream NB3 where the dam of irrigation was built at Nam Met village, Houn District. And monitoring point for downstream NB4 was at Nam Met village, both sampling points condition was presented in Figure 05.

The pH level at upstream and downstream was 8.5. The water temperature at upstream and downstream was 29.6 ^{o}C and 29.6 ^{o}C respectively. The concentration of TDS in upstream NB3 was 116 mg/L, and downstream NB4 was 122 mg/L.

The DO concentration at upstream NB3 and downstream NB4 were 8.75 mg/L and 8.15 mg/L respectively. this value was complied with environmental standard. The BOD level was not less than 1.0 mg/L. And COD value was also lower the standard vale; less than 4.0 mg/L.

The value of fecal coliform generally recorded lower levels compare to the standard value. The fecal coliform level at upstream was 33 MPN/100mL and downstream was 130 MPN/100mL.

The Agrochemical parameter was not monitored in the upstream and downstream of Nam Met river.

(a) Upper part of sampling point NB3

(b) Lower part of sampling point NB3

(c) Sampling location map of Nam Met

(d) Upper part of sampling point NB4

(e) Lower part of sampling point NB4

Figure 05 Monitoring location of Nam Met

4.4 Houy Lor (NB5, NB6)

The water quality monitoring point of Houy Lor river was at upstream NB5 where the dam of irrigation was built at Houy Lor village, Houn District. And monitoring point for downstream NB6 was at Xieng Le village as presented the condition in Figure 06.

The pH at upstream and downstream of Houay Lor was 8.5 and 8.4 respectively. The water temperature at upstream and downstream was 30.4 ^{o}C and 28.4 ^{o}C respectively. The concentration of TDS in upstream was 330 mg/L, and downstream was slightly different 310 mg/L

The concentration of DO at upstream NB5 and downstream NB6 was 9.00 mg/L and 9.55 mg/L respectively. This value was complied with environmental standard. The BOD level was typically lower at upstream and downstream was lower 1.0 mg/L. The concentrations of COD at upstream and downstream was less than 4.0 mg/L.

The value of fecal coliform mostly recorded lower levels compare to the standard value. The fecal coliform level at upstream was 330 MPN/100mL and downstream was 310 MPN/100mL.

The downstream of Houy Lor NB6, the parameter of agrochemical was also not detected similar to other site during the monitoring period.

4.5 Summary

The level of pH was similar across all sites during the monitoring period. The upstream and downstream was generally ranging from 8.2 – 8.5. Median pH levels for all river sites were well within the lower and upper guideline levels.

Water temperature during the monitoring period was generally similar between the sites. The highest value recorded was 30.4°C at downstream of Houy Lor, that was measured in late afternoon.

Dissolved oxygen level was mostly similar within and between rivers. The highest dissolved oxygen reading within the river sites was 9.55mg/L at downstream Houy Lor (NB6), and lowest record was at Nam Oun downstream and Nam Met downstream 8.15mg/L.

TDS result was essentially high at Nam Oun river (upstream NO1 and downstream NO2) and upstream Nam Beng (NB1) recorded higher levels than the other site, when TDS levels were taken into consideration. There appeared to be higher levels, potentially due to the weathering of sedimentary rocks and the erosion of the earth's surface.

BOD_5 levels were typically lower than 1.0 mg/L, with most sites in this monitoring area. This is confirmed that the water quality is very good. Generally, when BOD levels are low, there is an increase in DO levels. This is because no organic waste present in the water, there won't be as many bacteria present to decompose it and thus the BOD will tend to be lower and the DO level will tend to be higher.

COD level was recorded the highest at downstream of Nam Oun (NO2) 14.6mg/L, where the site was located near the community. This might be the result of effluent from domestic wastewater. Other sites COD level was generally lower than 4.0 mg/L.

Fecal Coliform Bacteria levels between sites were generally similar. Although upstream and downstream of Nam Oun were recorded highest levels compared to the other sites. The highest river value recorded was 35,000 MPN/100mL and 22,000 MPN/100mL at Nam Oun upstream and downstream respectively. The high concentration of Fecal Coliform Bacteria might be the result of overflow from nonpoint sources of human and animal waste. That may cause waterborne diseases. There are a numerous of bacteria and diverse in assemblage natural, most of these bacteria are harmless to humans; however, certain bacteria, some of which normally inhabit the intestinal tract of

warm-blooded animals, have the potential to cause sickness and disease in humans. Consumption of, or recreational contact with, water contaminated with feces of warm-blooded animals can cause a variety of illnesses. Minor gastrointestinal discomfort is probably the most common symptom; however, pathogens that may cause only minor sickness in some people may cause serious conditions or death in others, especially in the very young, old, or immuno-compromised.

Four (4) water samples for agrochemical testing were monitored in river of Nam Oun upstream and downstream, Nam Beng upstream, Houy Lor downstream (Nam Beng downstream). where the pesticides and chemical fertilizers would widely use. The result of 4 groups pesticides testing was not detected in river water due to the sediment adsorption, dilution or natural refinery.

(a) Upper part of sampling point NB5

(b) Lower part of sampling point NB5

(c) Sampling location map of Houy Lor

(d) Upper part of sampling point NB6

(e) Lower part of sampling point NB6

Figure 06 Monitoring location of Houy Lor

Table 5 Summary of water quality result

Item	Water Sampling Point	Unit	Standard [1/]	Waater Sample Point							
				NO1 Nam Oun (Upsteam)	NO2 Nam Oun (Downsteam)	NB1 Nam Beng (Upsteam)	NB2 Nam Beng (Downsteam)	NB3 Nam Mad (Upsteam)	NB4 Nam Mad (Downsteam)	NB5 Nam Lor (Upsteam)	NB6 Nam Lor (Downsteam)
1	**pH**		5-9	8.3	8.2	8.5	8.5	8.3	8.4	8.5	8.4
2	**Temperature**	°C	n'	24.4	25.4	29.6	29.6	28.0	26.6	30.4	28.4
3	**Dissolved Oxygen (DO)**	mg/L	> 4.0	8.95	8.15	9.00	8.85	8.75	8.15	9.00	9.55
4	**Total Dissolved Solids**	mg/L		214	212	241	183	116	122	157	162
5	**Biochemical Oxygen Demand (BOD5)**	mg/L		<1.00	<1.00	0.95	1.05	<1.00	<1.00	<1.00	<1.00
6	**Chemical Oxygen Demand (COD)**	mg/L	7-10	<4.00	14.6	4.86	<4.00	<4.00	<4.00	<4.00	<4.00
7	**Fecal Coliform Bacteria**	MPN/100mL	20,000	35,000	22,000	33	130	330	130	330	310
8	**Organochlorine**										
8.1	α-BHC	µg/L		ND	ND	ND	-	-	-	-	ND
8.2	HCB	µg/L		ND	ND	ND	-	-	-	-	ND
8.3	β-BHC	µg/L		ND	ND	ND	-	-	-	-	ND
8.4	y-BHC	µg/L		ND	ND	ND	-	-	-	-	ND
8.5	Heptachlor	µg/L		ND	ND	ND	-	-	-	-	ND
8.6	Aldrin	µg/L		ND	ND	ND	-	-	-	-	ND
8.7	Dicofol	µg/L		ND	ND	ND	-	-	-	-	ND
8.8	Heptachlor-exo-epoxide	µg/L		ND	ND	ND	-	-	-	-	ND
8.9	trans-Chlordane	µg/L		ND	ND	ND	-	-	-	-	ND
8.10	α-Endosulfan	µg/L		ND	ND	ND	-	-	-	-	ND
8.11	cis-Chlordane	µg/L		ND	ND	ND	-	-	-	-	ND
8.12	p,p-DDE	µg/L		ND	ND	ND	-	-	-	-	ND
8.13	Dieldrin	µg/L		ND	ND	ND	-	-	-	-	ND
8.14	Endrin	µg/L		ND	ND	ND	-	-	-	-	ND
8.15	β-Endosulfan	µg/L		ND	ND	ND	-	-	-	-	ND
8.16	p,p-DDD	µg/L		ND	ND	ND	-	-	-	-	ND
8.17	o,p-DDT	µg/L		ND	ND	ND	-	-	-	-	ND
8.18	Endosulfan Sulfate	µg/L		ND	ND	ND	-	-	-	-	ND
8.19	p,p-DDT	µg/L		ND	ND	ND	-	-	-	-	ND
8.20	Methoxychlor	µg/L		ND	ND	ND	-	-	-	-	ND
8.21	Total DDT	µg/L		ND	ND	ND	-	-	-	-	ND
8.22	o,p-DDD	µg/L		ND	ND	ND	-	-	-	-	ND
8.23	o,p-DDE	µg/L		ND	ND	ND	-	-	-	-	ND

Note: [1/]Lao National Environmental Standard, Ministry of Natural Resources and Environment, No 0832, 03/03/2017. Table 10, Type 3

Table 5 Summary of water quality result (Count.)

Item	Water Sampling Point	Unit	Standard [1/]	Waater Sample Point							
				NO1 Nam Oun (Upsteam)	NO2 Nam Oun (Downsteam)	NB1 Nam Beng (Upsteam)	NB2 Nam Beng (Downsteam)	NB3 Nam Mad (Upsteam)	NB4 Nam Mad (Downsteam)	NB5 Nam Lor (Upsteam)	NB6 Nam Lor (Downsteam)
9	**Carbamate**										
9.1	Aldicarb sulfoxide	µg/L		ND	ND	ND	-	-	-	-	ND
9.2	Aldicarb sulfone	µg/L		ND	ND	ND	-	-	-	-	ND
9.3	Oxamyl	µg/L		ND	ND	ND	-	-	-	-	ND
9.4	Methomyl	µg/L		ND	ND	ND	-	-	-	-	ND
9.5	3-Hydroxycarbofuran	µg/L		ND	ND	ND	-	-	-	-	ND
9.6	Aldicarb	µg/L		ND	ND	ND	-	-	-	-	ND
9.7	Propoxur	µg/L		ND	ND	ND	-	-	-	-	ND
9.8	Carbofuran	µg/L		ND	ND	ND	-	-	-	-	ND
9.9	Carbaryl	µg/L		ND	ND	ND	-	-	-	-	ND
9.10	Methiocarb	µg/L		ND	ND	ND	-	-	-	-	ND
10	**Pyrethroid**										
10.1	Cyfluthrin	µg/L		ND	ND	ND	-	-	-	-	ND
10.2	Cypermethrin	µg/L		ND	ND	ND	-	-	-	-	ND
10.3	Deltamethrin	µg/L		ND	ND	ND	-	-	-	-	ND
10.4	Fenvalerate	µg/L		ND	ND	ND	-	-	-	-	ND
10.5	λ.-Cyhalothrin	µg/L		ND	ND	ND	-	-	-	-	ND
10.6	Permethrin	µg/L		ND	ND	ND	-	-	-	-	ND
11	**Organophosphate**										
11.1	Anilofos	µg/L		ND	ND	ND	-	-	-	-	ND
11.2	Azinphos-ethyl	µg/L		ND	ND	ND	-	-	-	-	ND
11.3	Azinphos-methyl	µg/L		ND	ND	ND	-	-	-	-	ND
11.4	Chlorfenvinphos	µg/L		ND	ND	ND	-	-	-	-	ND
11.5	Chlorpyrifos	µg/L		ND	ND	ND	-	-	-	-	ND
11.6	Diazinon	µg/L		ND	ND	ND	-	-	-	-	ND
11.7	Dichlorvos	µg/L		ND	ND	ND	-	-	-	-	ND
11.8	Dicrotophos	µg/L		ND	ND	ND	-	-	-	-	ND
11.9	Dimethoate	µg/L		ND	ND	ND	-	-	-	-	ND
11.10	EPN	µg/L		ND	ND	ND	-	-	-	-	ND
11.11	Ethion	µg/L		ND	ND	ND	-	-	-	-	ND
11.12	Ethoprophos	µg/L		ND	ND	ND	-	-	-	-	ND
11.13	Etrimfos	µg/L		ND	ND	ND	-	-	-	-	ND

Note: [1/]Lao National Environmental Standard, Ministry of Natural Resources and Environment, No 0832, 03/03/2017. Table 10, Type 3

Table 5 Summary of water quality result (Count.)

Item	Water Sampling Point	Unit	Standard [1/]	Waater Sample Point							
				NO1 Nam Oun (Upsteam)	NO2 Nam Oun (Downsteam)	NB1 Nam Beng (Upsteam)	NB2 Nam Beng (Downsteam)	NB3 Nam Mad (Upsteam)	NB4 Nam Mad (Downsteam)	NB5 Nam Lor (Upsteam)	NB6 Nam Lor (Downsteam)
11.14	Fenitrothion	µg/L		ND	ND	ND	-	-	-	-	ND
11.15	Fenthion	µg/L		ND	ND	ND	-	-	-	-	ND
11.16	Malathion	µg/L		ND	ND	ND	-	-	-	-	ND
11.17	Methamidophos	µg/L		ND	ND	ND	-	-	-	-	ND
11.18	Methidathion	µg/L		ND	ND	ND	-	-	-	-	ND
11.19	Mevinphos	µg/L		ND	ND	ND	-	-	-	-	ND
11.20	Monocrotophos	µg/L		ND	ND	ND	-	-	-	-	ND
11.21	Omethoate	µg/L		ND	ND	ND	-	-	-	-	ND
11.22	Parathion-Methyl	µg/L		ND	ND	ND	-	-	-	-	ND
11.23	Phosalone	µg/L		ND	ND	ND	-	-	-	-	ND
11.24	Phosphamidon	µg/L		ND	ND	ND	-	-	-	-	ND
11.25	Pirimiphos-methyl	µg/L		ND	ND	ND	-	-	-	-	ND
11.26	Profenofos	µg/L		ND	ND	ND	-	-	-	-	ND
11.27	Prothiofos	µg/L		ND	ND	ND	-	-	-	-	ND
11.28	Terbufos	µg/L		ND	ND	ND	-	-	-	-	ND
11.29	Triazophos	µg/L		ND	ND	ND	-	-	-	-	ND

Note: [1/]Lao National Environmental Standard, Ministry of Natural Resources and Environment, No 0832, 03/03/2017. Table 10, Type 3

Annex 01 Water Sampling Field Note

Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NB1			
	Date		29/06/2018			
	Time		16:00			
	Location		Nam Beng (Upsteam)	Kiousangvan	Houn District	Oudomxai Province
	Coordinate	N	20°26'20.68"N			
		E	101°47'49.23"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	32.0		°C
		4	Water temperature	29.6		°C
		5	pH	8.46		

Sampling Location Map

Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NB2			
	Date		29/06/2018			
	Time		15:40			
	Location		Nam Beng (Downsteam)	Nam Met Village	Houn District	Oudomxai Province
	Coordinate	N	20°25'24.99"N			
		E	101°47'12.12"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	31.0		°C
		4	Water temperature	29.6		°C
		5	pH	8.52		

Sampling Location Map

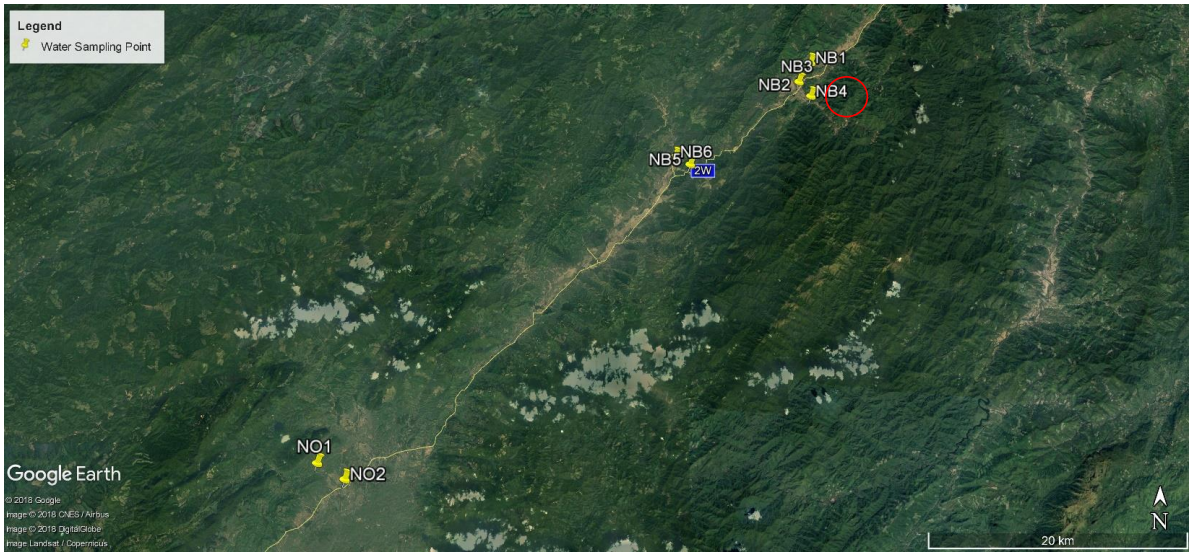
Northern Rural Infrastructure Development Sector Project, Oudomxai Province

Water Samples	Water samples Point		NB3			
	Date		29/06/2018			
	Time		15:30			
	Location		Nam Met (Upsteam)	Nam Met Village	Houn District	Oudomxai Province
	Coordinate	N	20°25'24.20"N			
		E	101°47'12.42"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	31.0		°C
		4	Water temperature	28.6		°C
		5	pH	8.30		

Sampling Location Map

Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NB4			
	Date		29/06/2018			
	Time		14:50			
	Location		Nam Met (Downsteam)	Nam Met Village	Houn District	Oudomxai Province
	Coordinate	N	20°24'42.78"N			
		E	101°47'45.63"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	30.0		°C
		4	Water temperature	26.6		°C
		5	pH	8.14		

Sampling Location Map



Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NB5			
	Date		29/06/2018			
	Time		14:00			
	Location		Houy Lor (Upsteam)	Houy Lor Village	Houn District	Oudomxai Province
	Coordinate	N	20°21'26.50"N			
		E	101°41'51.15"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	33.0		°C
		4	Water temperature	30.4		°C
		5	pH	8.51		

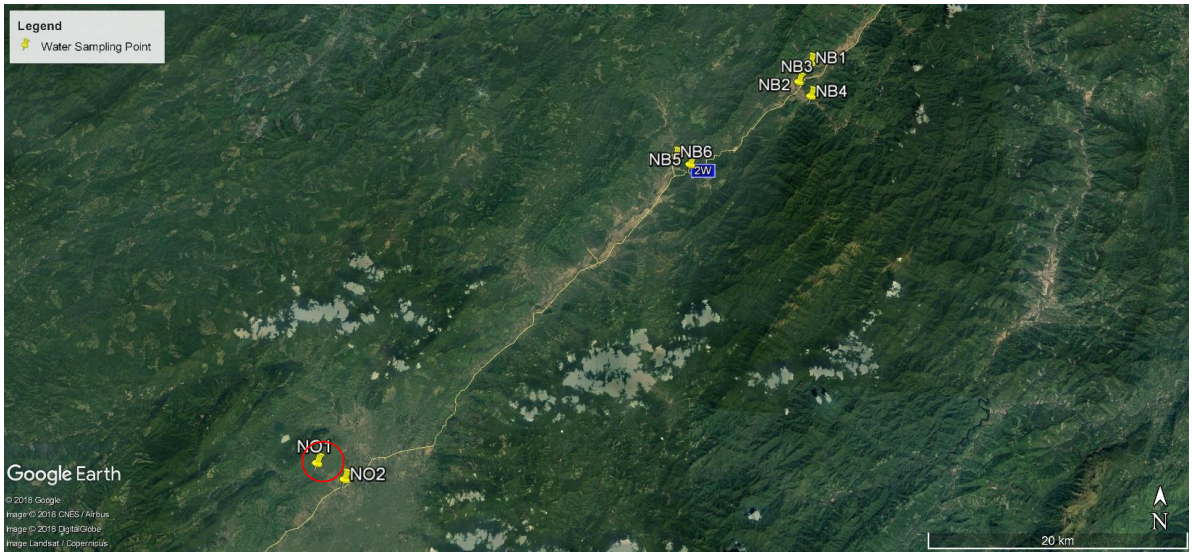
Sampling Location Map

Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NB6			
	Date		29/06/2018			
	Time		13:35			
	Location		Nam Lor (Downsteam)	Xieng Lere Village	Houn District	Oudomxai Province
	Coordinate	N	20°21'48.12"N			
		E	101°41'8.61"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	31.0		°C
		4	Water temperature	28.5		°C
		5	pH	8.41		

Sampling Location Map

Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NO1			
	Date		29/06/2018			
	Time		8:40			
	Location		Nam Oun (Upsteam)	Fan Village	Beng District	Oudomxai Province
	Coordinate	N	20° 8'15.35"N			
		E	101°24'55.45"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	28.0		°C
		4	Water temperature	24.4		°C
		5	pH	8.28		

Sampling Location Map



Northern Rural Infrastructure Development Sector Project, Oudomxai Province						
Water Samples	Water samples Point		NO2			
	Date		29/06/2018			
	Time		9:50			
	Location		Nam Oun (Downsteam)	Nam Oun Village	Beng District	Oudomxai Province
	Coordinate	N	20° 7'35.51"N			
		E	101°26'11.87"E			
Weather			Previous date	Rainy		
			Measure date	Cloudy		
Water Conditon		1	Odor	Acceptable		
		2	Color	Light yellow		
		3	Air temperature	29.0		°C
		4	Water temperature	25.4		°C
		5	pH	8.25		

Sampling Location Map

Annex 02 Water Quality Test Report

Phanthamit Analytical Lab Co., Ltd.
No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	0.95	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	4.86	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	9.00	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.5	6.0-8.0
Temperature*	^{o}C	Laboratory and Field (SM 2012:2550 B)	29.6	n'
Total Dissolved Solids	mg/L^-	Dried at 180^{o} C (SM 2012:2540 C)	241	-

