Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

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Ministry of Agriculture and Forestry
Department of Planning and Finance
The World Bank – IDA

LAO AGRICULTURE COMPETITIVENESS PROJECT

LACP – P161473

Environment and Social Impact Assessment Report
For
Haithagone, Ladkhouay, Nathear Irrigation Pump Schemes in Xaythany district, Vientiane Capital, Lao PDR

September 2021

CONTENT

LIST OF FIGURES

I. PROJECT DESCRIPTION

The Lao Agriculture Competitiveness Project (LACP) seeks to enhance the competitiveness and sustainability of Lao PDR's agriculture sector through technical and financial support to increase in agricultural productivity and Competitiveness in selected strategic value chains. The project would focus on: (i) the geographical areas with high agricultural development potentials; (ii) the farming systems with high potentials for Competitiveness (i.e. paddy, maize, vegetables); (iii) promotion of good agricultural practices and climate smart agricultural technologies and farming system diversification to enhance food and nutritional security; (iv) building capacity for farmers' organizations, agribusinesses, public and private service providers; and (v) building on and developing synergies with other government/donor programs. The Project Development Objective (PDO) is to increase competitiveness of selected value chains in the project areas. The Project has an estimated budget of USD 29.3 million, including government co-financing of USD 0.5 million, agribusinesses contributions of USD 5.6 million, and an IDA loan of USD 25.0 million. It will be implemented within five provinces (Khammouane, Bolykhamxay, Xayabury, Vientiane province, and Vientiane Capital). The Project implementation schedule is within 06 years (2018-2024). The LACP is comprised of three components:

Component A: Improved Agricultural Efficiency and Sustainability.
This component will support (1) the increased adoption of improved varieties and high-quality seeds, (2) the increased application of GAP, (3) the provision of critical productive infrastructure, and (d) the strengthening of public services delivery.

(A3) Providing Critical Infrastructure. The project will finance rehabilitation of selected public infrastructure (mainly irrigation schemes). The project will also support PAFOs and Department of Irrigation (DOI) of MAF to provide training in new irrigation models aiming at reducing operation costs and improving water productivity through establishment and strengthening of water user groups to effectively operate and maintain existing and the newly built infrastructure supported by the project.

Total target pump irrigation schemes in Vientiane Capital to be rehabilitated are 18 sub-projects, of which 6 pump schemes for Batch-1B shall be completed in the preparation stage of Feasibility Study and Engineering detailed design in beginning year 2021 and can be rehabilitated in the year 2021-2022. The remaining 12 pump irrigation subprojects (Batch-2) will be done in the following year in FY 2022-2023.

Three (3) of 6 pump irrigation schemes were proposed to rehabilitate for Batch-1B are (1).Haithagone is located at Haithagone village, (2). Ladkhouay is located at Ladkhouay village and (3).Nathear is located at Nathear village, in Xaythany district, Vientiane Capital, Lao PDR. All schemes are far from Vientiane capital centre about 29-35 km to Southern Road no.13 and at along rural road No. 10 to Vientiane province.