Physical Appearance:
1. Sample : Slightly Turbid
2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark:
1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water
* Parameter Not Accredited ISO/IEC 17025:2005
** Out of Accreditation Scope
n' = natural Water but temperature modification should not exceed +/- 3^{o} C

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL LABORATORY

ACCREDITED LABORATORY
ISO/IEC 17025

Phanthamit Analytical Lab Co., Ltd.
No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	33	1,000

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Eastern Thai Consulting 1992 Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

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No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
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No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organochlorine Group				0.05
α-BHC	µg/L	In-house method TM-CH-090 based on	ND	0.02
HCB	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
β-BHC	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
γ-BHC	µg/L		ND	-
Heptachlor	µg/L		ND	0.2
Aldrin	µg/L		ND	0.1
Dicofol	µg/L		ND	-
Heptachlor-exo-epoxide	µg/L		ND	0.2
trans-Chlordane	µg/L		ND	-
α-Endosulfan	µg/L		ND	-
cis-Chlordane	µg/L		ND	-
p,p-DDE	µg/L		ND	-
Dieldrin	µg/L		ND	0.1
Endrin	µg/L		ND	*

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

ບໍລິສັດ ພັນທະມິດ ທົດລອງ ແລະ ວິໃຈ ຈຳກັດ
Phanthamit Analytical Lab Co.,Ltd

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ACCREDITED LABORATORY
ISO/IEC 17025

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No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organochlorine Group				
β-Endosulfan	µg/L	In-house method TM-CH-090 based on	ND	-
p,p-DDD	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
o,p-DDT	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Endosulfan Sulfate	µg/L		ND	-
p,p-DDT	µg/L		ND	-
Methoxychlor	µg/L		ND	-
Total DDT	µg/L		ND	1.0
o,p-DDD	µg/L		ND	-
o,p-DDE	µg/L		ND	-
Carbamate Group				
Aldicarb sulfoxide	µg/L		ND	-
Aldicarb sulfone	µg/L		ND	-
Oxamyl	µg/L		ND	-
Methomyl	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L;
MDL of Carbamate Group = 0.0031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
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ACCREDITED LABORATORY
ISO/IEC 17025

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Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Carbamate Group				
3-Hydroxycarbofuran	µg/L	In-house method TM-CH-090 based on	ND	-
Aldicarb	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Propoxur	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Carbofuran	µg/L		ND	-
Carbaryl	µg/L		ND	-
Methiocarb	µg/L		ND	-
Pyrethroid Group				
Cyfluthrin	µg/L		ND	-
Cypermethrin	µg/L		ND	-
Deltamethrin	µg/L		ND	-
Fenvalerate	µg/L		ND	-
λ–Cyhalothrin	µg/L		ND	-
Permethrin	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Carbamate & Pyrethroid Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
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PAL
ACCREDITED LABORATORY
ISO/IEC 17025

Phanthamit Analytical Lab Co., Ltd.
No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Anilofos	µg/L	In-house method TM-CH-090 based on	ND	-
Azinphos-ethyl	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Azinphos-methyl	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Chlorfenvinphos	µg/L		ND	-
Chlorpyrifos	µg/L		ND	-
Diazinon	µg/L		ND	-
Dichlorvos	µg/L		ND	-
Dicrotophos	µg/L		ND	-
Dimethoate	µg/L		ND	-
EPN	µg/L		ND	-
Ethion	µg/L		ND	-
Ethoprophos	µg/L		ND	-
Etrimfos	µg/L		ND	-
Fenitrothion	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid
2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water
* Parameter Not Accredited ISO/IEC 17025:2005
# Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd
ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
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No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Fenthion	µg/L	In-house method TM-CH-090 based on	ND	-
Malathion	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Methamidophos	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Methidathion	µg/L		ND	-
Mevinphos	µg/L		ND	-
Monocrotophos	µg/L		ND	-
Omethoate	µg/L		ND	-
Parathion-Methyl	µg/L		ND	-
Phosalone	µg/L		ND	-
Phosphamidon	µg/L		ND	-
Pirimiphos-methyl	µg/L		ND	-
Profenofos	µg/L		ND	-
Prothiofos	µg/L		ND	-
Terbufos	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

ບໍລິສັດ ພັນທະມິດ ທິດລອງ ແລະ ວິໄຈ ຈຳກັດ
Phanthamit Analytical Lab Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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LABORATORY ACCREDITATION
BLA-055
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-020
Sampling Source	:	Surface Water	Sample No.	:	W61070003
Sample Name	:	NB1 (Nam Beng)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	16:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Triazophos	µg/L	In-house method TM-CH-090 based on EPA method 507 (1995) Revision 2.1 and EPA method 508 (1995) Revision 3.1	ND	-

Physical Appearance: 1. Sample : Slightly Turbid
2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water
* Parameter Not Accredited ISO/IEC 17025:2005
# Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd
ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-021
Sampling Source	:	Surface Water	Sample No.	:	W61070004
Sample Name	:	NB2 (Nam Beng)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	15:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	1.05	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	<4.00	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	8.85	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.5	6.0-8.0
Temperature*	$^{\circ}C$	Laboratory and Field (SM 2012:2550 B)	29.6	n'
Total Dissolved Solids	mg/L	Dried at 180° C (SM 2012:2540 C)	183	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3° C

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-021
Sampling Source	:	Surface Water	Sample No.	:	W61070004
Sample Name	:	NB2 (Nam Beng)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	15:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	130	1,000

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Eastern Thai Consulting 1992 Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-022
Sampling Source	:	Surface Water	Sample No.	:	W61070005
Sample Name	:	NB3 (Nam Mad)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	15:30
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	<1.00	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	<4.00	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	8.75	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.3	6.0-8.0
Temperature*	°C	Laboratory and Field (SM 2012:2550 B)	28.0	n'
Total Dissolved Solids	mg/L	Dried at 180° C (SM 2012:2540 C)	116	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

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** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3° C

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(Technical Manager)
23/07/2018

Approved By .....
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23/07/2018

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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-022
Sampling Source	:	Surface Water	Sample No.	:	W61070005
Sample Name	:	NB3 (Nam Mad)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	15:30
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	330	1,000

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

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23/07/2018

Approved By .....
(Top Management)
23/07/2018

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LABORATORY ACCREDITATION
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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-023
Sampling Source	:	Surface Water	Sample No.	:	W61070006
Sample Name	:	NB4 (Nam Mad)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	14:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	<1.00	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	<4.00	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	8.15	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.4	6.0-8.0
Temperature*	$^{\circ}C$	Laboratory and Field (SM 2012:2550 B)	26.6	n'
Total Dissolved Solids	mg/L	Dried at 180° C (SM 2012:2540 C)	122	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

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** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3° C

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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TEST REPORT

			Request No.	:	W6107002
Customer	:	Northern Rural Infrastructure (NRI) Project	Report No.	:	6107-023
Address	:	Houn District, Oudomxay Province, LAO PDR			
Sampling Source	:	Surface Water	Sample No.	:	W61070006
Sample Name	:	NB4 (Nam Mad)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	14:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	130	1,000

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-024
Sampling Source	:	Surface Water	Sample No.	:	W61070007
Sample Name	:	NB5 (Nam Lor)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	14:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	<1.00	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	<4.00	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	9.00	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.5	6.0-8.0
Temperature*	^{o}C	Laboratory and Field (SM 2012:2550 B)	30.4	n'
Total Dissolved Solids	mg/L	Dried at 180^{o} C (SM 2012:2540 C)	157	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

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** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3^{o} C

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-024
Sampling Source	:	Surface Water	Sample No.	:	W61070007
Sample Name	:	NB5 (Nam Lor)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	14:00
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	330	1,000

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

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BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	<1.00	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	<4.00	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	9.55	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.4	6.0-8.0
Temperature*	$^{\circ}C$	Laboratory and Field (SM 2012:2550 B)	28.4	n'
Total Dissolved Solids	mg/L	Dried at 180° C (SM 2012:2540 C)	162	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3° C

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(Technical Manager)
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Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	310	1,000

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Eastern Thai Consulting 1992 Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
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WITHOUT THE WRITTEN APPROVAL LABORATORY

Phanthamit Analytical Lab Co., Ltd.
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Vientiane Capital, Lao PDR.
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ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Pesticides*#				
Organochlorine Group				0.05
α-BHC	µg/L	In-house method TM-CH-090 based on	ND	0.02
HCB	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
β-BHC	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
γ-BHC	µg/L		ND	-
Heptachlor	µg/L		ND	0.2
Aldrin	µg/L		ND	0.1
Dicofol	µg/L		ND	-
Heptachlor-exo-epoxide	µg/L		ND	0.2
trans-Chlordane	µg/L		ND	-
α-Endosulfan	µg/L		ND	-
cis-Chlordane	µg/L		ND	-
p,p-DDE	µg/L		ND	-
Dieldrin	µg/L		ND	0.1
Endrin	µg/L		ND	*

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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PAL
ACCREDITED LABORATORY
ISO/IEC 17025

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LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organochlorine Group				
β-Endosulfan	µg/L	In-house method TM-CH-090 based on	ND	-
p,p-DDD	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
o,p-DDT	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Endosulfan Sulfate	µg/L		ND	-
p,p-DDT	µg/L		ND	-
Methoxychlor	µg/L		ND	-
Total DDT	µg/L		ND	1.0
o,p-DDD	µg/L		ND	-
o,p-DDE	µg/L		ND	-
Carbamate Group				
Aldicarb sulfoxide	µg/L		ND	-
Aldicarb sulfone	µg/L		ND	-
Oxamyl	µg/L		ND	-
Methomyl	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid
2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water
* Parameter Not Accredited ISO/IEC 17025:2005
# Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd
ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L;
MDL of Carbamate Group = 0.0031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-0055

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Pesticides*#				
Carbamate Group				
3-Hydroxycarbofuran	µg/L	In-house method TM-CH-090 based on	ND	-
Aldicarb	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Propoxur	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Carbofuran	µg/L		ND	-
Carbaryl	µg/L		ND	-
Methiocarb	µg/L		ND	-
Pyrethroid Group				
Cyfluthrin	µg/L		ND	-
Cypermethrin	µg/L		ND	-
Deltamethrin	µg/L		ND	-
Fenvalerate	µg/L		ND	-
λ–Cyhalothrin	µg/L		ND	-
Permethrin	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid
2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water
* Parameter Not Accredited ISO/IEC 17025:2005
# Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd
ND = Not Detected [MDL of Carbamate & Pyrethroid Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY ISO/IEC 17025

LABORATORY ACCREDITATION BLA-DSS

TESTING No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Anilofos	µg/L	In-house method TM-CH-090 based on	ND	-
Azinphos-ethyl	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Azinphos-methyl	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Chlorfenvinphos	µg/L		ND	-
Chlorpyrifos	µg/L		ND	-
Diazinon	µg/L		ND	-
Dichlorvos	µg/L		ND	-
Dicrotophos	µg/L		ND	-
Dimethoate	µg/L		ND	-
EPN	µg/L		ND	-
Ethion	µg/L		ND	-
Ethoprophos	µg/L		ND	-
Etrimfos	µg/L		ND	-
Fenitrothion	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
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TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Pesticides*#				
Organophosphate Group				
Fenthion	µg/L	In-house method TM-CH-090 based on	ND	-
Malathion	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Methamidophos	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Methidathion	µg/L		ND	-
Mevinphos	µg/L		ND	-
Monocrotophos	µg/L		ND	-
Omethoate	µg/L		ND	-
Parathion-Methyl	µg/L		ND	-
Phosalone	µg/L		ND	-
Phosphamidon	µg/L		ND	-
Pirimiphos-methyl	µg/L		ND	-
Profenofos	µg/L		ND	-
Prothiofos	µg/L		ND	-
Terbufos	µg/L		ND	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

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LABORATORY ACCREDITATION
BLA-0SS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-025
Sampling Source	:	Surface Water	Sample No.	:	W61070008
Sample Name	:	NB6 (Nam Lor)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	13:35
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Pesticides*#				
Organophosphate Group				
Triazophos	µg/L	In-house method TM-CH-090 based on EPA method 507 (1995) Revision 2.1 and EPA method 508 (1995) Revision 3.1	ND	-

Physical Appearance: 1. Sample : Slightly Turbid

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	<1.00	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	<4.00	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	8.95	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.3	6.0-8.0
Temperature*	$^{\circ}C$	Laboratory and Field (SM 2012:2550 B)	24.4	n'
Total Dissolved Solids	mg/L	Dried at 180° C (SM 2012:2540 C)	214	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark:

1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3° C

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	35,000	1,000

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Eastern Thai Consulting 1992 Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organochlorine Group				0.05
α-BHC	µg/L	In-house method TM-CH-090 based on	ND	0.02
HCB	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
β-BHC	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
γ-BHC	µg/L		ND	-
Heptachlor	µg/L		ND	0.2
Aldrin	µg/L		ND	0.1
Dicofol	µg/L		ND	-
Heptachlor-exo-epoxide	µg/L		ND	0.2
trans-Chlordane	µg/L		ND	-
α-Endosulfan	µg/L		ND	-
cis-Chlordane	µg/L		ND	-
p,p-DDE	µg/L		ND	-
Dieldrin	µg/L		ND	0.1
Endrin	µg/L		ND	*

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L]

ບໍລິສັດ ພັນທະມິດ ທົດລອງ ແລະ ວິໃຈ ຈຳກັດ Phanthamit Analytical Lab Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard /1
Pesticides*#				
Organochlorine Group				
β-Endosulfan	µg/L	In-house method TM-CH-090 based on	ND	-
p,p-DDD	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
o,p-DDT	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Endosulfan Sulfate	µg/L		ND	-
p,p-DDT	µg/L		ND	-
Methoxychlor	µg/L		ND	-
Total DDT	µg/L		ND	1.0
o,p-DDD	µg/L		ND	-
o,p-DDE	µg/L		ND	-
Carbamate Group				
Aldicarb sulfoxide	µg/L		ND	-
Aldicarb sulfone	µg/L		ND	-
Oxamyl	µg/L		ND	-
Methomyl	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L;
MDL of Carbamate Group = 0.0031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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Phanthamit Analytical Lab Co., Ltd.
No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

ACCREDITED LABORATORY
ISO/IEC 17025

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Carbamate Group				
3-Hydroxycarbofuran	µg/L	In-house method TM-CH-090 based on	ND	-
Aldicarb	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Propoxur	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Carbofuran	µg/L		ND	-
Carbaryl	µg/L		ND	-
Methiocarb	µg/L		ND	-
Pyrethroid Group				
Cyfluthrin	µg/L		ND	-
Cypermethrin	µg/L		ND	-
Deltamethrin	µg/L		ND	-
Fenvalerate	µg/L		ND	-
λ–Cyhalothrin	µg/L		ND	-
Permethrin	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Carbamate & Pyrethroid Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
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LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Anilofos	µg/L	In-house method TM-CH-090 based on	ND	-
Azinphos-ethyl	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Azinphos-methyl	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Chlorfenvinphos	µg/L		ND	-
Chlorpyrifos	µg/L		ND	-
Diazinon	µg/L		ND	-
Dichlorvos	µg/L		ND	-
Dicrotophos	µg/L		ND	-
Dimethoate	µg/L		ND	-
EPN	µg/L		ND	-
Ethion	µg/L		ND	-
Ethoprophos	µg/L		ND	-
Etrimfos	µg/L		ND	-
Fenitrothion	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
ISO/IEC 17025

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LABORATORY ACCREDITATION
BLA-DSS
TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Fenthion	µg/L	In-house method TM-CH-090 based on	ND	-
Malathion	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Methamidophos	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Methidathion	µg/L		ND	-
Mevinphos	µg/L		ND	-
Monocrotophos	µg/L		ND	-
Omethoate	µg/L		ND	-
Parathion-Methyl	µg/L		ND	-
Phosalone	µg/L		ND	-
Phosphamidon	µg/L		ND	-
Pirimiphos-methyl	µg/L		ND	-
Profenofos	µg/L		ND	-
Prothiofos	µg/L		ND	-
Terbufos	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

ບໍລິສັດ ພັນທະມິດ ທິດລອງ ແລະ ວິໄຈ ຈຳກັດ
Phanthamit Analytical Lab Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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LABORATORY ACCREDITATION
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No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-026
Sampling Source	:	Surface Water	Sample No.	:	W61070009
Sample Name	:	NO1 (Nam Oun)-Up	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	08:40
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Triazophos	µg/L	In-house method TM-CH-090 based on EPA method 507 (1995) Revision 2.1 and EPA method 508 (1995) Revision 3.1	ND	-

Physical Appearance: 1. Sample : Yellowish
2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark:
1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water
* Parameter Not Accredited ISO/IEC 17025:2005
# Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd
ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Biochemical Oxygen Demand*	mg/L	5-Day BOD Test, Azide Modification (SM 2012:5210 B)	<1.00	-
Chemical Oxygen Demand**	mg/L	Closed Reflux, Titrimetric (SM 2012:5220 C)	14.6	5-7
Dissolved Oxygen*	mg/L	Azide Modification (SM 2012:4500-O C)	8.15	6.0
pH*		Electrometric (SM 2012:4500-H^+ B)	8.2	6.0-8.0
Temperature*	°C	Laboratory and Field (SM 2012:2550 B)	25.4	n'
Total Dissolved Solids	mg/L	Dried at 180° C (SM 2012:2540 C)	212	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

** Out of Accreditation Scope

n' = natural Water but temperature modification should not exceed +/- 3° C

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ACCREDITED LABORATORY
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LABORATORY ACCREDITATION
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TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Fecal Coliform Bacteria*#	MPN/100mL	MPN Test (SM 2012:9221 E)	22,000	1,000

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Eastern Thai Consulting 1992 Co.,Ltd

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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ISO/IEC 17025

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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organochlorine Group				0.05
α-BHC	µg/L	In-house method TM-CH-090 based on	ND	0.02
HCB	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
β-BHC	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
γ-BHC	µg/L		ND	-
Heptachlor	µg/L		ND	0.2
Aldrin	µg/L		ND	0.1
Dicofol	µg/L		ND	-
Heptachlor-exo-epoxide	µg/L		ND	0.2
trans-Chlordane	µg/L		ND	-
α-Endosulfan	µg/L		ND	-
cis-Chlordane	µg/L		ND	-
p,p-DDE	µg/L		ND	-
Dieldrin	µg/L		ND	0.1
Endrin	µg/L		ND	*

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Cente Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
22/07/2018

บริษัท พันทะมิต ทิดลอว์ และ อิโจ จำกัด
Phanthamit Analytical Lab Co.,Ltd

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ISO/IEC 17025

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TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organochlorine Group				
β-Endosulfan	µg/L	In-house method TM-CH-090 based on	ND	-
p,p-DDD	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
o,p-DDT	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Endosulfan Sulfate	µg/L		ND	-
p,p-DDT	µg/L		ND	-
Methoxychlor	µg/L		ND	-
Total DDT	µg/L		ND	1.0
o,p-DDD	µg/L		ND	-
o,p-DDE	µg/L		ND	-
Carbamate Group				
Aldicarb sulfoxide	µg/L		ND	-
Aldicarb sulfone	µg/L		ND	-
Oxamyl	µg/L		ND	-
Methomyl	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017
Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organochlorine Group = 0.012 µg/L;
MDL of Carbamate Group = 0.0031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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LABORATORY ACCREDITATION
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No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Carbamate Group				
3-Hydroxycarbofuran	µg/L	In-house method TM-CH-090 based on	ND	-
Aldicarb	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Propoxur	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Carbofuran	µg/L		ND	-
Carbaryl	µg/L		ND	-
Methiocarb	µg/L		ND	-
Pyrethroid Group				
Cyfluthrin	µg/L		ND	-
Cypermethrin	µg/L		ND	-
Deltamethrin	µg/L		ND	-
Fenvalerate	µg/L		ND	-
λ–Cyhalothrin	µg/L		ND	-
Permethrin	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Carbamate & Pyrethroid Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Anilofos	µg/L	In-house method TM-CH-090 based on	ND	-
Azinphos-ethyl	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Azinphos-methyl	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Chlorfenvinphos	µg/L		ND	-
Chlorpyrifos	µg/L		ND	-
Diazinon	µg/L		ND	-
Dichlorvos	µg/L		ND	-
Dicrotophos	µg/L		ND	-
Dimethoate	µg/L		ND	-
EPN	µg/L		ND	-
Ethion	µg/L		ND	-
Ethoprophos	µg/L		ND	-
Etrimfos	µg/L		ND	-
Fenitrothion	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Fenthion	µg/L	In-house method TM-CH-090 based on	ND	-
Malathion	µg/L	EPA method 507 (1995) Revision 2.1 and	ND	-
Methamidophos	µg/L	EPA method 508 (1995) Revision 3.1	ND	-
Methidathion	µg/L		ND	-
Mevinphos	µg/L		ND	-
Monocrotophos	µg/L		ND	-
Omethoate	µg/L		ND	-
Parathion-Methyl	µg/L		ND	-
Phosalone	µg/L		ND	-
Phosphamidon	µg/L		ND	-
Pirimiphos-methyl	µg/L		ND	-
Profenofos	µg/L		ND	-
Prothiofos	µg/L		ND	-
Terbufos	µg/L		ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

REPORTED TESTS REFER TO SUBMITTED SAMPLES ONLY
THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL LABORATORY

ACCREDITED LABORATORY
ISO/IEC 17025

Phanthamit Analytical Lab Co., Ltd.
No. 122, Unit 5, Dongpalane Thong Village, Sisattanak District,
Vientiane Capital, Lao PDR.
Tel: +856-21-263962 E-mail: info@phanthamit.com

LABORATORY ACCREDITATION
BLA-DSS

TESTING
No.0162

TEST REPORT

Customer	:	Northern Rural Infrastructure (NRI) Project	Request No.	:	W6107002
Address	:	Houn District, Oudomxay Province, LAO PDR	Report No.	:	6107-027
Sampling Source	:	Surface Water	Sample No.	:	W61070010
Sample Name	:	NO2 (Nam Oun)-Down	Sampling Date	:	29/06/2018
Sampling By	:	Customer	Sampling Time	:	09:50
Sampling Method	:	Grab	Received Date	:	02/07/2018
Tested Date	:	02/07/2018-19/07/2018	Reported Date	:	23/07/2018

Parameter	Unit	Standard Method	Result	Standard [1]
Pesticides*#				
Organophosphate Group				
Triazophos	µg/L	In-house method TM-CH-090 based on EPA method 507 (1995) Revision 2.1 and EPA method 508 (1995) Revision 3.1	ND	-

Physical Appearance: 1. Sample : Yellowish

2. Container : Normal [G 2.5 L, G 0.2 L, PE 0.5 L, PE 1.8 L]

Remark: 1. Lao Environmental Standard, Ministry of Natural Resources Environment, No 0832, Date 03/03/2017 Standard for Surface Water

* Parameter Not Accredited ISO/IEC 17025:2005

Parameter Tested by Asia Medical and Agricultural Laboratory and Research Center Co.,Ltd

ND = Not Detected [MDL of Organophosphate Group = 0.031 µg/L]

Examined By .....
(Technical Manager)
23/07/2018

Approved By .....
(Top Management)
23/07/2018

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Annex 3: Field method for agrochemical analysis

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ກະຊວງກະສິກຳ ແລະ ປ່າໄມ້
ກົມປູກຝັງ
ສູນປ້ອງກັນພືດ

ຮຽນ: ທ່ານ ຫົວໜ້າ ທີມງານ ກວດສອບອິດສະລະ ດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ສຳລັບ ໂຄງການພັດທະນາ ພື້ນຖານໂຄງລ່າງ 4 ແຂວງພາກເໜືອ (ບໍ່ແກ້ວ, ຫຼວງນ້ຳທາ, ອຸດົມໄຊ ແລະ ຜົ້ງສາລີ)

ເລື່ອງ: ລາຍງານຜົນການຈັດຕັ້ງປະຕິບັດກິດຈະກຳການກວດສອບສານພິດຕົກຄ້າງໃນດິນ, ນ້ຳ, ພືດ ໃນເຂດໂຄງການ (ແຂວງ ອຸດົມໄຊ)

- ອີງຕາມ ໜັງສືສະເໜີ ຂອງ ຫົວໜ້າທີມງານກວດສອບອິດສະລະ ດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ສຳລັບ ໂຄງການພັດທະນາ ພື້ນຖານໂຄງລ່າງ 4 ແຂວງພາກເໜືອ (ບໍ່ແກ້ວ, ຫຼວງນ້ຳທາ, ອຸດົມໄຊ ແລະ ຜົ້ງສາລີ) ຄັ້ງວັນທີ 22/06/2018
- ອີງຕາມ ການຕົກລົງເຫັນດີຂອງຄະນະສູນປ້ອງກັນພືດ, ຄັ້ງວັນທີ 25/06/2018

ໜ່ວຍງານວິໄຈຢາປາບສັດຕູພືດ ແລະ ອາຫານພືດ ຂໍຖືເປັນກຽດແຈ້ງມາຍັງທ່ານຊາບວ່າ: ໜ່ວຍງານຢາປາບ ສັດຕູພືດ ແລະ ອາຫານພືດ ໄດ້ລົງໄປກວດສອບສານພິດຕົກຄ້າງໃນດິນ, ນ້ຳ, ພືດ ໃນເຂດໂຄງການ ຢູ່ ແຂວງອຸດົມໄຊ ຊຶ່ງມີລາຍລະອຽດດັ່ງລຸ່ມນີ້:

1. ຈຸດປະສົງ:

- ເພື່ອລົງເກັບຕົວຢ່າງ ແລະ ກວດສອບ ສານພິດຕົກຄ້າງຈາກຢາປາບສັດຕູພືດ ໃນດິນ, ນ້ຳ ແລະ ພືດ ໃນເຂດ ໂຄງການ ຢູ່ ແຂວງ ອຸດົມໄຊ

2. ພາກສ່ວນທີ່ເຂົ້າຮ່ວມ

1. ສູນປ້ອງກັນພືດ, ກົມປູກຝັງ
2. ທີມງານກວດສອບອິດສະຫຼະ ດ້ານສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ສຳລັບ ໂຄງການ ພັດທະນາ ໂຄງລ່າງ 4 ແຂວງ ພາກເໜືອ (ບໍ່ແກ້ວ, ຫຼວງນ້ຳທາ ແລະ ຜົ້ງສາລີ)
3. ຊາວກະສິກອນ ບ້ານ ຊຽງແລ ແລະ ບ້ານ ນາແມດ, ເມືອງ ແບ່ງ, ແຂວງ ອຸດົມໄຊ
4. ຊາວກະສິກອນ ບ້ານ ແຟນ ແລະ ບ້ານ ຈັນໄຕ, ເມືອງ ຮຸນ, ອຸດົມໄຊ

3. ສະຖານທີ່ຈັດຕັ້ງປະຕິບັດ

1. ບ້ານ ຊຽງແລ ແລະ ບ້ານ ນາແມດ, ເມືອງ ແບ່ງ, ແຂວງອຸດົມໄຊ
2. ບ້ານ ແຟນ ແລະ ບ້ານຈັນໄຕ, ເມືອງ ຮຸນ, ແຂວງ ອຸດົມໄຊ

4. ໄລຍະເວລາ

ເລີ່ມແຕ່ ວັນທີ 25/06/2018 – 29/06/2018

5. ຕາຕະລາງການລົງເຮັດວຽກ

ລ/ດ	ວັນທີ ເດືອນ ປີ	ເນື້ອໃນລາຍລະອຽດ	ສະຖານທີ່	ໝາຍເຫດ
1	25/06/2018	ເດີນທາງໄປແຂວງອຸດົມໄຊ	ແຂວງ ອຸດົມໄຊ	ເດີນທາງດ້ວຍລົດໂດຍສານ VIP
2	26/06/2018	ລົງເກັບຕົວຢ່າງ ແລະ ກວດສອບສານພິດຕົກຄ້າງ ໃນດິນ, ນ້ຳ ແລະ ພືດ	ບ້ານ ຊຽງແລ ແລະ ບ້ານ ນາແມດ ເມືອງ ແບ່ງ, ແຂວງ ອຸດົມໄຊ	ເດີນທາງດ້ວຍລົດ ທີມງານໂຄງການ
3	27/06/2018	ລົງເກັບຕົວຢ່າງ ແລະ ກວດສອບສານພິດຕົກຄ້າງ ໃນດິນ, ນ້ຳ ແລະ ພືດ	ບ້ານ ຈັນໄຕ ແລະ ບ້ານ ແຟນ	
4	28/06/2018	ລົງເກັບຕົວຢ່າງ ແລະ ກວດສອບສານພິດຕົກຄ້າງ ໃນດິນ, ນ້ຳ ແລະ ພືດ	ບ້ານ ຈັນໄຕ ແລະ ບ້ານ ແຟນ	
5	29/06/2018	ເດີນທາງກັບນະຄອນຫຼວງວຽງຈັນ	ນະຄອນຫຼວງວຽງຈັນ	ເດີນທາງດ້ວຍລົດເມ ໂດຍສານ VIP

6. ວິທີການ

6.1 ການສຸ່ມເກັບຕົວຢ່າງ

ການສຸ່ມເກັບຕົວຢ່າງ ເພື່ອຂຶ້ນມາວິໄຈສານພິດຕົກຄ້າງຈາກຢາປາບສັດຕູພືດ ແມ່ນໄດ້ອີງໃສ່ຄູ່ມືການເກັບຕົວຢ່າງດິນ, ນ້ຳ ແລະ ພືດ ເພື່ອກວດສອບສານພິດຕົກຄ້າງ ແລະ ອີງໃສ່ຫຼັກເກນການສຸ່ມຕົວຢ່າງຂອງຄະນະກຳມາທິການອາຫານລະຫວ່າງປະເທດ CODEX

6.2 ວິທີການກວດສອບສານພິດຕົກຄ້າງ

6.2.1 ອຸປະກອນ

- ເຄື່ອງຊັ່ງນ້ຳໜັກດີຈີຕອນ (Digital balances)
- ເຄື່ອງສັ່ນປະສົມນ້ຳຢາ ແລະ ຕົວຢ່າງ (Mixer)
- ເຄື່ອງດູດນ້ຳຢາອັດຕະໂນມັດ, ຂະໜາດ 0.1-1 ຊີຊີ ແລະ ຂະໜາດ 0.5-5 ຊີຊີ (Automatic pipette, size: 0.1-1 ml and size: 0.5-5 ml)
- ໜ້າກາກປ້ອງກັນສານພິດ (Mask (N95, 3M8210))
- ອື່ນໆ

6.2.2 ສານເຄມີ

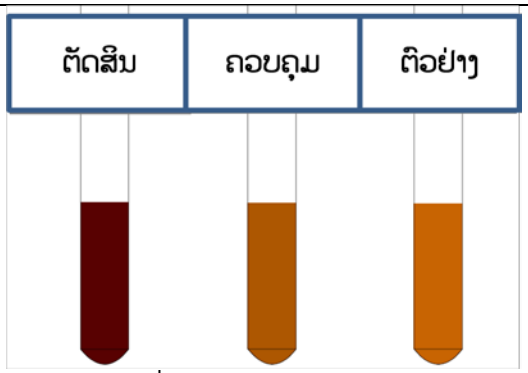
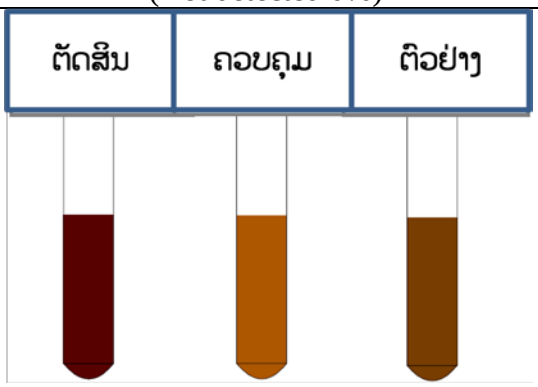
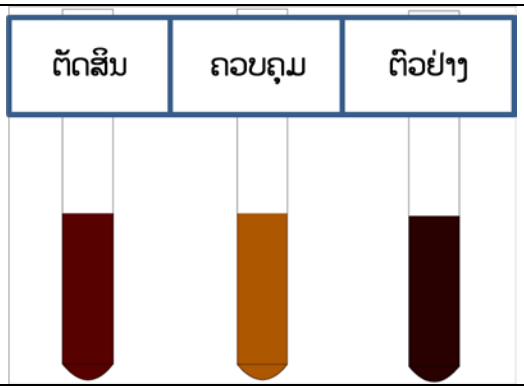
- ສານລະລາຍ Solvent 1
- ສານລະລາຍ Solvent 2

- ນ້ຳຢາ GT 1
- ນ້ຳຢາ GT 2 & GT 2.1
- ນ້ຳຢາ GT 3 & GT 3.1
- ນ້ຳຢາ GT 4
- ນ້ຳຢາ GT 5

6.2.3 ວິທີການກວດສອບ

ວິທີການກວດສອບສານພິດຕົກຄ້າງຈາກຢາປາບສັດຕູພືດໃນດິນ, ນ້ຳ ແລະ ພືດ ແມ່ນໄດ້ນຳໃຊ້ ວິທີການກວດສອບຂອງ GT Pesticide test kit

6.2.4 ການອ່ານຜົນການກວດສອບສານພິດຕົກຄ້າງ

ສີສານລະລາຍໃນຫຼອດ	ເທນການຕັດສິນ
1. ຫຼອດຕົວຢ່າງມີສີອ່ອນ ຫຼື ທຽບເທົ່າຫຼອດຄວບຄຸມ	 ບໍ່ພົບສານພິດຕົກຄ້າງ (Not detected 0%)
2. ຫຼອດຕົວຢ່າງສີເຂັ້ມກວ່າຫຼອດຄວບຄຸມ ແຕ່ສີອ່ອນກວ່າຫຼອດຕັດສິນ	 ພົບສານພິດຕົກຄ້າງ ໃນລະດັບທີ່ປອດໄພ Detected Safe < 50%
3. ຫຼອດຕົວຢ່າງມີສີເທົ່າກັບຫຼອດຕັດສິນ ຫຼື ເຂັ້ມກວ່າຫຼອດຕັດສິນ	

	ພົບສານພິດຕົກຄ້າງ ໃນລະດັບທີ່ບໍ່ປອດໄພ Detected Unsafe ≥ 50%

6.2.5 ຄ່າຕ່ຳສຸດທີ່ສາມາດກວດພົບສານຕົກຄ້າງຈາກຢາປາບສັດຕູພືດໄດ້ (Detection Limit)

ຢາປາບສັດຕູພືດ (Pesticde)	ມິນລິກຼາມ/ກິໂລກຼາມ (mg/kg)
ກຸ່ມອໍກາໂນຟົດເຟດ (Organophosphate)	
- Acephate	> 30
- Azinphos-ethyl	0.2
- Azinphos-methyl	> 100
- Bromophos-ethyl	0.5
- Chlorfenvinphos	0.001
- Chorpyrifos	0.5
- Chlorpyrifos-methyl	> 10
- Coumaphos	2
- Dichlorvos	0.005
- Diazinon	0.2
- Dicrotophos	0.05
- EPN	20 (in methanol)
- Ethion	0.01
- Fenitrothion	0.5
- Isofenphos	> 100
- Malathion	8
- Mevinphos	0.005
- Methamidophos	1
- Methyl-parathion	> 50
- Monocrotophos	0.05
- Naled (Dibrom)	50
- Omethoate	20
- Pirimiphos-methyl	10
- Profenophos	0.005
- Prothiophos (Tokuthion)	0.1
- Phoxim	0.001
- Phosalone	> 50
- Quinalphos	10
- Ronnel	0.01
- Sulprofos	> 100
- Temephos	From 0.01 to 10
- Triazophos	5
- Trichlorfon	0.05
ກຸ່ມຄາບາເມດ (Carbamate)	

- Aldicarb	0.1
- Aldicarb-sulphoxide	0.01
- Aldicarp sulphone	0.2
- Aminocarp	0.1
- BPMC	5
- Bendiocarb	0.1
- Bufencarb	0.01
Carbaryl	0.05
Carbofuran	0.05
Isoprocarb	0.5
Methiocarb	> 5
Methomyl	0.5
Oxamyl	0.05
Pirimicarb	0.1

7. ຜົນໄດ້ຮັບ

ການກວດສອບສານພິດຕົກຄ້າງໃນດິນ, ນ້ຳ ແລະ ພືດ ໃນຄັ້ງນີ້ ມີຈຳນວນຕົວຢ່າງທັງໝົດ 40 ຕົວຢ່າງ, ໃນນັ້ນ ຕົວຢ່າງດິນ 15 ຕົວຢ່າງ, ຕົວຢ່າງນ້ຳ 9 ຕົວຢ່າງ ແລະ ຕົວຢ່າງພືດ 16 ຕົວຢ່າງ ຊຶ່ງມາຈາກ 4 ບ້ານ (ບ້ານ ຊຽງແລ, ບ້ານ ນາແມດ, ບ້ານ ແຟນ ແລະ ບ້ານ ຈັນໄຕ , 2 ເມືອງ (ເມືອງ ແບ່ງ ແລະ ເມືອງ ຮຸນ) ແລະ 1 ແຂວງ (ແຂວງ ອຸດົມໄຊ). ຜ່ານການກວດສອບ ເຫັນໄດ້ວ່າ:

ຕົວຢ່າງດິນ 15 ຕົວຢ່າງ ເມື່ອກວດສອບແລ້ວ ພົບວ່າ ບໍ່ພົບສານພິດຕົກຄ້າງ ມີຈຳນວນ 8 ຕົວຢ່າງ ຊຶ່ງກວມເອົາ 53.33 % ແລະ ພົບສານພິດຕົກຄ້າງໃນປະລິມານໜ້ອຍ (ໃນລະດັບທີ່ປອດໄພ) ມີຈຳນວນ 7 ຕົວຢ່າງ ຊຶ່ງກວມເອົາ 46.67 % (ຕາຕະລາງຊ້ອນທ້າຍ 1).

ຕົວຢ່າງນ້ຳ 9 ຕົວຢ່າງ ເມື່ອກວດສອບແລ້ວ ພົບວ່າ ບໍ່ພົບສານພິດຕົກຄ້າງ ມີຈຳນວນ 4 ຕົວຢ່າງ ຊຶ່ງກວມເອົາ 44.44 % ແລະ ພົບສານພິດຕົກຄ້າງໃນປະລິມານໜ້ອຍ (ໃນລະດັບທີ່ປອດໄພ) ມີຈຳນວນ 5 ຕົວຢ່າງ ຊຶ່ງກວດເອົາ 55.56 % (ຕາຕະລາງຊ້ອນທ້າຍ 2).

ຕົວຢ່າງພືດ 16 ຕົວຢ່າງ ເມື່ອກວດສອບແລ້ວ ພົບວ່າ ບໍ່ພົບສານພິດຕົກຄ້າງ ມີຈຳນວນ 7 ຕົວຢ່າງ ຊຶ່ງກວມເອົາ 43.75 %, ພົບສານພິດຕົກຄ້າງໃນປະລິມານໜ້ອຍ (ໃນລະດັບທີ່ປອດໄພ) ມີຈຳນວນ 7 ຕົວຢ່າງ ຊຶ່ງກວມເອົາ 43.75 % ແລະ ພົບສານພິດຕົກຄ້າງໃນປະລິມານຫຼາຍ (ໃນລະດັບເກີນຄວາມປອດໄພ) ມີຈຳນວນ 2 ຕົວຢ່າງ ຊຶ່ງກວມເອົາ 12.50 % (ຕາຕະລາງຊ້ອນທ້າຍ 3).

ດັ່ງນັ້ນ, ຈຶ່ງລາຍງານມາຍັງທ່ານ ເພື່ອຊາບ

ຮຽນມາດ້ວຍຄວາມນັບຖືຢ່າງສູງ

ນະຄອນຫຼວງວຽງຈັນ, ວັນທີ 04/07/2018

ໜ່ວຍງານ ວິໄຈຢາປາບສັດຕູພືດ ແລະ ອາຫານພືດ

ຜູ້ລາຍງານ

ວິໂລຊາ ທາລິບຸດ

ວິໂລຊາ ທາລິບຸດ

ຮູບຊ້ອນທ້າຍ

ຮູບຊ້ອນທ້າຍທີ 1: ສະພາບພື້ນທີ່ເກັບຕົວຢ່າງດິນຈາກສວນປູກກ້ວຍເກົ່າ ແລະ ຈາກແມ່ນ້ຳ ເພື່ອຂົ້ນມາກວດສອບ ສານພິດຕົກຄ້າງຈາກຢາປາບສັດຕູພືດ ທີ່ ເຂດໂຄງການ (ແຂວງອຸດົມ) ໃນຄັ້ງວັນທີ 26-28/06/2018

ຮູບຊ້ອນທ້າຍທີ 2: ສາທິດການກວດສອບສານພິດຕົກຄ້າງຈາກຢາປາບສັດຕູພືດ ໃນດິນ, ນ້ຳ ແລະ ພືດ ເພື່ອໃຫ້ ຊາວກະສິກອນໄດ້ຮັບຮູ້ເຖິງປະລິມານການຕົກຄ້າງຂອງຢາປາບສັດຕູພືດມີໜ້ອຍຫຼາຍພຽງໃດ ທີ່ ເຂດໂຄງການ (ແຂວງອຸດົມໄຊ) ໃນຄັ້ງວັນທີ 26-28/06/2018

ຕາຕະລາງຊ້ອນທ້າຍ

ตาตะลางຊ้ອນທ້າຍ 1: ສັງລວມຜົນການກວດສອບສານພິດຕົກຄ້າງໃນດິນ

ລ/ດ	ຊື່ຕົວຢ່າງ	ບ້ານ	ເມືອງ	ແຂວງ	ບໍ່ພົບສານພິດຕົກຄ້າງ	ພົບສານພິດຕົກຄ້າງໃນປະລິມານໜ້ອຍ	ພົບສານພິດຕົກຄ້າງໃນປະລິມານຫຼາຍ
1	ດິນສອນສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 780433 ແລະ 2254022	ຊຽງແລ	ແບ່ງ	ອຸດົມໄຊ		✓	
2	ດິນສອນສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 789861 ແລະ 2259994	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ		✓	
3	ດິນນາ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 789861 ແລະ 2259994	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ		✓	
4	ດິນນາ (ເຄີຍປູກກ້ວຍຈີນ, ເຮັດນາປີ 2017 ບໍ່ໄດ້ຮັບຜົນຜະລິດ) ຈຸດພິກັດ 791360 ແລະ 2260607	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ	✓		
5	ດິນສອນສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 791360 ແລະ 2260607	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ		✓	
6	ດິນສອນປູກກ້ວຍ (ຍັງມີການປູກກ້ວຍຢູ່ໃນປະຈຸບັນ) ຈຸດພິກັດ 753263 ແລະ 2224786	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
7	ດິນນາ (ຢູ່ໃກ້ຕິດກັບສວນກ້ວຍ ແຕ່ບໍ່ເຄີຍປູກກ້ວຍ) ຈຸດພິກັດ 753126 ແລະ 2224866	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ		✓	