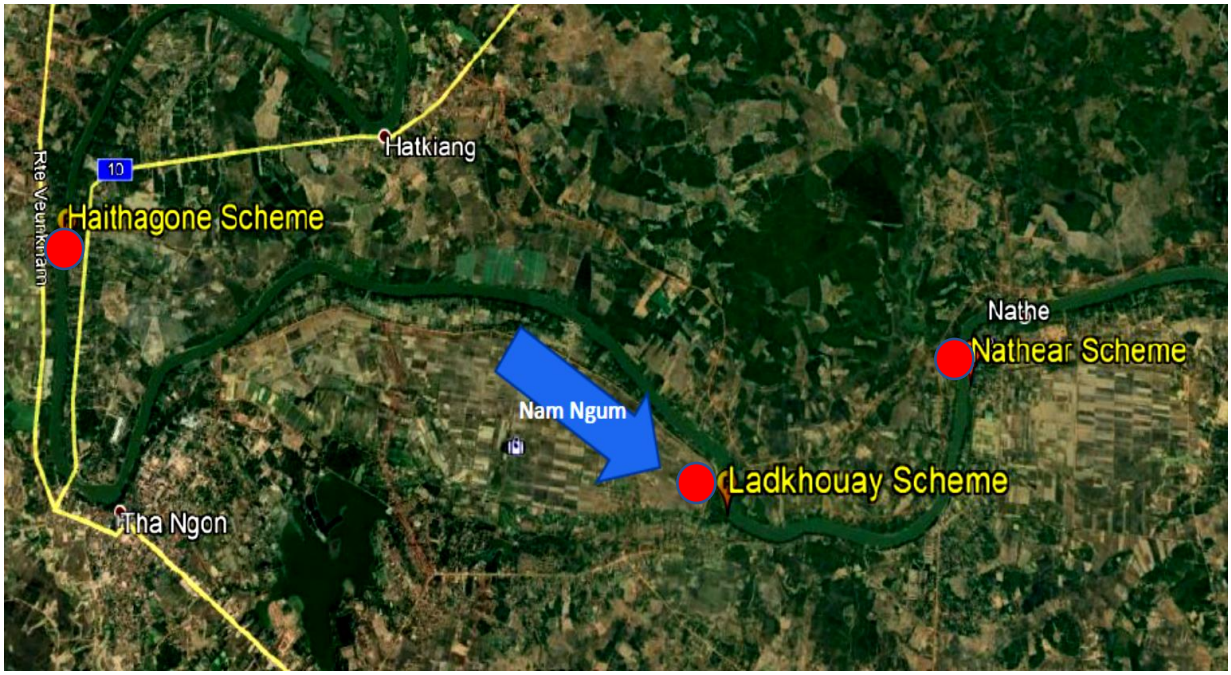

Figure 1. Sub-Project Layout

Detail coordination point of each scheme is presented below table no.5:

Item	Name of Scheme	Boldering closed with			
		East	West	North	South
1	Haithagone scheme 247505E, 2009356N	Kieng village	Nam Ngum	Nongkham village	Kieng village
2	Ladkhouay scheme 256992E, 2007003N	Nongtea village	Oudomphon village	Kieng village	Dongmakkai village
3	Nathear scheme 260766E, 2009955N	Thadindeng village	Douangbugdy	Hatkieng village	Nam Ngum

Proposed rehabilitation irrigation scheme of each sub-project

1. Haithagone irrigation pump scheme

   (1) upgrading existing pontoon pump station including replace one 75 kw pump set (one set of 75kw motor pump is required), installation of new electric delta box, replacement of existing damaged electricity lines, repair pontoon and roofing.

2. Ladkhouay Pontoon Pump Irrigation Scheme

   (1) upgrading existing pontoon pump station including pump set (only one set of pum will be installed by the LACP), installation of new electric delta box, replacement of existing damaged electricity lines, repair pontoon and roofing.

3. Nathear Irrigation Pump Scheme

   (1) upgrading existing pontoon pump station including pump set, installation of new electric delta box, replacement of existing damaged electricity lines, repair pontoon and roofing

Component B: Enhanced Agricultural Competitiveness.

This subcomponent will support activities to promote good agricultural practices (GAP), including the provision of: (a) technical assistance for the establishment of FPGs and building their capacity to adopt GAP; (b) Matching Grants to selected FPGs to carry out Sub-projects that implement GAP; (c) technical and material assistance (i..e., small works, goods, equipment, training, etc..) to build the capacity of PAFOs, DAFOs, and relevant MAF technical departments to conduct training for FPGs on GAP and to carry out related extension and certification activities including soil analysis, organic fertilizer production, and organic farming; and (d) technical assistance to link FPGs with agribusinesses in marketing farm produce.

Component C: Project Management

The component will support (a) project management and (b) monitoring and evaluation (M&E).

II. ANALYSIS OF ALTERNATIVES

Improvement of irrigation systems is to improve the efficiency of rice production, improve and develop water user groups as future water user associations. Rice cultivation uses a large amount of water. Therefore, selected crop cultivation and techniques is alternative option to minimize water consumption during project implementation. The method includes sprinkler or drip irrigation crop cultivation.

III. ENVIRONMENTAL AND SOCIAL CONTEXT

3.1 ENVIRONMENTAL CONTEXT

3.1.1 Haithagone Pump Irrigation Scheme 200 Ha

Haithagone Pump Irrigation Scheme covers the command area of 200 ha which is located in Hai village, Xaythany District, Vientiane Capital. The project is pumping system consisting of three electrical pumps which was developed in 1990. At that time, two electrical pumps installed on the pontoon with 75 KW and 95 KW Motors. The earth water distribution networks were constructed and supported by the government of Laos. Since then, the project was operated and managed by the Water User Group (WUG) until 2011. The 95 KW electricity motor was replaced by a 75 KW motor which was financed by the government. In 2015, the pontoon was leaking and replaced by taking the pontoon from Hai pump station. In 2020, a 75 KW pump was replaced and the proposed installation a new set with the same capacity will be supported by the LACP. However, it was not functioning, because its motor exploded. So far, only two pumps are working. Therefore, the irrigation water could not be supplied fully to the paddy fields is shown in the layout in Figure 1.