8	ດິນນາ ຈຸດພິກັດ 753698 ແລະ 2227458	ແຟນ	ຮຸນ	ອຸດົມໄຊ		✓	
9	ດິນ (ເຄີຍປູກກ້ວຍ) ຈຸດພິກັດ 753616 ແລະ 2227428	ແຟນ	ຮຸນ	ອຸດົມໄຊ	✓		
10	ດິນສອນຜັກ (ໃກ້ແຄມນ້ຳອຸ່ນ, ເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸນ	ອຸດົມໄຊ	✓		
11	ດິນສອນສາລີ (ເຄີຍປູກໝາກອຶ ໃນລະດູແລ້ງ) ຈຸດພິກັດ 753065 ແລະ 2225083	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ		✓	
12	ດິນສອນສາລີ (ເຄີຍປູກໝາກອຶ ໃນລະດູແລ້ງ) ຈຸດພິກັດ 753265 ແລະ 2225414	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
13	ດິນປູກເຂົ້າໄຮ່ (ດິນນາທີ່ໃຊ້ນ້ຳຝາຍໂຄງການ) ຈຸດພິກັດ 752170 ແລະ 2225092	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
14	ດິນນາຕອນລຸ່ມ (ດິນນາທີ່ໃຊ້ນ້ຳຝາຍໂຄງການ) ຈຸດພິກັດ 752111 ແລະ 2225080	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
15	ດິນສອນສາລີ (ດິນນາທີ່ໃຊ້ນ້ຳຝາຍໂຄງການ) ຈຸດພິກັດ 752111 ແລະ 2225080	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
ລວມທັງໝົດ (ຕົວຢ່າງ)					**8**	**7**	**0**
ຄິດເປັນເປີເຊັນ (%)					**53.33**	**46.67**	**0**

ตาตะลางຊ้อมท้าย 2: ສັງລວມຜົນການກວດສອບສານພິດຕົກຄ້າງໃນນ້ຳ

ລ/ດ	ຊື່ຕົວຢ່າງ	ບ້ານ	ເມືອງ	ແຂວງ	ບໍ່ພົບສານພິດຕົກຄ້າງ	ພົບສານພິດຕົກຄ້າງ ໃນປະລິມານໜ້ອຍ	ພົບສານພິດຕົກຄ້າງ ໃນປະລິມານຫຼາຍ
1	ນ້ຳແບ່ງ (ຈຸດເກັບກ້ອງຂີ້ອ) ຈຸດພິກັດ 780737 ແລະ 2253975	ຊຽງແລ	ແບ່ງ	ອຸດົມໄຊ	✓		
2	ນ້ຳຈາກຝາຍ (ພື້ນທີ່ເຄີຍປູກກ້ອຍຈີນ) ຈຸດພິກັດ 791360 ແລະ 2260607	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ	✓		
3	ນ້ຳແມດ (ນ້ຳຫ້ວຍ) (ຈຸດເກັບກ້ອງຂີ້ອຈຸດປາຍນ້ຳ) ຈຸດພິກັດ 790890 ແລະ 2260729	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ		✓	
4	ນ້ຳແບ່ງ ຈຸດພິກັດ 789550 ແລະ 2260435	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ	✓		
5	ນ້ຳສ້າງ (ບໍລິສັດແສງຟ້າລີ່ (ຢູ່ໃກ້ສອນກ້ອຍ ແລະ ເປັນ ບໍລິສັດຮັບເໝົາກ່ຳສ້າງຊິນລະປະທານ)	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ		✓	
6	ນ້ຳແບ່ງ ຈຸດພິກັດ 752986 ແລະ 2224979	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ		✓	
7	ນ້ຳຢູ່ສອນປູກກ້ອຍ ຈຸດພິກັດ 753263 ແລະ 2224786	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ		✓	
8	ນ້ຳອຸ່ນ (ນ້ຳຝາຍເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸນ	ອຸດົມໄຊ		✓	
9	ນ້ຳຮ່ອງ	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		

	(ໃກ້ສອນປູກໝາກອຶເກົ່າ) ຈຸດພິກັດ 753065 ແລະ 2225083						
ລວມທັງໝົດ (ຕົວຢ່າງ)					**4**	**5**	**0**
ຄິດເປັນເປີເຊັນ (%)					**44.44**	**55.56**	**0**

ຕາຕະລາງຊ້ອນທ້າຍ 3: ສັງລວມຜົນການກວດສອບສານພິດຕົກຄ້າງໃນພືດ

ລ/ດ	**ຊື່ຕົວຢ່າງ**	**ບ້ານ**	**ເມືອງ**	**ແຂວງ**	**ບໍ່ພົບສານພິດຕົກຄ້າງ**	**ພົບສານພິດຕົກຄ້າງໃນປະລິມານໜ້ອຍ**	**ພົບສານພິດຕົກຄ້າງໃນປະລິມານຫຼາຍ**
1	ສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 780433 ແລະ 2254022	ຊຽງແລ	ແບ່ງ	ອຸດົມໄຊ		✓	
2	ໃບສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 789861 ແລະ 2259994	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ	✓		
3	ໃບສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 789861 ແລະ 2259994	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ		✓	
4	ໃບສາລີ (ເຄີຍປູກກ້ວຍຈີນ) ຈຸດພິກັດ 791360 ແລະ 2260607	ນາແມດ	ແບ່ງ	ອຸດົມໄຊ		✓	
5	ໝາກກ້ວຍ (ສອນປູກກ້ວຍຈີນ) ຈຸດພິກັດ 753263 ແລະ 2224786	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ		✓	

6	ຜັກບົ້ງ (ສອນຜັກບົ້ງກົງກັນຂ້າມກັບສອນປູກກ້ວຍ) ຈຸດພິກັດ 753698 ແລະ 2227458	ແຟນ	ຮຸ່ນ	ອຸດົມໄຊ	✓		
7	ຜັກກາດຊອມ (ສອນຜັກໃກ້ແຄມນ້ຳອຸ່ນ ເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸ່ນ	ອຸດົມໄຊ		✓	
8	ໝາກເຂືອ (ສອນຜັກໃກ້ແຄມນ້ຳອຸ່ນ ເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸ່ນ	ອຸດົມໄຊ		✓	
9	ໝາກເຜັດ (ສອນຜັກໃກ້ແຄມນ້ຳອຸ່ນ ເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸ່ນ	ອຸດົມໄຊ			✓
10	ຜັກບົ້ງ (ສອນຜັກໃກ້ແຄມນ້ຳອຸ່ນ ເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸ່ນ	ອຸດົມໄຊ	✓		
11	ຜັກບົ່ວ (ສອນຜັກໃກ້ແຄມນ້ຳອຸ່ນ ເບື້ອງລຸ່ມ) ຈຸດພິກັດ 753159 ແລະ 2228374	ແຟນ	ຮຸ່ນ	ອຸດົມໄຊ			✓
12	ສາລີ (ສອນປູກໝາກອຶເກົ່າ ລະດູແລ້ງ) ຈຸດພິກັດ 753065 ແລະ 2225083	ຈັນໄຕ	ຮຸ່ນ	ອຸດົມໄຊ	✓		
13	ຍອດໝາກອຶ (ສອນປູກໝາກອຶເກົ່າ ລະດູແລ້ງ) ຈຸດພິກັດ 753065 ແລະ 2225083	ຈັນໄຕ	ຮຸ່ນ	ອຸດົມໄຊ		✓	
14	ສາລີ	ຈັນໄຕ	ຮຸ່ນ	ອຸດົມໄຊ	✓		

	(ສອນປູກໝາກອຶເກົ່າ ລະດູແລ້ງ) ຈຸດພິກັດ 753265 ແລະ 2925414						
15	ໃບສາລີ (ດິນນາທີ່ໃຊ້ນ້ຳຝາຍໂຄງການ) ຈຸດພິກັດ 752111 ແລະ 2225080	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
16	ຜັກໝອກ (ດິນນາທີ່ໃຊ້ນ້ຳຝາຍໂຄງການ) ຈຸດພິກັດ 752111 ແລະ 2225080	ຈັນໄຕ	ຮຸນ	ອຸດົມໄຊ	✓		
ລວມທັງໝົດ (ຕົວຢ່າງ)					**7**	**7**	**2**
ຄິດເປັນເປີເຊັນ (%)					**43.75**	**43.75**	**12.50**

Annex 4: PONRE's environmental monitoring report

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ
ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ
ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນດິນຟ້າອາກາດ

ບົດລາຍງານ

ການລົງຊຸກຍູ້ຕິດຕາມກວດກາສະພາບການຄຸ້ມຄອງບັນຫາສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ຂອງໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳແບ່ງ ເມືອງແບ່ງ ແລະ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ

15-16 ພຶດສະພາ 2018

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ
ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ

ເລກທີ...../ຂລ.ພຊສຂ
ອຸດົມໄຊ, ວັນທີ .....ພຶດສະພາ 2018

ຮຽນ: ທ່ານຫົວໜ້າພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ແຂວງອຸດົມໄຊ ທີ່ນັບຖືຢ່າງສູງ.

ເລື່ອງ: ລາຍງານຜົນການລົງຊຸກຍູ້ ແລະ ຕິດຕາມກວດກາການເຄື່ອນໄຫວວຽກງານສິ່ງແວດລ້ອມ ໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງຊົນລະປະທານ ນ້ຳແບ ເມືອງແບ ແລະ ນ້ຳອຸ່ນ ເມືອງຮຸນ.

- **ອີງຕາມ** ກົດໝາຍວ່າດ້ວຍ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ (ສະບັບປັບປຸງ) ສະບັບເລກທີ29/ສພຊ, ລົງວັນທີ 18 ທັນວາ 2012;
- **ອີງຕາມ** ຄຳສັ່ງແນະນຳຂອງທ່ານເຈົ້າແຂວງອຸດົມໄຊ ວ່າດ້ວຍການຈັດຕັ້ງປະຕິບັດຄຳສັ່ງວ່າດ້ວຍການປະເມີນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ສະບັບເລກທີ 1107/ຈຂ ລົງວັນທີ 29 ກໍລະກົດ 2013;
- **ອີງຕາມ** ແຜນການລົງຊຸກຍູ້ເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານຄຸ້ມຄອງສິ່ງແວດລ້ອມ ປະຈຳສົກປີ 2018 ຂອງຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ, ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງ ແວດ ລ້ອມ ແຂວງອຸດົມໄຊ.

ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ, ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດ ລ້ອມ ແຂວງອຸດົມໄຊ ຂໍຖືເປັນກຽດລາຍງານຜົນການລົງຊຸກຍູ້ເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງ ການປັບປຸງຊົນລະປະທານ ນ້ຳແບ ເມືອງແບ ແລະ ນ້ຳອຸ່ນ ເມືອງຮຸນ ຂອງອຸດົມໄຊ, ຄັ້ງວັນທີ 15 - 16 ສິງຫາ 2018 ຊຶ່ງມີລາຍລະ ອຽດດັ່ງລຸ່ມນີ້.

I. ຈຸດປະສົງ.

- ເພື່ອລົງຊຸກຍູ້ຕິດຕາມກວດກາ ຄວາມຄືບໜ້າຂອງການຈັດຕັ້ງປະຕິບັດໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງຊົນລະປະ ທານນ້ຳແບ, ເມືອງແບ ແລະ ນ້ຳອຸ່ນເມືອ, ເມືອງຮຸນ ພ້ອມທັງປຶກສາຫາລືກັບພາກສ່ວນທີ່ກ່ຽວຂ້ອງຂັ້ນ ແຂວງ, ເມືອງ ແລະ ຜູ້ພັດທະນາໂຄງການ ກ່ຽວກັບການຈັດຕັ້ງປະຕິບັດການຄຸ້ມຄອງສິ່ງແວດລ້ອມ, ສັງຄົມ ແລະ ທຳມະຊາດ ບັນຫາຜົນກະທົບທີ່ເກີດຂຶ້ນຈາກການພັດທະນາໂຄງການ ລວມທັງມາດຕະການປ້ອງກັນ, ແກ້ ໄຂ ແລະ ຫຼຸດຜ່ອນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມທຳມະຊາດ ແລະ ສັງຄົມ ທີ່ເກີດຂຶ້ນ. ໂດຍໃຫ້ສອດຄ່ອງຕາມກົດ ໝາຍ ແລະ ລະບຽບການຂອງ ສປປ ລາວ.

II. ລາຍລະອຽດຂອງການເຄື່ອນໄຫວວຽກງານ.

ການລົງຊຸກຍູ້ເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການປັບປຸງຊົນລະປະທານ ຢູ່ເມືອງ ແບງ ແລະ ເມືອງຮຸນ ໂດຍລວມແລ້ວແມ່ນມີການລົບຕໍ່ຊຸກຍູ້ ຕິດຕາມກວດກາ ບັນດາຫົວຂໍ້ວຽກຂອງໂຄງການ ເພື່ອສຸມໃສ່ຜັນຂະຫຍາຍ ແລະ ຈັດຕັ້ງປະຕິບັດນະໂຍບາຍ, ຍຸດທະສາດ, ກົດໝາຍ, ຄຳສັ່ງແນະນຳ ແລະ ບັນດາລະບຽບການຕ່າງໆ ທີ່ກ່ຽວຂ້ອງຂອງ ສປປ ລາວ ກໍ່ຄືຂອງແຂວງ ກ່ຽວກັບ ການປົກປັກຮັກສາ ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ໂດຍແນໃສ່ເຮັດໃຫ້ການຄຸ້ມຄອງ ແລະ ນຳໃຊ້ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມໃຫ້ມີຄວາມຍືນຍົງ ແລະ ເກີດຜົນປະໂຫຍດສູງສຸດໃນທາງດ້ານເສດຖະກິດ, ສັງຄົມ ແລະ ສິ່ງແວດລ້ອມ. ການລົງຊຸກຍູ້ເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານດັ່ງກ່າວ ຊຶ່ງໄດ້ເລີ່ມແຕ່ວັນທີ 15-16 ພຶດສະພາ 2018, ທີ່ເມືອງແບງ ແລະ ເມືອງຮຸນ ແຂວງ ອຸດົມໄຊ ຊຶ່ງມີລາຍລະອຽດດັ່ງລຸ່ມນີ້:

1. <u>ສະພາບຂອງໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳອຸ່ນ ເມືອງຮຸນ.</u>

- ເຂົ້າພົບຜູ້ພັດທະນາໂຄງການ, ບໍລິສັດທີ່ປຶກສາ ປະຈຳພາກສະໜາມ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ເພື່ອສະເໜີຈຸດປະສົງຂອງທີມງານ, ພ້ອມດຽວກັນນີ້ກໍ່ໄດ້ສະເໜີສະພາບບັນຫາໂດຍລວມ ກ່ຽວກັບ ການເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານຕິດຕາມກວດກາບັນຫາສິ່ງແວດລ້ອມ ຂອງຄະນະທີມງານ ຂອງແຂວງ ແລະ ເມືອງໃຫ້ຜູ້ພັດທະນາໂຄງການ, ບໍລິສັດທີ່ປຶກສາປະຈຳພາກສະໜາມ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ຮັບຊາບ. ພ້ອມດຽວກັນນີ້ກໍ່ໄດ້ຮັບຟັງການລາຍງານສະພາບແວດລ້ອມຂອງໂຄງການ ແລະ ບັນຫາການຈັດຕັ້ງປະຕິບັດ ການເຄື່ອນໄຫວວຽກງານຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການ ຂໍ້ສະດວກ ແລະ ຂໍ້ຫຍຸ້ງຍາກ ໃນການການເຄື່ອນໄຫວວຽກງານດັ່ງກ່າວ.
- ໂຄງການປັບປຸງຊົນລະປະທານນ້ຳອຸ່ນ ເມືອງຮຸນ ໄດ້ມີການລົງມືກໍ່ສ້າງ ເລີ່ມແຕ່ເດືອນ ມັງກອນ ປີ 2018 ເປັນຕົ້ນມາ ແລະ ເຖິງເດືອນ ພຶດສະພາ 2018 ໂຄງການດັ່ງກ່າວໄດ້ມີຄວາມຄືບໜ້າໃນການກໍ່ສ້າງປະມານ 50% ຄາດວ່າໂຄງການດັ່ງກ່າວຈະສຳເລັດພາຍໃນເດືອນ ສິງຫາ 2018 ນີ້.
- ປະຈຸບັນ ໂຄງການກໍ່ສ້າງຊົນລະທານນ້ຳອຸ່ນ, ເມືອງຮຸນ ໄດ້ມີການກໍ່ສ້າງຢ່າງເປັນປົກກະຕິ ພ້ອມດຽວກັນນັ້ນທາງ ບໍລິສັດ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ເອົາໃຈໃສ່ໃນການຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ ໃນໄລຍະກໍ່ສ້າງ ເປັນຕົ້ນໄດ້ຕິດປິດສະຕິແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ໄວ້ຢູ່ພາກສະໜາມ, ປ້າຍເຕືອນອັນຕະລາຍຕ່າງໆ ຂອບເຂດການກໍ່ສ້າງ;
- ສຳລັບຊົນປະທານໂຕເກົ່າ ທີ່ມີການຮື້ຖອນ ເຫັນວ່າຍັງບໍ່ທັນສຳເລັດໃນການຮື້ຖອນທັງໝົດເທື່ອ;
- ການຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການບາງຈຸດຍັງບໍ່ທັນໄດ້ດີເທົ່າທີ່ຄວນເຊັ່ນ: ຈຸດແຄ້ມພັກທຳມະກອນຍັງມີການຖິ້ມຂີ້ເຫຍື້ອຊະຊາຍ ແລະ ຫ້ອງນ້ຳຍັງປະຖິ້ມປະຖານ;

2. <u>ສະພາບຂອງໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳແບ, ເມືອງແບ.</u>

- ເຂົ້າພົບຜູ້ພັດທະນາໂຄງການ, ບໍລິສັດທີ່ປຶກສາ ປະຈຳພາກສະໜາມ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ເພື່ອສະເໜີຈຸດປະສົງຂອງທີມງານ, ພ້ອມດຽວກັນນີ້ກໍ່ໄດ້ສະເໜີສະພາບບັນຫາໂດຍລວມ ກ່ຽວກັບ ການເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານຕິດຕາມກວດກາບັນຫາສິ່ງແວດລ້ອມ ຂອງຄະນະທີມງານ ຂອງແຂວງ ແລະ ເມືອງໃຫ້ຜູ້ພັດທະນາໂຄງການ, ບໍລິສັດທີ່ປຶກສາປະຈຳພາກສະໜາມ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ຮັບຊາບ. ພ້ອມດຽວກັນນີ້ກໍ່ໄດ້ຮັບຟັງການລາຍງານສະພາບແວດລ້ອມຂອງໂຄງການ ແລະ ບັນຫາການຈັດຕັ້ງປະຕິບັດ ການເຄື່ອນໄຫວວຽກງານຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການ ຂໍ້ສະດວກ ແລະ ຂໍ້ຫຍຸ້ງຍາກ ໃນການການເຄື່ອນໄຫວວຽກງານດັ່ງກ່າວ.

- ໂຄງການປັບປຸງຊົນລະປະທານນ້ຳແບ ເມືອງແບ ໄດ້ມີການລົງມືກໍ່ສ້າງເລີ່ມແຕ່ເດືອນ ມັງກອນ ປີ 2018 ເປັນຕົ້ນມາ ແລະ ເຖິງເດືອນ ພຶດສະພາ 2018 ໂຄງການດັ່ງກ່າວໄດ້ມີຄວາມຄືບໜ້າໃນການກໍ່ສ້າງ ປະມານ 60% ຄາດວ່າໂຄງການດັ່ງກ່າວຈະສຳເລັດພາຍໃນເດືອນ ສິງຫາ 2018 ນີ້.
- ປະຈຸບັນ ໂຄງການກໍ່ສ້າງຊົນລະທານນ້ຳແບ, ເມືອງແບ ໄດ້ມີການກໍ່ສ້າງຢ່າງເປັນປົກກະຕິ ພ້ອມດຽວກັນນັ້ນ ທາງບໍລິສັດສິສະເກດ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ເອົາໃຈໃສ່ໃນການຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ ໃນໄລຍະກໍ່ສ້າງເປັນຕົ້ນໄດ້ຕິດປິກສະເຕີແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ໄວ້ຢູ່ພາສະໜາມ ແລະ ປ້າຍເຕືອນອັນຕະລາຍ;
- ຈຸດທີ່ມີການກໍ່ສ້າງ ບາງຈຸດຍັງບໍ່ມີມາດຕະການຄຸ້ມຄອງ ແລະ ເກັບມ້ຽນສິ່ງເສດເຫຼືອ ເປັນຕົ້ນແມ່ນເສດໄມ້ແຍບ, ເຫຼັກເສດຈາກການກໍ່ສ້າງ;
- ການຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການບາງຈຸດຍັງບໍ່ທັນໄດ້ດີເທົ່າທີ່ຄວນເຊັ່ນ: ແຄ້ມຝັກທຳມະຊາດ ບາງຈຸດຍັງບໍ່ມີຫ້ອງນ້ຳ ແລະ ບາງແຄ້ມຍັງມີການຖິ້ມຖີ່ເຫຍື້ອຊະຊາຍ;

III. <u>ຜົນໄດ້ຮັບຂອງການເຄື່ອນໄຫວ.</u>

ຜ່ານການລົງຊຸກຍູ້, ຕິດຕາມກວດກາ ສະພາບການຄຸ້ມຄອງສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ ໂຄງການປັບປຸງຊົນລະປະທານນ້ຳແບ ເມືອງແບ ແລະ ນ້ຳອຸ ເມືອງຄຸນ ແຂວງອຸດົມໄຊ ໃນຄັ້ງວັນທີ 15-16 ພຶດສະພາ 2018 ຊຶ່ງທີມງານຂອງແຂວງ ແລະ ເມືອງສັງເກດເຫັນວ່າທາງຜູ້ຜັດທະນາໂຄງການ, ບໍລິສັດທີ່ປຶກສາປະຈຳພາສະໜາມ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ກໍ່ໄດ້ຕັ້ງໜ້າເອົາໃຈໃສ່ ໃນການເຄື່ອນໄຫວວຽກງານຢ່າງເປັນປົກກະຕິ ແລະ ເຫັນໄດ້ເຖິງຄວາມສຳຄັນຂອງວຽກງານຄຸ້ມຄອງສິ່ງແວດລ້ອມສັງຄົມ ແລະ ທຳມະຊາດ ຂອງໂຄງການຕົນໄດ້ເປັນຢ່າງດີ, ຊຶ່ງເຄື່ອນໄຫວການຈັດຕັ້ງປະຕິບັດໃນຄັ້ງນີ້, ບົນຫຼັກການແລ້ວ ໃນການລົງເຄື່ອນໄຫວຕິດຕາມກວດກາສະພາບັນຫາສິ່ງແວດລ້ອມສັງຄົມ ແລະ ທຳມະຊາດ ຂອງໂຄງການປັບປຸງຊົນລະປະທານ ໃນຄັ້ງນີ້ກໍ່ໄດ້ອີງໃສ່ບັນດານິຕິກຳ, ຂໍ້ຕົກລົງ ແລະ ກົດລະບຽບຕ່າງໆ ຂອງຂະແໜງການທີ່ກ່ຽວຂ້ອງ, ຊຶ່ງມັນໄດ້ສະແດງອອກຄື: ໄດ້ມີການແຕ່ງຕັ້ງຄະນະກຳມະການ ຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາຂອງຂັ້ນແຂວງ ແລະ ເມືອງທີ່ໄດ້ມີການເຄື່ອນໄຫວ, ຊຸກຍູ້ຕິດຕາມກວດກາປຶກສາຫາລືກ່ຽວກັບບັນຫາຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ (ລາຍລະອຽດມີບົດບັນທຶກຄັດຕິດມາພ້ອມ); ດັ່ງນັ້ນ ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງອຸດົມໄຊ, ຊຶ່ງສາມາດສະຫຼຸບຕີລາຄາຜົນໄດ້ຮັບຂອງການເຄື່ອນໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານດັ່ງກ່າວ ມີລາຍລະອຽດດັ່ງລຸ່ມນີ້:

ເຄື່ອນໄຫວຊຸກຍູ້ຕິດຕາມກວດກາປຶກສາຫາລື ກ່ຽວກັບ, ບັນຫາຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ ພ້ອມທັງຊອກຫາວິທີການ, ມາດຕະການແກ້ໄຂ ເພື່ອຫຼຸດຜ່ອນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມສັງຄົມ ແລະ ທຳມະຊາດ, ທີ່ເກີດຂຶ້ນຈາກການດຳເນີນໂຄງການດັ່ງກ່າວ.

3.1. <u>ໂຄງການປັບປຸງຊົນລະປະທານນ້ຳອຸ່ມເມືອງຄຸນ</u>

- ໃນໄລຍະການດຳເນີນການກໍ່ສ້າງ ຕ້ອງໄດ້ເອົາໃຈໃສ່ເພີ່ມຕື່ມໃນການຄວບຄຸມຄວາມ ຮັກສາປອດໄພຂອງໂຄງການເຊັ່ນ: ຕ້ອງປະກອບອຸດໃຫ້ພະນັກງານກຳມະກອນເປັນຕົ້ນ: ເກີບ, ໝວກ, ແຜ່ນປາກ, ຖົງມື, ແລະ ໃຫ້ຕິດຕັ້ງປ້າຍເຕືອນອັນຕະລາຍພາຍໃນຂອບເຂດໂຄງການ.
- ໃຫ້ ບໍລິສັດ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ຕ້ອງມີສະຖານທີ່ລັບມ້ຽນ ແລະ ກຳຈັດສິ່ງເສດເຫຼືອຈາກການນຳໃຊ້ຂອງພະນັກງານ-ກຳມະກອນ, ສິ່ງເສດເຫຼືອຈາກການກໍ່ສ້າງ ແລະ ປັບປຸງຫ້ອງນ້ຳໃຫ້ໄດ້ມາດຕະຖານສຸຂະອະນະໄມ;
- ໃຫ້ທາງໂຄງການສົ່ງບົດລາຍງານ ຄວາມຄືບໜ້າຂອງການດຳເນີນການກໍ່ສ້າງ ແລ້ວສົ່ງໃຫ້ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ, ພຊສ ຂັ້ນເມືອງ ແມ່ນສິ່ງໃຫ້ຫ້ອງການຊັບພະຍາກອນ ທຳມະຊາດ ແລະ ສິ່ງແວດ ລ້ອມໃຫ້ເປັນປົກກະຕິ.

3.2. <u>ໂຄງການປັບປຸງຊົນລະປະທານນ້ຳແບ ເມືອງແບ</u>

- ໃນໄລຍະການດຳເນີນການກໍ່ສ້າງ ຕ້ອງໄດ້ເອົາໃຈໃສ່ເພີ່ມຕື່ມໃນການຄວບຄຸມຄວາມປອດໄພຂອງໂຄງ ການ ເຊັ່ນ: ຕ້ອງປະກອບອຸດໃຫ້ພະນັກງານກຳມະກອນເປັນຕົ້ນ: ເກີບ, ໝວກ, ແຜ່ນປາກ, ຖົງມື, ແລະ ໃຫ້ຕິດຕັ້ງ ປ້າຍເຕືອນອັນຕະລາຍພາຍໃນຂອບເຂດໂຄງການ.
- ໃຫ້ບໍລິສັດສິ່ງແວດ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ຕ້ອງມີສະຖານທີ່ເກັບມ້ຽນ ແລະ ກຳຈັດສິ່ງເສດເຫຼືອຈາກການນຳໃຊ້ ຂອງພະນັກງານ-ກຳມະກອນ, ສິ່ງເສດເຫຼືອຈາກການກໍ່ສ້າງ ພ້ອມທັງສ້າງຫ້ອງນ້ຳໃຫ້ແກ່ຈຸດເຄື່ອນກຳມະກອນ ທີ່ຍັງບໍ່ທັນມີຫ້ອງນ້ຳ ແລະ ໃຫ້ໄດ້ຕາມມາດຕະຖານສຸຂະອານະໄມ,
- ໃຫ້ທາງໂຄງການສົ່ງບົດລາຍງານ ຄວາມຄືບໜ້າຂອງການດຳເນີນການກໍ່ສ້າງ ແລ້ວສົ່ງໃຫ້ຂະແໜງສິ່ງແວດ ລ້ອມ ແລະ ການປ່ຽນແປງດ້ານຝົ້າອາກາດ, ພຊສ ແລະ ຂົນເມືອງ ແມ່ນສົ່ງໃຫ້ຫ້ອງການຊັບພະຍາ ກອນ ທຳ ມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ເມືອງແບ ໃຫ້ເປັນປົກກະຕິ.

3.3. ດ້ານດີ, ຂໍ້ຄົງຄ້າງ ແລະ ບົດຮຽນທີ່ຖອດຖອນໄດ້.

ກ. ດ້ານດີ.

- ຂະແໜງການທີ່ກ່ຽວຂ້ອງຂັ້ນແຂວງ, ຂັ້ນເມືອງ, ອົງການປົກຄອງບ້ານ ແລະ ເຈົ້າຂອງໂຄງການລົງທຶນ ໃຫ້ການຮ່ວມມື, ແລະ ປະສານງານໄດ້ເປັນຢ່າງດີ ໃນການລົງເຄື່ອນໄຫວວຽກງານຂອງທີມງານ ພຊສ ແຂວງ;
- ໄດ້ລົງຕິດຕາມກວດກາ ແລະ ຊຸກຍູ້ບັນດາໂຄງການລົງທຶນ ຈັດຕັ້ງປະຕິບັດ ຕາມກົດໝາຍ ແລະ ລະບຽບ ການຂອງ ສປປ ລາວ ສຳເລັດຕາມແຜນການ ແລະ ລະດັບຄາດໝາຍ;
- ໄດ້ມີການປຶກສາຫາລື ແລະ ແລກປ່ຽນບົດຮຽນເຊິ່ງກັນ ແລະ ກັນ ຢ່າງກົງໄປກົງມາ ກ່ຽວກັບ ການເຄື່ອນ ໄຫວຈັດຕັ້ງປະຕິບັດວຽກງານສິ່ງແວດລ້ອມ-ສັງຄົມ ແລະ ທຳມະຊາດ ໃນໄລຍະທີ່ຜ່ານ ແລະ ທິດທາງແຜນ ການໃນຕໍ່ໜ້າ;

ຂ. ຂໍ້ຄົງຄ້າງ:

- ໂຄງການລົງທຶນ ແລະ ກິດຈະການດັ່ງກ່າວ ຍັງບໍ່ປະຕິບັດຕາມລະບຽບ ກໍ່ຄືກົດໝາຍວ່າດ້ວຍການລົງທຶນ, ກົດໝາຍສິ່ງແວດລ້ອມ ແລະ ກົດໝາຍອື່ນໆ.
- ງົບປະມານໃນການຕິດຕາມກວດກາ ຢູ່ຂັ້ນແຂວງ ແລະ ເມືອງ ຍັງປະຕິບັດບໍ່ໄດ້ດີເທົ່າທີ່ຄວນ, ໂດຍ ສະເພາະແມ່ນງົບປະ ມານຕິດຕາມ ກວດກາ ໂຄງການລົງທຶນປັບປຸງຊົນລະປະທານ ທີ່ທາງໂຄງການ ຟື້ນຖານໂຄງລ່າງ ພາກເໜືອເປັນຜູ້ຮັບຜິດຊອບ.

3.3. ບົດຮຽນທີ່ທອດຖອນໄດ້:

- ປັບປຸງຄົນລະບົບແບບແຜນວິທີເຮັດວຽກຂອງຄະນະຮັບຜິດຊອບໃນການລົງກວດກາເຮັດວຽກ ເຊັ່ນ: ການ ແບ່ງງານໃນແຕ່ລະກິດຈະການໃຫ້ລະອຽດຈະແຈ້ງ.
- ການລົງກວດກາສະພາບການຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ/ກິດຈະການ ຕ້ອງມີງົບປະມານຢ່າງພຽງພໍ ເພື່ອໃຫ້ທັນກັບສະພາບການ ແລະ ເວລາ;
- ສຳລັບການຕິດຕາມກວດກາ, ຂັ້ນແຂວງ ແລະ ຂັ້ນເມືອງ ແມ່ນທາງໂຄງການ NRI ປະຈຳແຂວງອຸດົມໄຊ ຈະເປັນຜູ້ຂຶ້ນແຜນງົບປະມານເພື່ອໃນການລົງຕິດຕາມກວດກາ ເດືອນລະ 1 ຄັ້ງໃນການລົງພາກສະໜາມ ເພື່ອຕິດຕາມກວດກາ ແລະ ແກ້ໄຂບັນດາຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ຂອງໂຄງການ;

- ການລົງຕິດຕາມກວດກາສິ່ງແວດລ້ອມໂຄງການລົງທຶນ ແລະ ກິດຈະການຕ່າງໆ ຕ້ອງແຈ້ງການກ່ອນ ການລົງພາກສະໜາມ ຢ່າງໜ້ອຍ 24 ຊົ່ວໂມງ.

ດັ່ງນັ້ນ, ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ, ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງອຸດົມໄຊ, ຈຶ່ງຂໍຖືເປັນກຽດຮຽນລາຍງານມາຍັງທ່ານ ເພື່ອຊາບ ແລະ ຂໍທິດຊີ້ນຳຕາມທາງເຫັນຄວນ ດ້ວຍ.

ຮຽນມາດ້ວຍຄວາມເຄົາລົບ ແລະ ນັບຖືຢ່າງສູງ

ຫົວໜ້າຂະແໜງ

[illegible]

ຜູ້ລາຍງານ

ນຸນ ວົງວິສຸກ

ເອກະສານຄັດຕິດຊ້ອນທ້າຍ

1. ບົດບັນທຶກການລົງຕິດຕາມກວດກາ ຂອງໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳແບ ເມືອງແບ ແລະ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ.

2. ຮູບພາບການລົງຕິດຕາມກວດກາ ໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳແບ ເມືອງແບ ແລະ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ.

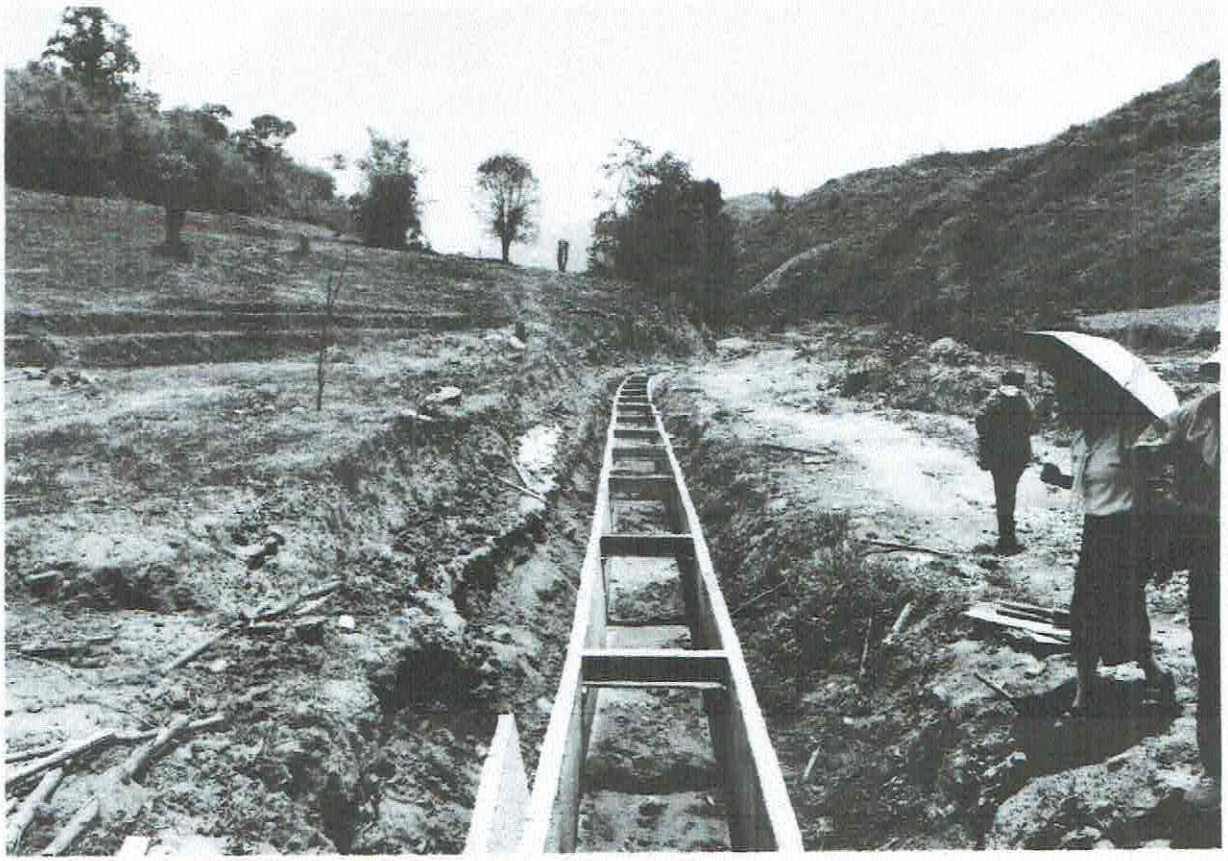
3. ແບບຟອມການລົງທະບຽນຜູ້ເຂົ້າຮ່ວມການລົງຕິດຕາມກວດກາ ຂອງຂະແໜງການທີ່ກ່ຽວຂ້ອງຂັ້ນ ແຂວງ, ຂັ້ນເມືອງ, ຜູ້ພັທນາໂຄງການ ແລະ ບໍລິສັດຮັບເໝົາກໍ່ສ້າງ;

ລົງຕິດຕາມກວດກາໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳອຸ່ນເມືອງຮຸນ ແຂວງອຸດົມໄຊ

ລົງຕິດຕາມກວດກາ ໂຄງການປັບປຸງຄອງຊົນລະປະທານ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ

ລິງຕິດຕາມກວດກາ ໂຄງການປັບປຸງຊົນລະປະທານ ນ້ຳແບ ເມືອງແບ ແຂວງອຸດົມໄຊ.

ລິງຕິດຕາມກວດກາ ໂຄງການປັບປຸງຄອງຊົນລະປະທານ ນ້ຳແບ ເມືອງແບ ແຂວງອຸດົມໄຊ.



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ກະຊວງຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ
ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ

ບົດບັນທຶກ

ການລົງຕິດຕາມ, ກວດກາສະພາບການຄຸ້ມຄອງສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ ໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງຊົນລະປະທານ ນ້ຳແບ່ງ ເມືອງແບ່ງ ແຂວງອຸດົມໄຊ.

ໃນເວລາ 10 : 00 ໂມງຂອງວັນທີ 16 ພຶດສະພາ 2018 ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ, ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງອຸດົມໄຊ. ໄດ້ປະສານສົມທົບກັບພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ຂອງຂັ້ນແຂວງ, ຂັ້ນເມືອງ, ຜູ້ພັດທະນາໂຄງການ, ບໍລິສັດທີ່ປຶກສາປະຈຳພາກສະໜາມ ແລະ ບໍລິສັດສິສະເກດ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ເພື່ອລົງຕິດຕາມ,ກວດກາສະພາບການຄຸ້ມຄອງສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ, ຂອງໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງຊົນລະປະທານ ນ້ຳແບ່ງໜຶ່ງ ເມືອງແບ່ງ ແຂວງອຸດົມໄຊ ໂດຍມີຜູ້ເຂົ້າຮ່ວມທັງໝົດ 12 ທ່ານ, ຍິງ 2 ທ່ານ (ລາຍລະອຽດມີຟອມລົງທະບຽນຄັດຕິດຊ້ອນທ້າຍ).

ຜ່ານການກວດກາສະພາບພື້ນທີ່ຂອງໂຄງການດັ່ງກ່າວ, ທາງຄະນະທີມງານກວດກາໄດ້ພົບເຫັນສະພາບ, ບັນຫາ ແລະ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ ຊຶ່ງມີລາຍລະອຽດດັ່ງລຸ່ມນີ້:

1. ປະຈຸບັນ ໂຄງການກໍ່ສ້າງຊົນລະທານນ້ຳແບ່ງ, ເມືອງແບ່ງ ໄດ້ມີການກໍ່ສ້າງຢ່າງເປັນປົກກະຕິ ພ້ອມດຽວກັນນັ້ນ ທາງບໍລິສັດສິສະເກດ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ເອົາໃຈໃສ່ໃນການຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ ໃນໄລຍະກໍ່ສ້າງ ເປັນຕົ້ນໄດ້ຕິດປິດສະຕິແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ໄວ້ຢູ່ພາກສະໜາມ ແລະ ປ້າຍເຕືອນອັນຕະລາຍ;
2. ຈຸດທີ່ມີການກໍ່ສ້າງ ບາງຈຸດຍັງບໍ່ມີມາດຕະການຄຸ້ມຄອງ ແລະ ເກັບມ້ຽນສິ່ງເສດເຫຼືອ ເປັນຕົ້ນແມ່ນເສດໄມ້ແບບ, ເຫຼັກເສດຈາກການກໍ່ສ້າງ;
3. ການຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການບາງຈຸດຍັງບໍ່ທັນໄດ້ດີເທົ່າທີ່ຄວນເຊັ່ນ: ແຄ້ມຜ້າກຳມະກອນບາງຈຸດຍັງບໍ່ມີຫ້ອງນ້ຳ ແລະ ບາງແຄ້ມຍັງມີການຖິ້ມຖິ້ມຂີ້ເຫຍື້ອຊະຊາຍ;

ຜ່ານການພົບເຫັນສະພາບ, ບັນຫາຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດດັ່ງກ່າວ. ຄະນະທີມງານ, ເຈົ້າຂອງໂຄງການ,ບໍລິສັດທີ່ປຶກສາປະຈຳພາກສະໜາມ ແລະ ບໍລິສັດສິສະເກດ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ປຶກສາຫາລື ເພື່ອຊອກຫາວິທີການ, ມາດຕະການແກ້ໄຂ ເພື່ອຫຼຸດຜ່ອນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ -ສັງຄົມ ແລະ ທຳມະຊາດ. ຊຶ່ງໄດ້ຕົກລົງເຫັນດີເປັນເອກະພາບກັນລາຍລະອຽດມີດັ່ງລຸ່ມນີ້:

1. ໃນໄລຍະການດຳເນີນການກໍ່ສ້າງ ຕ້ອງໄດ້ເອົາໃຈໃສ່ເພີ່ມຕື່ມໃນການຄວບຄຸມຄວາມປອດໄພຂອງໂຄງການເຊັ່ນ: ຕ້ອງປະກອບຊຸດໃຫ້ພະນັກງານກຳມະກອນເປັນຕົ້ນ: ເກີບ, ໝວກ, ແຜ່ນປາກ, ຖົງມື, ແລະ ໃຫ້ຕິດຕັ້ງປ້າຍເຕືອນອັນຕະລາຍພາຍໃນຂອບເຂດໂຄງການ.

2. ໃຫ້ບໍລິສັດສິສະເກດ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ຕ້ອງມີສະຖານທີ່ເກັບມ້ຽນ ແລະ ກຳຈັດສິ່ງເສດເຫຼືອຈາກການນຳໃຊ້ຂອງພະນັກງານ-ກຳມະກອນ, ສິ່ງເສດເຫຼືອຈາກການກໍ່ສ້າງ ພ້ອມທັງສ້າງຫ້ອງນ້ຳໃຫ້ແກ່ຈຸດແຄ້ມກຳມະກອນ ທີ່ຍັງບໍ່ທັນມີຫ້ອງນ້ຳ ແລະ ໃຫ້ໄດ້ຕາມມາດຕະຖານສຸຂະອານະໄມ;
3. ໃຫ້ທາງໂຄງການສົ່ງບົດລາຍງານ ຄວາມຄືບໜ້າຂອງການດຳເນີນການກໍ່ສ້າງ ແລ້ວສົ່ງໃຫ້ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າອາກາດ, ພຊສ ແລະ ຂັ້ນເມືອງ ແມ່ນສົ່ງໃຫ້ຫ້ອງການຊັບພະຍາກອນ ທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ເມືອງແບ ໃຫ້ເປັນປົກກະຕິ.
4. ສຳລັບການຕິດຕາມກວດກາ, ຂັ້ນແຂວງ ແລະ ຂັ້ນເມືອງ ແມ່ນທາງໂຄງການ NRI ປະຈຳແຂວງອຸດົມໄຊ ຈະເປັນຜູ້ຂຶ້ນແຜນງົບປະມານເພື່ອໃນການລົງຕິດຕາມກວດກາ ເດືອນລະ 1 ຄັ້ງໃນການລົງພາກສະໜາມ ເພື່ອຕິດຕາມກວດກາ ແລະ ແກ້ໄຂບັນດາຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ຂອງໂຄງການ.

ດັ່ງນັ້ນ, ຈຶ່ງໄດ້ສ້າງບົດບັນທຶກສະບັບນີ້ໄວ້ເພື່ອເປັນຫຼັກຖານ ແລະ ບ່ອນອີງໃນການຈັດຕັ້ງປະຕິບັດໃນຕໍ່ໜ້າ.

ເຈົ້າຂອງໂຄງການ	ທີ່ປຶກສາປະຈຳພາກສະໜາມ	ບໍລິສັດຮັບເໝົາກໍ່ສ້າງ	ທິມງານ

Northern Rural Infrastructure Development Sector SubProject-Additional Financing
Ban Phonexay, Saysetha District, Vientiane, Lao PDR
Telephone: +856 21 990249; Fax: +856 21 242 344 / 416 556 / 215 141
E-mail address: NPMO.NRI@gmail.com

FORM-040

ใบลົງທະບຽນ

LIST OF PARTICIPANTS

Sheet.....of.....

ສຳຫຼັບກອງປະຊຸມ/ການປຶກສາຫາລືກ່ຽວກັບ(For Minute of Meeting/Discussion Memo about):.....

ຄັ້ງວັນທີ(Dated on):.....16/5/2018.....ສະຖານທີ່(at).....

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ (Name and Surname)	ໜ້າທີ່ຮັບຜິດຊອບ (Responsibility)	ຕົ້ນສັງກັດ(Name of Agencies)	ການພົວພັນ ສື່ສານ (Communication)		ລາຍເຊັນ
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ຜູ້ບັນທຶກ (Recorder):

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ກະຊວງພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ
ພະແ ນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ

ບົດບັນທຶກ

ການລົງຕິດຕາມ, ກວດກາສະພາບການຄຸ້ມຄອງສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ ໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງຊົນລະປະທານ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ.

ໃນເວລາ 13 : 30 ໂມງຂອງວັນທີ 15 ພຶດສະພາ 2018 ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຟ້າ ອາກາດ, ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງອຸດົມໄຊ. ໄດ້ປະສານສົມທົບກັບ ພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ຂອງຂັ້ນແຂວງ, ຂັ້ນເມືອງ, ຜູ້ພັດທະນາໂຄງການ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງເພື່ອລົງຕິດຕາມ, ກວດກາສະພາບການຄຸ້ມຄອງສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ, ຂອງໂຄງການກໍ່ສ້າງ ແລະ ປັບປຸງ ຊົນລະປະທານ ນ້ຳອຸ່ນ ເມືອງຮຸນ ແຂວງອຸດົມໄຊ ໂດຍມີຜູ້ເຂົ້າຮ່ວມທັງໝົດ 17 ທ່ານ, ຍິງ 1 ທ່ານ (ລາຍ ລະອຽດມີຟອມລົງທະບຽນຄັດຕິດຊ້ອນທ້າຍ).

ຜ່ານການກວດກາສະພາບພື້ນທີ່ຂອງໂຄງການດັ່ງກ່າວ, ທາງຄະນະທີມງານກວດກາໄດ້ພົບເຫັນສະພາບ, ບັນຫາ ແລະ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດ ຊຶ່ງມີລາຍລະອຽດດັ່ງລຸ່ມນີ້:

1. ປະຈຸບັນ ໂຄງການກໍ່ສ້າງຊົນລະທານນ້ຳອຸ່ນ, ເມືອງຮຸນ ໄດ້ມີການກໍ່ສ້າງຢ່າງເປັນປົກກະຕິ ພ້ອມດຽວກັນ ນັ້ນ ທາງ ບໍລິສັດ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ເອົາໃຈໃສ່ໃນການຄຸ້ມຄອງສິ່ງແວດລ້ອມໂຄງການ ໃນໄລຍະກໍ່ສ້າງ ເປັນຕົ້ນ ໄດ້ຕິດປິດສະເຕີແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມ ໄວ້ຢູ່ພາກສະໜາມ, ປ້າຍເຕືອນອັນຕະລາຍ;
2. ສຳລັບຊົນປະທານໂຕເກົ່າ ທີ່ມີການຮື້ຖອນດັ່ງກ່າວ, ເຫັນວ່າຍັງບໍ່ທັນສຳເລັດໃນການຮື້ຖອນທັງໝົດເທື່ອ;
3. ການຄຸ້ມຄອງສິ່ງແວດລ້ອມ ຂອງໂຄງການບາງຈຸດຍັງບໍ່ທັນໄດ້ດີເທົ່າທີ່ຄວນເຊັ່ນ: ຈຸດແຄ້ມພັກກຳມະ ກອນຍັງມີການຖິ້ມຂີ້ເຫຍື້ອຊະຊາຍ ແລະ ຫ້ອງນ້ຳຍັງປະຖິ້ມປະຖານ;

ຜ່ານການພົບເຫັນສະພາບ, ບັນຫາ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ - ສັງຄົມ ແລະ ທຳມະຊາດດັ່ງກ່າວ. ຄະນະທີມ ງານ, ເຈົ້າຂອງໂຄງການ ແລະ ຜູ້ຮັບເໝົາກໍ່ສ້າງໄດ້ປຶກສາຫາລື ເພື່ອຊອກຫາວິທີການ, ມາດຕະການແກ້ໄຂ ເພື່ອ ຫຼຸດຜ່ອນຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ -ສັງຄົມ ແລະ ທຳມະຊາດ. ຊຶ່ງໄດ້ຕົກລົງເຫັນດີເປັນເອກະພາບກັນລາຍລະອຽດ ມີດັ່ງລຸ່ມນີ້:

1. ໃນໄລຍະການດຳເນີນການກໍ່ສ້າງ ຕ້ອງໄດ້ເອົາໃຈໃສ່ເພີ່ມຕື່ມໃນການຄວບຄຸມຄວາມ ຮັກສາປອດໄພຂອງ ໂຄງການເຊັ່ນ: ຕ້ອງປະກອບຊຸດໃຫ້ພະນັກງານກຳມະກອນເປັນຕົ້ນ: ເກີບ, ໝວກ, ແຜ່ນປາກ, ຖົງມື, ແລະ ໃຫ້ຕິດຕັ້ງປ້າຍເຕືອນອັນຕະລາຍພາຍໃນຂອບເຂດໂຄງການ.

2. ໃຫ້ ບໍລິສັດ ຜູ້ຮັບເໝົາກໍ່ສ້າງ ຕ້ອງມີສະຖານທີ່ເກັບມ້ຽນ ແລະ ກຳຈັດສິ່ງເສດເຫຼືອຈາກການນຳໃຊ້ຂອງ ພະນັກງານ-ກຳມະກອນ, ສິ່ງເສດເຫຼືອຈາກການກໍ່ສ້າງ ແລະ ປັບປຸງຫ້ອງນ້ຳໃຫ້ໄດ້ມາດຕະຖານສຸຂະອານະໄມ;
3. ໃຫ້ທາງໂຄງການສິ່ງປິດລາຍງານ ຄວາມຄືບໜ້າຂອງການດຳເນີນການກໍ່ສ້າງ ແລ້ວສິ່ງໃຫ້ຂະແໜງສິ່ງແວດລ້ອມ ແລະ ການປ່ຽນແປງດິນຝ້າອະກາດ, ພຊສ ຂັ້ນເມືອງ ແມ່ນສິ່ງໃຫ້ຫ້ອງການຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ໃຫ້ເປັນປົກກະຕິ.
4. ສຳລັບການຕິດຕາມກວດກາ, ຂັ້ນແຂວງ ແລະ ຂັ້ນເມືອງ ແມ່ນທາງໂຄງການ NRI ປະຈຳແຂວງອຸດົມໄຊ ຈະເປັນຜູ້ຂຶ້ນແຜນງົບປະມານເພື່ອໃນການລົງຕິດຕາມກວດກາ ເດືອນລະ 1 ຄັ້ງໃນການລົງພາກສະໜາມ ເພື່ອຕິດຕາມກວດກາ ແລະ ແກ້ໄຂບັນດາຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ແລະ ສັງຄົມ ຂອງໂຄງການ.

ດັ່ງນັ້ນ, ຈຶ່ງໄດ້ສ້າງບົດບັນທຶກສະບັບນີ້ໄວ້ເພື່ອເປັນຫຼັກຖານ ແລະ ບ່ອນອີງໃນການຈັດຕັ້ງປະຕິບັດໃນຕໍ່ໜ້າ.

ເຈົ້າຂອງໂຄງການ	ທີ່ປຶກສາປະຈຳພາກສະໜາມ	ຜູ້ຮັບເໝົາກໍ່ສ້າງ	ທິມງານ

Northern Rural Infrastructure Development Sector Project-Additional Financing
Ban Phonexay, Saysetha District, Vientiane, Lao PDR
Telephone: +856 21 990249; Fax: +856 21 242 344 / 416 556 / 215 141
E-mail address: NPMO.NRI@gmail.com

FORM-040

ใบลิงทะบุม

Sheet.....of.....

LIST OF PARTICIPANTS

ສາຫຼັບກອງປະຊຸມ/ການປຶກສາຫາລືກ່ຽວກັບ(For Minute of Meeting/Discussion Memo about): ...

ຕັ້ງວັນທີ(Dated on):15.1.5.12015.....ສະຖານທີ່(at):.....

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ (Name and Surname)	ໜ້າທີ່ຮັບຜິດຊອບ (Responsibility)	ຕົ້ນສັງກັດ(Name of Agencies)	ການພົວພັນ ສື່ສານ (Communication)		ລາຍເຊັນ
				Tel/Fax	Mobile	
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ຜູ້ບັນທຶກ (Recorder):

Annex 5: Voluntary donation of land lost

LAO PDR

Northern Rural Infrastructure Development Sector Project (NRIDSP)

COMPENSATION AND ENTITLEMENT FORM

Subproject: Nam Bem

Province: Oudomxay District: Houn Village: Ban Fen

I/We: Mr. Lousai and/or Mrs./Ms.: Lay Resident in: Ban Fen

Confirm:

1. To be head or spouse of the household.
2. Having been fully informed by NRISDP authorities in public meeting/s, during household survey/s and/or detailed measurement survey of my/our rights to entitlement to compensation for any loss of property (land, trees, crops, structures) by the subproject in relation to the NRISDP land acquisition, resettlement and compensation policy.
3. Having been introduced into complaints/grievance procedures in case of disagreement with the assessment of loss of asset/s.
4. That Mr. or Mrs./Ms. Lousai is the owner of the affected asset/s listed below.
5. That the asset is free of squatters/encroachers and not subject to any other claim/dispute on ownership or any other encumbrances.
6. The loss of assets is related to the provision to the local authority for the subproject.
7. Losing the listed assets located in the subproject area to be provided to local authority to register asset loss for compensation.
8. That affected asset/s and compensation cost/s as shown in the table is/are correct, and I/We agree and accept these.

Type of Affected Asset (land, structures, trees, crop, etc)	Quantity (area of land/structure, number of trees, etc.)	Units [m^2, trees, house, etc.]	Affectedness [%] of total land, trees, etc.	Unit Rates [KIP/Unit]	Sub-Total/s [KIP]
Productive paud-	160	m2	2,3 %	20,000	3,600,000
					3,600,000

9. LAND: To accept losing: _____ m^2 land in the village: _____, and agree by ☑ in :
   - ☑ Agree voluntarily to "donation of land" as contribution to the subproject, and do not request any compensation of the loss of land.
   - ☐ Request compensation in kind through "land-for-land" through alternative land of similar quality / production.
   - ☐ Request compensation in cash-for-kind" through payment in cash.
10. TREE: To accept losing: _____ no. of trees in the village: _____, and agree by ☑ in:
    - ☐ Agree voluntarily to "donation of trees" as contribution to the subproject, and do not request any compensation of the loss of trees.
    - ☐ Agree voluntarily to "use the lost trees" by ourselves on our own expenses, and do not request any compensation of loss of trees.
    - ☐ Request compensation in cash-for-kind" through payment in cash.
11. STRUCTURE: To accept losing: _____ structure in the village: _____, and agree by ☑ in:
    - ☐ Claim compensation in kind of through " structure –for-structure" through " relocating or replacing affected structure
    - ☐ Claim compensation in "cash - for - kind" through payment in cash.
12. COMPENSATION: In-cash compensation shall be based on negotiated/agreed prices and payment of compensation confirmed by NRI to take place before mobilization, rehabilitation or construction work will affect the private assets. As long as compensation has not been paid to the owner, the recipient (NRI) has no claim and no user rights over the asset/s.
13. VOLUNTARY DONATION: Subproject related criteria concerning affected household AH /affected person AP (to indicate by □):

AP/s as	Indicate ☑	APs' Expected Impacts	Indicate ☑	Displacement of AH	Indicate ☑
Direct beneficiary		Minor impact/s for AH	✓	No physical relocation of AH	✓
\/Indiirect beneficiary	✓	Serious impact/s for AH		Physical relocation of AH	

14. PPO confirms to take all possible precautions to avoid damage to any assets adjacent to the affected land, structures and other assets.
15. The provisions of this agreement will come into force from the date of signing of this deed. This date will serve also as cut-off-date. This document is final and executable and cannot be changed unless all signatories will conduct a consultation meeting in order to find an agreement.

Village: Ban Fen District: Houn Date: 19/4/17 Survey-Number: 6

Affected Household: Mr. [illegible] Mrs./Ms.: [illegible]

Chief of PPO [illegible]

District Governor [illegible]

Chief of Village [illegible]

LAO PDR

Northern Rural Infrastructure Development Sector Project (NRIDSP)

COMPENSATION AND ENTITLEMENT FORM

Subproject: Nam Dum

Province: Oudomxay District: Houm Village: Nam Dum -

I/We: Mr. and/or Mrs./Ms.: Si Resident in: Nam Dum

Confirm:

1. To be head or spouse of the household.
2. Having been fully informed by NRISDP authorities in public meeting/s, during household survey/s and/or detailed measurement survey of my/our rights to entitlement to compensation for any loss of property (land, trees, crops, structures) by the subproject in relation to the NRISDP land acquisition, resettlement and compensation policy.
3. Having been introduced into complaints/grievance procedures in case of disagreement with the assessment of loss of asset/s.
4. That Mr. or Mrs./Ms. Si is the owner of the affected asset/s listed below.
5. That the asset is free of squatters/encroachers and not subject to any other claim/dispute on ownership or any other encumbrances.
6. The loss of assets is related to the provision to the local authority for the subproject.
7. Losing the listed assets located in the subproject area to be provided to local authority to register asset loss for compensation.
8. That affected asset/s and compensation cost/s as shown in the table is/are correct, and I/We agree and accept these.

Type of Affected Asset (land, structures, trees, crop, etc)	Quantity (area of land/structure, number of trees, etc.)	Units [m^2, trees, house, etc.]	Affectedness [%] of total land, trees, etc.	Unit Rates [KIP/Unit]	Sub-Total/s [KIP]
Productive land -	120	M^2	3,3 %	20,000	2,400,000
					2,400,000

9. LAND: To accept losing: 120 m^2 land in the village: Ban Nam Dum - , and agree by ☑ in :

✓	Agree voluntarily to "donation of land" as contribution to the subproject, and do not request any compensation of the loss of land.
	Request compensation in kind through "land-for-land" through alternative land of similar quality / production.
	Request compensation in cash-for-kind" through payment in cash.

10. TREE: To accept losing: _____ no. of trees in the village: _____, and agree by ☑ in:

	Agree voluntarily to "donation of trees" as contribution to the subproject, and do not request any compensation of the loss of trees.
	Agree voluntarily to "use the lost trees" by ourselves on our own expenses, and do not request any compensation of loss of trees.
	Request compensation in cash-for-kind" through payment in cash.

11. STRUCTURE: To accept losing: _____ structure in the village: _____, and agree by ☑ in:

	Claim compensation in kind of through " structure –for-structure" through " relocating or replacing affected structure
	Claim compensation in "cash - for - kind" through payment in cash.

12. COMPENSATION: In-cash compensation shall be based on negotiated/agreed prices and payment of compensation confirmed by NRI to take place before mobilization, rehabilitation or construction work will affect the private assets. As long as compensation has not been paid to the owner, the recipient (NRI) has no claim and no user rights over the asset/s.

13. VOLUNTARY DONATION: Subproject related criteria concerning affected household AH /affected person AP (to indicate by □):

AP/s as	Indicate ☑	APs' Expected Impacts	Indicate ☑	Displacement of AH	Indicate ☑
Direct beneficiary		Minor impact/s for AH	✓	No physical relocation of AH	✓
\Indiirect beneficiary	✓	Serious impact/s for AH		Physical relocation of AH	

14. PPO confirms to take all possible precautions to avoid damage to any assets adjacent to the affected land, structures and other assets.

15. The provisions of this agreement will come into force from the date of signing of this deed. This date will serve also as cut-off-date. This document is final and executable and cannot be changed unless all signatories will conduct a consultation meeting in order to find an agreement.

Village: Nam Dum District: Houm Date: 19/4/17 Survey-Number: 3

Affected Household: Mr. Mrs./Ms.: [redacted]

Chief of PPO

District Governor

Chief of Village

ບຸນຖ ຫລ້າຈຸມພອນ

LAO PDR

Northern Rural Infrastructure Development Sector Project (NRIDSP)

COMPENSATION AND ENTITLEMENT FORM

Subproject: Nam Oun

Province: Oudomxay District: Houn Village: Ban Fen

I/We: Mr. Boun Chum and/or Mrs./Ms.: Chai Resident in: Ban Fen

Confirm:

1. To be head or spouse of the household.
2. Having been fully informed by NRISDP authorities in public meeting/s, during household survey/s and/or detailed measurement survey of my/our rights to entitlement to compensation for any loss of property (land, trees, crops, structures) by the subproject in relation to the NRISDP land acquisition, resettlement and compensation policy.
3. Having been introduced into complaints/grievance procedures in case of disagreement with the assessment of loss of asset/s.
4. That Mr. or Mrs./Ms. Boun Chum is the owner of the affected asset/s listed below.
5. That the asset is free of squatters/encroachers and not subject to any other claim/dispute on ownership or any other encumbrances.
6. The loss of assets is related to the provision to the local authority for the subproject.
7. Losing the listed assets located in the subproject area to be provided to local authority to register asset loss for compensation.
8. That affected asset/s and compensation cost/s as shown in the table is/are correct, and I/We agree and accept these.

Type of Affected Asset (land, structures, trees, crop, etc)	Quantity (area of land/structure, number of trees, etc.)	Units [m^2, trees, house, etc.]	Affectedness [%] of total land, trees, etc.	Unit Rates [KIP/Unit]	Sub-Total/s [KIP]
Paddy Land	150	m^2	9.8%	20,000	2,600,000
					2,600,000

9. LAND: To accept losing: 150 m^2 land in the village: Nam Fen, and agree by ☑ in :
   - ☑ Agree voluntarily to "donation of land" as contribution to the subproject, and do not request any compensation of the loss of land.
   - ☐ Request compensation in kind through "land-for-land" through alternative land of similar quality / production.
   - ☐ Request compensation in cash-for-kind" through payment in cash.
10. TREE: To accept losing: _____ no. of trees in the village: _____, and agree by ☑ in:
    - ☐ Agree voluntarily to "donation of trees" as contribution to the subproject, and do not request any compensation of the loss of trees.
    - ☐ Agree voluntarily to "use the lost trees" by ourselves on our own expenses, and do not request any compensation of loss of trees.
    - ☐ Request compensation in cash-for-kind" through payment in cash.
11. STRUCTURE: To accept losing: _____ structure in the village: _____, and agree by ☑ in:
    - ☐ Claim compensation in kind of through " structure –for-structure" through " relocating or replacing affected structure
    - ☐ Claim compensation in "cash - for - kind" through payment in cash.
12. COMPENSATION: In-cash compensation shall be based on negotiated/agreed prices and payment of compensation confirmed by NRI to take place before mobilization, rehabilitation or construction work will affect the private assets. As long as compensation has not been paid to the owner, the recipient (NRI) has no claim and no user rights over the asset/s.
13. VOLUNTARY DONATION: Subproject related criteria concerning affected household AH /affected person AP (to indicate by □):

AP/s as	Indicate ☑	APs' Expected Impacts	Indicate ☑	Displacement of AH	Indicate ☑
Direct beneficiary		Minor impact/s for AH	✓	No physical relocation of AH	✓
\Indiirect beneficiary	✓	Serious impact/s for AH		Physical relocation of AH	

14. PPO confirms to take all possible precautions to avoid damage to any assets adjacent to the affected land, structures and other assets.
15. The provisions of this agreement will come into force from the date of signing of this deed. This date will serve also as cut-off-date. This document is final and executable and cannot be changed unless all signatories will conduct a consultation meeting in order to find an agreement.

Village: Ban Fen District: Houn Date: 20/11/12 Survey-Number: 1

Affected Household: Mr. [illegible] Mrs./Ms.: [illegible]

Chief of PPO [illegible]

District Governor

Chief of Village

บุนถิ ทล้าจุมพอม

ສປປ ລາວ
ໂຄງການພັດທະນາໂຄງລ່າງຊົນນະບົດພາກເໜືອ (NRIDSP)
ແບບຟອມ ການທົດແທນ ແລະ ສິດທີ່ໄດ້ຮັບການທົດແທນ

11. ສິ່ງປຸກສ້າງ: ເຫັນດີຮັບເອົາການຊຸມເລຍສິ່ງປຸກສ້າງ: _____ ຢູ່ບ້ານ: _____ ແລະ ຕົກລົງໂດຍໝາຍຕົກ ☑ ໃສ່:

☐	ຮຽກເອົາຄ່າທົດແທນເປັນວັດຖຸ " ສິ່ງປຸກສ້າງປ່ຽນແທນສິ່ງປຸກສ້າງ" ດ້ວຍການຍົກຍ້າຍ ຫລື ປ່ຽນແທນສິ່ງປຸກສ້າງຄຸນນະພາບເທົ່າທຽມ"
☐	ຮຽກເອົາຄ່າທົດແທນເປັນເງິນສົດດ້ວຍການຈ່າຍເປັນເງິນສົດ

12.ການທົດແທນ: ການທົດແທນເປັນເງິນສົດຕ້ອງຍຶດພື້ນຖານການຕີລາຄາເຫັນດີເປັນເອກພາບກັນທາງດ້ານລາຄາ ແລະ ການທົດແທນ ແມ່ນຕ້ອງຈ່າຍມູນຄ່າຂອງການທົດແທນ ທີ່ຢືນຢັນໂດຍໂຄງການ ແລະ ຕ້ອງດຳເນີນການທົດແທນ ກ່ອນການຍົກຍ້າຍ, ການຟື້ນຟູ ແລະ ກ່ອນການກໍ່ສ້າງທີ່ຈະກະທົບຊັບສິນຂອງປະຊາຊົນ. ຖ້າການທົດແທນຫາກແກ່ຍາວເວລາ ບໍ່ໄດ້ດຳເນີນການທົດແທນ ຜູ້ໄດ້ຮັບຜົນກະທົບ ຈາກໂຄງການ (NRI) ຈະບໍ່ມີສິດຮຽກເອົາຊັບສິນໃຫ້ເກີນກ່ວາຊັບສິນທີ່ຢູ່ນີ້.

13.ການປະກອບສ່ວນດ້ວຍຄວາມສະໝັກໃຈ: ທາງໂຄງການໄດ້ມີການກ່ຽວພັນເຖິງ ມາດຖານກ່ຽວກັບຄົວເຮືອນທີ່ໄດຮັບຜົນກະທົບ (AHs)/ບຸກຄົນທີ່ຖືກກະທົບ (APs) ໂດຍໝາຍ ຕົກ ☑ ໃສ່

ບຸກຄົນທີ່ຖືກກະທົບໄດ້ຮັບຜົນປະໂຫຍດ	ສະແດງໃຫ້ເຫັນ☑	ບຸກຄົນທີ່ຄາດວ່າຈະໄດ້ຮັບຜົນກະທົບ	ສະແດງໃຫ້ເຫັນ☑	ຄອ/ຖືກຍົກຍ້າຍ	ສະແດງໃຫ້ເຫັນ☑
ໄດ້ຮັບຜົນປະໂຫຍດໂດຍກົງ		ຄອ/ໄດ້ຮັບຜົນກະທົບພຽງຫລັກໜ້ອຍ	✓	ບໍ່ໄດ້ຍົກຍ້າຍວັດຖຸສິ່ງຂອງ	✓
ໄດ້ຮັບຜົນປະໂຫຍດໂດຍທາງ ອ້ອມ	✓	ຄອ/ໄດ້ຮັບຜົນກະທົບໜັກ		ວັດຖຸສິ່ງຂອງຖືກຍົກຍ້າຍ	

14.ທາງ PPOໄດ້ຢືນຢັນວ່າຈະພະຍາຍາມເທົ່າທີ່ເປັນໄປໄດ້ ເພື່ອຫລີກລ່ຽງບໍ່ໃຫ້ເກີດຄວາມເສັຍຫາຍຕໍ່ຊັບຊັບສິນທີ່ຕິດພັນກັບທີ່ດິນ, ສິ່ງປຸກສ້າງ ແລະ ຊັບສິນອື່ນໆ.

15.ຂໍ້ກຳນົດຂອງການຕົກລົງນີ້ ມຄວາມສັກສິດນັບແຕ່ມີລົງລາຍເຊັນນີ້ໄປ ແລະ ຖືວ່າແມ່ນມື້ແຈ້ງການກ່ຽວກັບມື້ເລີ່ມຕົ້ນຂອງໂຄງການ. ເອກະສານນີ້ ແມ່ນສະບັບສຸດທ້າຍ ບໍ່ສາມາດມີການປ່ຽນແປງໄດ້ ແລະ ຕ້ອງໄດ້ຈັດຕັ້ງປະຕິບັດ,ຫລື ຜູ້ທີ່ມີລາຍເຊັນ ທ້ອງຜິດນີ້ ຕ້ອງໄດ້ດຳເນີນກອງປະຊຸມປຶກສາຫາລື ເພື່ອຕົກລົງເປັນເອກະພາບກັບປະຊາຊົນທີ່ໄດ້ຮັບຜົນກະທົບ:

ບ້ານ: ||ฟW ' ເມືອງ: SW ວັນທີ: 19/11/17 ມຕ໌ເບີ້ສຳຫຼວດ: 5

ຄົວເຮືອນຖືກກະທົບ: ເຊັນ ຫົວ: ເຊັນ ເມັ: [redacted]

ເຊັນ ຫົວໜ້າປະສານງານໂຄງການຂັ້ນແຂວງ (PPO):

ເຊັນ ເຈົ້າເມືອງ ບຸນຄົງ ຫລ້າຈຸມພອນ ເຊັນບາຍບ້ານ: ນາຍບ້ານ ບ້ານ ແໜ່ນ

ສປປ ລາວ

ໂຄງການພັດທະນາໂຄງລ່າງຊົນນະບົດພາກເໜືອ (NRIDSP)

ແບບຟອມ ການທົດແທນ ແລະ ສິດທິໄດ້ຮັບການທົດແທນ

11. ສິ່ງປຸກສ້າງ: ເຫັນດີຮັບເອົາການສູນເສຍສິ່ງປຸກສ້າງ: _____ ຢູ່ບ້ານ: _____ ແລະ ຕົກລົງໂດຍໝາຍຕົກ ☑ ໃສ່:

☐	ຮຽກເອົາຄ່າທົດແທນເປັນຍົດຖ "ສິ່ງປຸກສ້າງປ່ຽນແທນສິ່ງປຸກສ້າງ" ດ້ວຍການຍົກຍ້າຍ ຫລື ປ່ຽນແທນສິ່ງປຸກສ້າງຄຸນນະພາບເທົ່າທຽມ"
☐	ຮຽກເອົາຄ່າທົດແທນເປັນເງິນສົດດ້ວຍການຈ່າຍເປັນເງິນສົດ

12. ການທົດແທນ: ການທົດແທນເປັນເງິນສົດຕ້ອງບົນພື້ນຖານການຕົກລົງເຫັນດີເປັນເອກພາບກັນທາງດ້ານລາຄາ ແລະ ການທົດແທນ ແມ່ນຕ້ອງຈ່າຍມູນຄ່າຂອງການທົດແທນ ທີ່ຢືນຢັນໂດຍໂຄງການ ແລະ ຕ້ອງດຳເນີນການທົດແທນ ກ່ອນການຍົກຍ້າຍ, ການຟື້ນຟູ ແລະ ກ່ອນການກໍ່ສ້າງທີ່ຈະກະທົບຊັບສິນຂອງປະຊາຊົນ. ຖ້າການທົດແທນຫາກແກ່ຍາວເວລາ ບໍ່ໄດ້ດຳເນີນການທົດແທນ ຜູ້ໄດ້ຮັບຜົນກະທົບ ຈາກໂຄງການ (NRI) ຈະບໍ່ມີສິດຮຽກເອົາຊັບສິນໃຫ້ເກີນກ່ວາຊັບສິນທີ່ຢູ່ນີ້.

13. ການປະກອບສ່ວນດ້ວຍຄວາມສະໝັກໃຈ: ທາງໂຄງການໄດ້ມີການກ່ຽວພັນເຖິງ ມາດຖານກ່ຽວກັບຄົວເຮືອນທີ່ໄດຮັບຜົນກະທົບ (AHs)/ບຸກຄົນທີ່ຖືກກະທົບ (APs) ໂດຍໝາຍ ຕົກ ☑ ໃສ່

ບຸກຄົນທີ່ຖືກກະທົບໄດ້ຮັບຜົນປະໂຫຍດ	ສະແດງໃຫ້ເຫັນ☑	ບຸກຄົນທີ່ຄາດວ່າຈະໄດ້ຮັບຜົນກະທົບ	ສະແດງໃຫ້ເຫັນ☑	ຄສ/ຖືກຍົກຍ້າຍ	ສະແດງໃຫ້ເຫັນ☑
ໄດ້ຮັບຜົນປະໂຫຍດໂດຍກົງ		ຄສ/ໄດ້ຮັບຜົນກະທົບພຽງເຫລັກນ້ອຍ	✓	ບໍ່ໄດ້ຍົກຍ້າຍວັດຖຸສິ່ງຂອງ	✓
ໄດ້ຮັບຜົນປະໂຫຍດໂດຍທາງ ອ້ອມ	✓	ຄສ/ໄດ້ຮັບຜົນກະທົບໜັກ		ວັດຖຸສິ່ງຂອງຖືກຍົກຍ້າຍ	

14. ທາງ PPO ໄດ້ຢືນຢັນວ່າຈະພະຍາຍາມເທົ່າທີ່ເປັນໄປໄດ້ ເພື່ອຫລີກລ່ຽງບໍ່ໃຫ້ເກີດຄວາມເສັຍຫາຍຕໍ່ຊັບຊັບສິນທີ່ຕິດພັນກັບທີ່ດິນ, ສິ່ງປຸກສ້າງ ແລະ ຊັບສິນອື່ນໆ.

15. ຂໍ້ກຳນົດຂອງການຕົກລົງນີ້ ມຄວາມສັກສິດນັບແຕ່ມີລົງລາຍເຊັນນີ້ໄປ ແລະ ຖືວ່າແມ່ນມື້ແຈ້ງການກ່ຽວກັບມື້ເລີ່ມຕົ້ນຂອງໂຄງການ. ເອກະສານນີ້ ແມ່ນສະບັບສຸດທ້າຍ ບໍ່ສາມາດມີການປ່ຽນແປງໄດ້ ແລະ ຕ້ອງໄດ້ຈັດຕັ້ງປະຕິບັດ,ຫລື ຜູ້ທີ່ມີລາຍເຊັນ ທ້າຍໜົດນີ້ ຕ້ອງໄດ້ດຳເນີນກອງປະຊຸມປຶກສາຫາລື ເພື່ອຕົກລົງເປັນເອກະພາບກັບປະຊາຊົນທີ່ໄດ້ຮັບຜົນກະທົບ:

ບ້ານ: ໜ ເມືອງ: ນ ວັນທີ: 20/4/17 ນຳເບີ້ສຳພວດ: 7

ຄົວເຮືອນຖືກກະທົບ: ເຊັນ ຫົວ: ເຊັນ ເມັ່ງ:

ເຊັນ ຫົວໜ້າປະສານງານໂຄງການຂັ້ນແຂວງ (PPO):

ເຊັນ ເຈົ້າເມືອງ ບຸນຄົງ ຫລ້າຈຸມພອນ ເຊັນນາຍບ້ານ

ສປປ ລາວ
ໂຄງການພັດທະນາໂຄງລ່າງຊົນນະບົດພາກເໜືອ (NRIDSP)
ແບບຟອມ ການທົດແທນ ແລະ ສິດທິໄດ້ຮັບການທົດແທນ

ສິ່ງປຸກສ້າງ: ເຫັນດີຮັບເອົາການສູນເສຍສິ່ງປຸກສ້າງ: _____ ຢູ່ບ້ານ: _____ ແລະ ຕົກລົງໂດຍໝາຍຕົກ ☑ ໃສ່:

☐	ຮຽກເອົາຄ່າທົດແທນເປັນວັດຖຸ " ສິ່ງປຸກສ້າງປ່ຽນແທນສິ່ງປຸກສ້າງ" ດ້ວຍການຍົກຍ້າຍ ຫລື ປ່ຽນແທນສິ່ງປຸກສ້າງຄຸນນະພາບເທົ່າທຽມ"
☐	ຮຽກເອົາຄ່າທົດແທນເປັນເງິນສິດດ້ວຍການຈ່າຍເປັນເງິນສິດ

12.ການທົດແທນ: ການທົດແທນເປັນເງິນສິດຕ້ອງຍຶນພື້ນຖານການຕົກລົງເຫັນດີເປັນເອກພາບກັນທາງດ້ານລາຄາ ແລະ ການທົດແທນ ແມ່ນຕ້ອງຈ່າຍມູນຄ່າຂອງການທົດແທນ ທີ່ຢືນຢັນໂດຍໂຄງການ ແລະ ຕ້ອງດຳເນີນການທົດແທນ ກ່ອນການຍົກຍ້າຍ, ການຟື້ນຟູ ແລະ ກ່ອນການກໍ່ສ້າງທີ່ຈະກະທົບຊັບສິນຂອງປະຊາຊົນ. ຖ້າການທົດແທນທາງການແກ່ຍາວເວລາ ບໍ່ໄດ້ດຳເນີນການທົດແທນ ຜູ້ໄດ້ຮັບຜົນກະທົບ ຈາກໂຄງການ (NRI) ຈະບໍ່ມີສິດຮຽກເອົາຊັບສິນໃຫ້ເກີນກ່ວາຊັບສິນທີ່ຢູ່ນີ້.

13.ການປະກອບສ່ວນດ້ວຍຄວາມສະໝັກໃຈ: ທາງໂຄງການໄດ້ມີການກ່ຽວພັນເຖິງ ມາດຖານກ່ຽວກັບຄົວເຮືອນທີ່ໄດຮັບຜົນກະທົບ (AHs)/ບຸກຄົນທີ່ຖືກກະທົບ (APs) ໂດຍໝາຍ ຕົກ ☑ ໃສ່

ບຸກຄົນທີ່ຖືກກະທົບໄດ້ຮັບຜົນປະໂຫຍດ	ສະແດງໃຫ້ເຫັນ☑	ບຸກຄົນທີ່ຄາດວ່າຈະໄດ້ຮັບຜົນກະທົບ	ສະແດງໃຫ້ເຫັນ☑	ຄຣ/ຖືກຍົກຍ້າຍ	ສະແດງໃຫ້ເຫັນ☑
ໄດ້ຮັບຜົນປະໂຫຍດໄດຍທີ		ຄຣ/ໄດ້ຮັບຜົນກະທົບພຽງເຫລັກນ້ອຍ	✓	ບໍ່ໄດ້ຍົກຍ້າຍວັດຖຸສິ່ງຂອງ	✓
ໄດ້ຮັບຜົນປະໂຫຍດໂດຍທາງ ອ້ອມ	✓	ຄຣ/ໄດ້ຮັບຜົນກະທົບໜັກ		ວັດຖຸສິ່ງຂອງຖືກຍົກຍ້າຍ	

14.ທາງ PPOໄດ້ຢືນຢັນວ່າຈະພະຍາຍາມເທົ່າທີ່ເປັນໄປໄດ້ ເພື່ອຫລີກລ່ຽງບໍ່ໃຫ້ເກີດຄວາມເສັຍຫາຍຕໍ່ຊັບສິນທີ່ຕິດພັນກັບທີ່ດິນ, ສິ່ງປຸກສ້າງ ແລະ ຊັບສິນອື່ນໆ.

15.ຂໍ້ກຳນົດຂອງການຕົກລົງນີ້ ມຄວາມສັກສິດນັບແຕ່ມີລົງລາຍເຊັນນີ້ໄປ ແລະ ຖືວ່າແມ່ນມື້ແຈ້ງການກ່ຽວກັບມື້ເລີ່ມຕົ້ນຂອງໂຄງການ. ເອກະສານນີ້ ແມ່ນສະບັບສຸດທ້າຍ ບໍ່ສາມາດມີການປ່ຽນແປງໄດ້ ແລະ ຕ້ອງໄດ້ຈັດຕັ້ງປະຕິບັດ,ຫລື ຜູ້ທີ່ມີລາຍເຊັນ ທັງໝົດນີ້ ຕ້ອງໄດ້ດຳເນີນກອງປະຊຸມປຶກສາຫາລື ເພື່ອຕົກລົງເປັນເອກະພາບກັບປະຊາຊົນທີ່ໄດ້ຮັບຜົນກະທົບ:

ບ້ານ: ห ฟฟ - ເມືອງ: SN ວັນທີ: 20/4/17 ມ໋ເບີ້ລຳຫຼວດ: ✓

ຄົວເຮືອນຖືກກະທົບ: ເຊັນ ຜືອ: ເຊັນ ເມັ່ງ:

ເຊັນ ຫົວໜ້າປະສານງານໂຄງການຂັ້ນແຂວງ (PPO):

ເຊັນ ເຈົ້າເມືອງ

ເຊັນນາຍບ້ານ:

ບຸນຄົ່ງ ທາລາຈຸມພອນ

Annex 6: Minute of meeting for fieldwork

Annex 6 Minutes of Meeting for first safeguards monitoring of 2018

Summary of independent safeguards monitoring
1. Name of Reporter: Amphai Darasouk; Resettlement Specialist
2. Field work Team member • Mr. Souphab Koungvichit — Safeguardss Team Leader • Mr. Kanya Souksakoun — Environmental Specialist • Mrs. Ampai Darasouk — Resettlement and Social Specialist
3. Purpose of the Field Work:

Objectives

The main objectives of first safeguards monitoring of 2018 are to:

1. Visit and observe the progress of implementation of two subprojects regarding environment and social safeguards in accordance with ADB policy and Lao relevant regulations;
2. Consult with the affected households regarding land and asset loss, compensation, resettlement, contribution;
3. Conduct water sampling and testing of general parameters;
4. Conduct sampling and testing of soil, water, and crop samples for agrochemical parameters, including demonstration to the beneficiary communities;
5. Provide recommendations to the PPOs, DCOs, and the Contractors for further actions to conform with the requirements.

Methodology

- Conducting filed observation to identify key issues and measures through prepared checklists;
- Meeting with construction contractor representatives to discuss EMP implementation;
- Collecting soil, water, and plant samples for pesticide residue test;
- Water sampling and testing for field parameters and sample delivery to the lab for analysis;
- Presentation of agro-chemical use, potential impacts, preventive measures for communities, based on the field test results;
- Visual observation of biodiversity;
- Physical environmental observation (Hydrology, erosion, air emission, etc.);
- Meeting with PPOs, DCOs, village authorities and villagers to hear the progress of subprojects' activities and implementation of EMP, RAP, GAP and EDGP;
- Interviews with some affected households; and
- Feedback and proposed mitigations to the senior management of PPOs.

Participants

The participants were composed of the technical staff from PPO, DCOs, DONREs and PONRE.
The participants from the village's authority (including Village heads, and Lao Women's Union and water use group member) in 2 subprojects: Total participants of 146 attended during the monitoring mission, and only 40 people are female participants or 27.4%.

Table of participants from village different levels

Participants from sectors	Total	Female
PPO	1	0
DCO	2	0
PONRE	1	0
DONRE	2	0
Village	140	40
Total	**146**	**40**

4. Detailed activities (including venue and participants)

25 June 2018:

Meeting with the Oudomxay PPO

- Introduction of safeguards monitoring team to the PPO
- Overview of the purpose of first safeguards monitoring mission and activities to be carried out during the mission;
- Discussion on the progress of the construction works of subprojects;
- Progression of EMP, GAP, and EGDP implementation in each subproject, including institutional arrangement for the subprojects implementation;
- Discussion on the documentation system related to environmental and social safeguards;
- Discussion on the community development programs in subprojects; and
- Existing monitoring plan and implementation regarding the environmental and social safeguards being carried out by the PPO and DCOs.

Meeting with PPO and DCO at Beng district

The meeting was taken place at the DAFO of Beng district

- Overview of the first safeguards monitoring, objective and team introduction;
- Discussion on the construction activities and potential impacts as well as mitigation measures;
- Progress of EMP, RAP, EDGP, and GAP implementation carried out by the DCO;
- Discussion of concerns and complaints from beneficiary villagers;
- The WUG committees for Nam Beng have been established.
- It was confirmed in the meeting that no environmental and social issues were raised, and construction works for three schemes were completed during the site visit.

Meeting with Oudomxay PPO; 25 June 2018	Meeting with PPO and DCO at the DAFO of Beng district; 25 June 2018

26 June 2018

Meeting with PPO, DCO of Beng district, and Villagers at Ban Nam Met

- Overview of the first safeguards monitoring of 2018, objective and team introduction;
- Discussion on the issues related to the construction activities for the subproject and their impacts and benefits;
- Discussion on land acquisitions, grievance mechanisms, compensations, and voluntary contributions for the Project;
- The village authority and WUGs briefed on the subproject activities and it is confirmed that no any significant social and environmental concerns raised by the villagers;
- Remediation has been taken for Mr. Mai Pheng for his land loss by providing additional land (8*15m) at the left bank of the Nam Met scheme;
- Awareness training on agro-chemical use, potential impacts to health and environment
- Demonstration of soil, water and plant sampling and testing; and
- Local employment for about 20 daily laborers and 4 people for subcontract work.

Meeting with PPO, DCO of Beng district, and Villagers from Ban Yor, Ban Nalay, Pangdeua, and Houay Lor at Ban Yor

- Overview of the first safeguards monitoring of 2018, objective and team introduction;
- Discussion on the issues related to the construction activities for the subproject and their impacts and benefits to beneficiary villages;
- Discussion on land acquisitions, grievance mechanisms, compensations, and voluntary contributions for the Project by the land and asset owners;
- It is confirmed by villagers from these villages that they were not interested to work for the subproject as daily labourer
- All affected households contented that their land and asset losses are very small and that they voluntarily donated/contributed to the Project
- Representatives from Ban Pangdeua, and Nalay raised concerns that they may face difficulties to receive water from the improved earth canals because some sections of

the canals have already collapsed, and flow are blocked.

Meeting with PPO, DCO and villagers at Nam Met village; 26 June 2018	Meeting with PPO, DCO and villagers from Pangdeua, Nalay, Yor, and Houay Lor at Nam Met village; 26 June 2018	Conversation with an affected household for land lost and compensated at Nam Met village; 26 June 2018

27 June 2018:

Meeting with PPO, DCO, PONRE and DONRE at Houn district

The meeting was taken place at the DAFO of Beng district

- Overview of the first safeguards monitoring, objective and team introduction;
- Discussion on the construction activities and potential impacts as well as mitigation measures;
- Progress of EMP, RAP, EDGP, and GAP implementation carried out by the DCO;
- Discussion of concerns and complaints from beneficiary villagers;
- The WUG committees for Nam Oun subproject have been established;
- Safeguards monitoring by the PPO, DCO, PONRE, and DONRE;
- A request from the DONRE to have the IEE report for Nam Oun subproject
- Progress of consultation and grievance for new affected households who will lost parts of their lands which are not include in the FS study for secondary canal in Chantai and Faen villages.

Meeting with PPO, DCO, PONRE, DONRE, and villagers at Faen village

- Overview of the first safeguards monitoring of 2018, objective and team introduction;
- Discussion on the issues related to the construction activities for the subproject and their impacts and benefits to beneficiary villages;
- Discussion on land acquisitions, grievance mechanisms, compensations, and voluntary contributions for the Project by the land and asset owners;
- The DCO of Houn provided the evidences of voluntary donations of six households whose lands are acquired for subproject activities;
- In addition to the six households, there are new affected households whose lands affected by revision of secondary canal alignment which is included in the original design;
- Village authority and affected households confirmed that they are happy to contribute the little losses for the Project and documentation for voluntary donations are being

proceeded.

- Village authority and villagers informed that there was limited coordination between the construction contractor and village authority for the local employment and land acquisition

Meeting with the DONRE of Houn district; 27 June 2018	Meeting with PPO, DCO and villagers at Faen village, 27 June 2018	Conversation with a new affected household from Nam Oun subproject at Fen village; 27 June 2018

28 June 2018:

Meeting PPO, DCO and villagers and affected households at Chantai village

The discussion during the meeting are outlined in the followings:

- Overview of the first safeguards monitoring of 2018, objective and team introduction;
- Discussion on the progress of the construction activities and environmental and social impacts and benefits from Nam Oun subproject to the villagers;
- Brief on the project activities and the concerns from villagers by the village chief;
- Discussion of new affected households whose lands were not anticipated to be affected from original design, were informed and they are willing to donate such small losses for the project uses;
- Confirmation of village authority and affected households that they are happy to contribute the little losses for the Project and documentation for voluntary donations are being proceeded by the PPO and DCO;
- The WUG committee was established for the subproject;
- More encouragement for the participation of beneficiary minority (Hmong) households in different consultations/meetings

Meeting with PPO, DCO and villagers at Chantai village; 28 June 2018	Site visit to the lands and conversation with the new households to be affected by secondary canal for Nam Oun subproject at Chantai village; 28 June 2018	Site visit to the lands and conversation with the new households to be affected by secondary canal for Nam Oun subproject at Chantai village; 28 June 2018

30 June 2018:

Meeting with PPO and PONRE for feedback:

Upon the completion of the mission, the team met with PPO management to provide feedback and suggestions concerning the key findings during the mission, which are as follows.

- Improvement of local employment mechanism and procedure, especially through formal documentation, including statistics of local employment;
- Provision of the IEE reports of Lao version for two subprojects to the DONRES for effective safeguards monitoring;
- Increasing participation of beneficiary households who are minority groups in the consultations/meetings Rehabilitation of construction site is strongly recommended to ensure no spoil left on the rice paddy field of villagers and minimizing the erosion and sediment transport;
- Provision of documents and verification of voluntary donations/contribution of new affected households, in addition to original affected households;
- Improving the coordination between the Construction Contractor of the Nam Oun subproject and beneficiary village authorities; and
- Payment for local laborers from Nam Met village for their completed subcontract work; worth of approximately 60 million kips.

Meeting with PPO for feedback at the PAFO of Oudomxay province; 30 June 2018

5. Achievements

1. Completed first safeguards monitoring and site visits to subprojects in two districts of Oudoxay province;
2. Successful consultations/meetings, DCOs, PPO, village authorities, villagers and affected households;
3. Good support and cooperation from PPO, PONRE, DCOs and DONREs and villages authorities during the mission;
4. Collection of useful information, documents from local stakeholders;
5. Meetings with PPOs, DCOs, PONREs, DONREs, village authorities, WUGs, AHs as well as villagers in subprojects;
6. Completed water sampling and testing as well as demonstration to the beneficiary communities in subprojects;
7. Provision of feedback to the PPOs at the end of mission to follow up for further improvement and actions.

Annex 7: Registration

ໂຄງການພັດທະນາໂຄ່ງລ່າງ ຊົນນະບົດ ພາກເໜືອ-ທຶນເພີ່ມ

NORTHERN RURAL INFRASTRUCTURE DEVELOPMENT SECTOR PROJECT-ADDITIONAL FINANCING

ລາຍຊື່ ຜູ້ເຂົ້າຮ່ວມ: CQS-3

ທີ່ ..... ແຂວງອຸດົມໄຊ ຄັ້ງວັນທີ: 25-26/6/2018

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີ ✓ ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຊ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
1	ທ. ...	...	...	...	✓				22379334	
2	...	...	...	...	✓				22378181	
3	...	...	...	...	✓				54052296	
4	...	...	...	...	✓				2332 ...	
5	...	...	...	ESM team	—				2333328	
6	...	...	—	—	✓				22326830	

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງວຸ່່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
1.	ຂ. ວິໄລສະເພດ	ຍິງ	ບໍ່ມີ	ການເມືອງ	✓				22378181	
2	ທ.ນ.ທ.ຂ.	✓							02058405063	
3	ທ.ນ.ທ.ປ.	✓							02054677561	
4	ທ.ນ.ທ.	✓								
5	ທ.ນ.ທ.	✓							03047224492	
6	ທ.ນ.ທ.	✓								
7	ທ.ນ.ທ.	✓							03055980?0	
8	ທ.ນ.ທ.	✓							03057896?	
9	ທ.ນ.ທ.	✓							02056334420	
10	ທ.ນ.ທ.	✓							02059656553	
11	ທ.ນ.ທ.	✓							030 4700424	
12	ທ.ນ.ທ.	✓							03045584456	
13	ທ. ທ.ນ.ທ.	✓							030909944140	
14	ທ.ນ.ທ.	✓								
15	ທ.ນ.ທ.	✓							03099543628	
16	ທ.ນ.ທ.	✓							03014836023	

ໝາຍເຫດ: ຂໍອາໄພສາລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງຈຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມ ໝວດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາຈີນ-ຕິເບດ		
17	ນ.ສີວອນ	ຍ	ປ/ຊ						020525116	ນ.ປົວ
18	ນາງ ສົ.ຍ.ນ	ຍ	ປ/ຊ							ນ.ສ.ວ
19	ນ.ຈັ.ນ	ຍ	ປ/ຊ						02098616504	ນ.ຈັ
20	ນ.ວັ.ແກ້ວ	ຍ	ປ/ຊ						03096406	ນ.ວ
21	ນ. ສີ.ວ	ຍ								
22	ນ.ສ.ຊ	ຍ								
23	ນ.ກ.ແ	ຍ								
24	ນ.ນ.ວ	ຍ								
25	ນ.ນ.ຊ									
26	ນ.ວ.ພ									
27	ນ.ນ.ແ									
28	ນ.ນ.ຊ	ຍ	ປ/ຊ						03045667	ນ.ນ
29	ໃ.ພ.ພ	ຊ	ປ/ຊ							
30	ໃ.ພ.ຊ	ຊ	ປ/ຊ							
31	ນ.ແ.ນ	ຊ	ປ/ຊ							
32	ໃ.ພ.ວ	ຊ	ປ/ຊ							
33	ນ.ພ.ວ	ຊ	ປ/ຊ							

ໝາຍເຫດ: ຂໍອາໄພສາລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
34	ທ້ອງອິນແຫ້ວ	ຊ		ບ້ານ ຂ						ອິ່ນແກ້ວ
35	ຂ່ມ ຂັນ	ຊ	ຄ/ປ ພັນ	ບ້ານ ຂ	✓				020.95180720	ຂ່ມ ຂັນ
36	ຂ່ມ ບຸ	ຊ		ບ້ານ ຂ	✓					ຂ່ມ ບຸ
37	ທ. ...	...	...	...	✓				2237 9334	
38	...	...	...	...	✓				2337 ...	
39	...	...	...	...	✓				58580296	

ໝາຍເຫດ: ຂໍອາໄພສາລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ໂຄງການພັດທະນາໂຄ່ງລ່າງ ຊົນນະບົດ ພາກເໜືອ-ຫົນເພີ່ມ

NORTHERN RURAL INFRASTRUCTURE DEVELOPMENT SECTOR PROJECT-ADDITIONAL FINANCING

ລາຍຊື່ ຜູ້ເຂົ້າຮ່ວມ: CQS-3

ທີ່..... ..... ແຂວງອຸດົມໄຊ: ຄັ້ງວັນທີ: 26/6/2018

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມ ໝວດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາຈີນ-ຕິເບດ		
1.	.....	.....	.....	.....	✓				2257 8181	
2	.....	.....	.....	.....	✓				54547229	
3	.....	.....	.....	.....	✓				2357 2424	
4	.....	✓	.....	.....	✓				56455936	
	.....	✓	.....	— —	✓				9661793	
	.....	✓	.....	— —	✓				030901 41181	
	.....	✓	.....	— —	✓					
	.....		.....							
	.....		.....	— / —					030533441	

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້ (1)

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມ ໝວດ ພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາຈີນ-ຕິເບດ		
	ໄພ ພະເຊ									
	ຄໍ ແປ									
	ໄພ ວຸ ແປ									
	ນ ບ່		ປ/ງ							
	ໄ ສ		ป/ข							
	ຂ ໄ		ป/ข							
	ย ป		ป/ข							
	ย		ป/ข							
	ผู้ใหญ่บ้าน ผู้ช่วย ตำแหน่ง บ้านแมด	ชาย	ป/ง	ลาว พวน	✓					✓
	ค. ไ	ชาย	ป/ง	—	—					
	ม. ส	ชาย	ป/ง	—	—					✓
	ม. อ	ชาย	ป/ข	—	—					✓
	ส. ถ	ช	ป/ข							✓
	ท ด	ช	ป/ง	" "	"					✓
	ส. น	ช	ป/ข	-ข	✓					
	ม ย	✓	ข/ม	ลาว พวน	✓					✓

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ตามเงื่อนไข ADB อางไว้ (2)

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເປີໂຫລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມ ໝວດ ພາສາລາວ-ໄທ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມ ໝວດ ພາສາຈີນ-ຕິເບດ		
	ນ. ບົວຈັນ									
	ນ. ແສງ									
	ນ. ຫນ້ຳ									
	ນ. ຂຸນ ທວຍ									
	ທ. ວອຸ ພອນ		ປ/ຊ							
	ທ. ເນ້ ພັດ ວິເວນ		ພ/ຊ							
	ນ. ສົມ		ປ/ຊ							
	ນ. ເນ ພອນ		ປ/ຊ							
	ນ. ເຕ ພົວ		ປ/ຊ							
	ນ. ຈ		ປ/ຊ							
	ນ. ຈ		ປ/ຊ							
	ນ. ກອງ		ປ/ຊ							
	ໄຜ ທມ		ປ/ຊ		✓					✓
	ໄຜ ປົ		ປ/ຊ							
	ນ ແສນ		ປ/ຊ							
	ນ ວອ		ປ/ຊ							

ໝາຍເຫດ: ຂໍອາໄພສາລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

(4) ตัวอย่าง ADB สมุดรับรายการ (กรณีผู้ขอสินเชื่อเป็นผู้ถือบัญชีเงินฝากและผู้ขอสินเชื่อเป็นผู้ถือบัญชีเงินฝากร่วมกัน)

| ที่อ้างอิง | ที่อยู่ผู้ขอสินเชื่อ | ผู้ขอสินเชื่อ | ประเภทสินเชื่อ | กรอบวงเงินสินเชื่อ | ผู้ถือบัญชีเงินฝาก (✓) ในการขอสินเชื่อครั้งนี้ | | |

ໂຄງການພັດທະນາໂຄ່ງລ່າງ ຊົນນະບົດ ພາກເໜືອ-ຫົນເພີ່ມ

NORTHERN RURAL INFRASTRUCTURE DEVELOPMENT SECTOR PROJECT-ADDITIONAL FINANCING

ລາຍຊື່ ຜູ້ເຂົ້າຮ່ວມ:.....

ທີ່.....ແຂວງອຸດົມໄຊ:ຄັ້ງວັນທີ:.....

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
1					✓				2237934	
2.					✓				2374	
3.				EMS Team	✓				2232830	
4					✓				55986715	
5.				DLO	✓				28723779	
6.					✓				28999750.	
7					✓				23781234	
8.				BMS Team	✓				22333328	

ໝາຍເຫດ: ຂໍອາໄພສາລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ໂຄງການພັດທະນາໂຄ່ງລ່າງ ຊົນນະບົດ ພາກເໜືອ-ທຶນເພີ່ມ

NORTHERN RURAL INFRASTRUCTURE DEVELOPMENT SECTOR PROJECT-ADDITIONAL FINANCING

ລາຍຊື ຜູ້ເຂົ້າຮ່ວມ: CQS-3

ທີ່..... ແຂວງອຸດົມໄຊ: ຄັ້ງວັນທີ: 27/6/2018

ລ/ດ	ຊື ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊີ້ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
1	ທ.ເພດສະໜາ ແສນຍົງ ສຸພົ	ຊາຍ	ປ.ອ.ກ.ພ.ສ.ຊ	ພະແນກ	✓				22379334	
2.	ທ. ຍຸ ຍ ພ.ສ.ຊ	✓	ຮອງພ.ສ.ຊ	ບ.ຊ.ພ	✓				28999780	
3	ນ. ທ.ວ.ພ.ວ ຊ.ລ.ປ.ພ.ປ	✓	ຫ.ວ.ພ.ພ.ຊ	ສ.ປ.ຊ.ພ.ປ					55466121	
4.	ຊ. ສຸ.ສ.ພ.ໄ.ຍ.ວ.ອ	✓	ວ.ຊ.ກ.ກ	ສ.ປ.ວ.ກ.ພ					99645631	
5	ທ. ຄ.ພ.ຄ.ຊ.ປ.ຊ.ພ	✓	ວ.ຊ.ກ.ກ	ພ.ຊ.ກ.ພ	✓				2332 ພ.ພ.ຊ.ຊ	
6	ນ. ຕ.ກ.	✓	✓	ທ.ພ.ນ	✓					
7.	ນ. ຊ.ປ.ຊ.ປ	✓	✓	✓	✓					
8.	ນ. ✓	✓	✓	✓	✓					
9.	ນ. ຊ.ປ ວ.ປ.ນ	✓	✓	✓	✓					

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕິກ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັ້ນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີ່ມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
10	ท. ย	ชาย	ประธาน	บ้านหนองแสง	✓					
11	น. วิ ดวงดี	หญิง	บัญชี	บ. แสนสุข	—					
12	นาง พ	หญิง	ป/ก	บ. แสนสุข	—					
13	ท. ว	ชาย	รักษาความ	บ้านดอน	✓				020 23773	
14	ท. วิ	ชาย	ป/ก	บ้านหนองแสง	—					
15	ย. ร	ชาย	ป/ก	บ้านหนองแสง	—					
16	ย. ท	—	—	—	—					
17	ท. ด	ชาย	ป/ก	—	—					
18	ย. ย	ชาย	ป/ก	บ้านหนองแสง	—					
19	ท. ร	—	—	—	—					
20	ท. ช	—	—	—	—					
21	ลุง ไชยะ	ช	บ. บาน	บ. ดอนสวรรค์	✓				030 81 02 06	

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້ (2)

ໂຄງການພັດທະນາໂຄ່ງລ່າງ ຊົນນະບົດ ພາກເໜືອ-ທຶນເພີ່ມ

NORTHERN RURAL INFRASTRUCTURE DEVELOPMENT SECTOR PROJECT-ADDITIONAL FINANCING

ລາຍຊື ຜູ້ເຂົ້າຮ່ວມ:.....ແຂວງອຸດົມໄຊ: ຄັ້ງວັນທີ:.....

ທີ່.....

ລ/ດ	ຊື ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕີກາ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີລມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
1	ທ. ຟາ ລີ	ຊ	ຫົວໜ້າ	ບ້ານ	✓				28723773	
2	ທ ຫຸມ ມ່ ໍ	ຊ	ບ/ຊ	ບ້ານ	✓				030 9799080	
3	ທ. ທົມ	ຊ	ບ/ຊ	ບ້ານ	✓				59296894	
4	ທ. ແສງ ເທ ີ	ຊ	ບ/ຊ	ບ້ານ	✓				020 55049269	
5	ທ. ອ່ ໄຜ	—	—	—	✓				55441022	
6	ທ. ຄ ໂ	✓	ບ/ຊ	ບ້ານ	✓			✓	030 9797916	
7	ຊ ໂ	—			✓					
8	ນ. ຫ ຄ ່	ຍ	ບ/ຊ	—	✓					
9	ນ. ວ ນ ແ	ນ	ບ/ຊ	—	✓					

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕິກ (✓) ຫຼືຂຽນຊີ້ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
10	ນ. ດາ	ຍ.			✓					
11	ນ. ນ	ຍ.			✓					
12	ນ. ພ	ຍ			✓					
13	ນ. ບ	ຍ			✓					
14	ນ. ນ	ຍ			✓					
15	ນ. ສ	ຍ			✓					
16	ທ. ຖ	ຊ			✓					
17	ທ. ອ	ຊ			✓					
18	ທ. ຖ	ຊ			✓				98286711	
19	ທ. ບ	ຊ			✓				55597802.	
20	ທ.	ຊ			✓				03092885766	
21	ທ. ນ	ຊ			✓					
22	ຖ				✓					
23	ທ. ສ				✓					
24	ທ.				✓				22379334	
25	ນ.		ESM Team		✓				22326830	

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້

ລ/ດ	ຊື່ ແລະ ນາມສະກຸນ	ເພດ	ໜ້າທີ່ຮັບຜິດຊອບ	ມາຈາກພາສ່ວນ	ກະລຸນາຕື່ມ (✓) ຫຼືຂຽນຊື່ເຜົ່າຂອງຕົນເອງໃສ່ຫ້ອງລຸ່ມນີ້				ເບີໂທລະສັບ	ລາຍເຊັນ
					ຊົນເຜົ່າຕາມໝວດພາສາລາວ-ໄຕ	ຊົນເຜົ່າຕາມໝວດພາສາມົ້ງ-ອີເມຽນ	ຊົນເຜົ່າຕາມໝວດພາສາມອນ-ຂະແມ	ຊົນເຜົ່າຕາມໝວດພາສາຈີນ-ຕິເບດ		
1.	ທ. ຂ້ຳຕິ	ຊ	ຂະແໜງ	ບ.ວັນໄຕ	ລາວ				22377655	
2	ທ. ຈັນທອນ ວົງຄຳ	ຊ	ວິຊາການ	ໜອງ ແຫ	✓				2332 ບໍ່ແກ້ວ	
3	ທ. ພູທອງ ແກ້ວ:ສົມ	3	ວຽກແມ່ຄຸ	ນາຊຸດ ຊ	✓				28999750	ພ.ສ
4	ທ. ວັນຊ	ຊ	ບ/ຊ	ນ 2				✓		ສ

ໝາຍເຫດ: ຂໍອາໄພສຳລັບການຖາມຫາຊົນເຜົ່າຂອງທ່ານ-ເພາະພວກເຮົາກຳລັງປະຕິບັດຕາມກອບແຜນການປົກປ້ອງສິດຂອງຊົນເຜົ່າສ່ວນນ້ອຍ (ຕາມເງື່ອນໄຂ ADB ວາງໄວ້