Haithagone irrigation pump scheme consists of one pontoon pump station and water distribution networks. The detail of irrigation scheme includes (1) One set of pontoon, (2) Three 75 kw motor pumps (only one set of pump will be installed), (3) the supporting electricity accessories, (4) delivery steel pipes and (5) one-Stilling basin structure, (4) water distribution networks consist of one Main Trapezoidal Reinforced Concrete Lining Canal from Km 0+000 – 1+000 and water conveyance structures (b = 0.8 m, B= 2.8 m, h= 1.2 m, inside slop m =1). Secondary earth trapezoidal canals. The earth secondary canal SC1 (L= 1,025 m) and water conveyance structures (b = 0.5 m, B= 2.3 m, h= 1.0 m, inside slop m =1). The Earth secondary trapezoidal canal SC2 (L=2,080 m) and water conveyance structures (b = 0.5 m, B= 2.3 m, h= 1.0 m, inside slop m =1). Earth trapezoidal canal SC3 (L=1,600 m), with in conveyance structures (b = 0.5 m, B= 2.3 m, h= 1.0 m, inside slop m =1). Earth trapezoidal canal SC4 (L=1,700 m), with in conveyance structures (b = 0.5 m, B= 2.3 m, h= 1.0 m, inside slop m =1). The layout below shows the detail of the irrigation pump scheme.

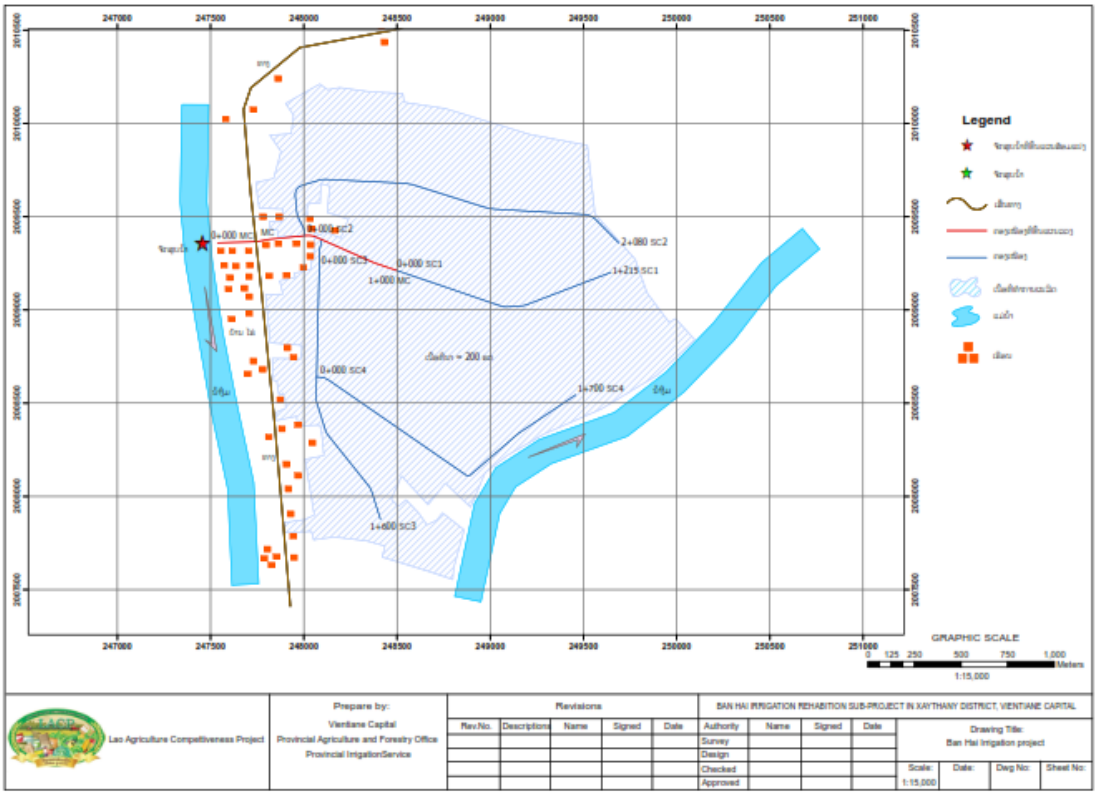

Figure 2. Haithagone Sub-Project Layout

Figure 3. Existing and Proposed Pumping Station Upgrading (Haithagone Scheme)

3.1.2 Ladkhouay Irrigation Pump Scheme 110 ha

Latkhouay Kao Pumping Irrigation Scheme is located in Latkhouay Kao village, Xaythany District, Vientiane Capital. This project is a pumping system, which consists of two electrical pumps. The project was developed in 1980. At that time, two electrical pumps with a 75 KW motor each were installed on a pontoon and the earthen canals were constructed supported by the government. Since then, the sub-project was operated and managed by the Water User Group (WUG). After ten years, two electrical pumps with 75 KW motors were replaced in 1990 supported by the government. After 2000, the pumps were repaired every year. In 2018, two pumps with 75 KW motors were replaced. These two pumps were moved from Nong No Village. However, these two pumps could not fully supply the irrigation water to the paddy fields, because they were used pumps. Water User Groups raised funds from their members to repair the pumps annually about eight million Kips. The WUG has repaired a motor in 2021.

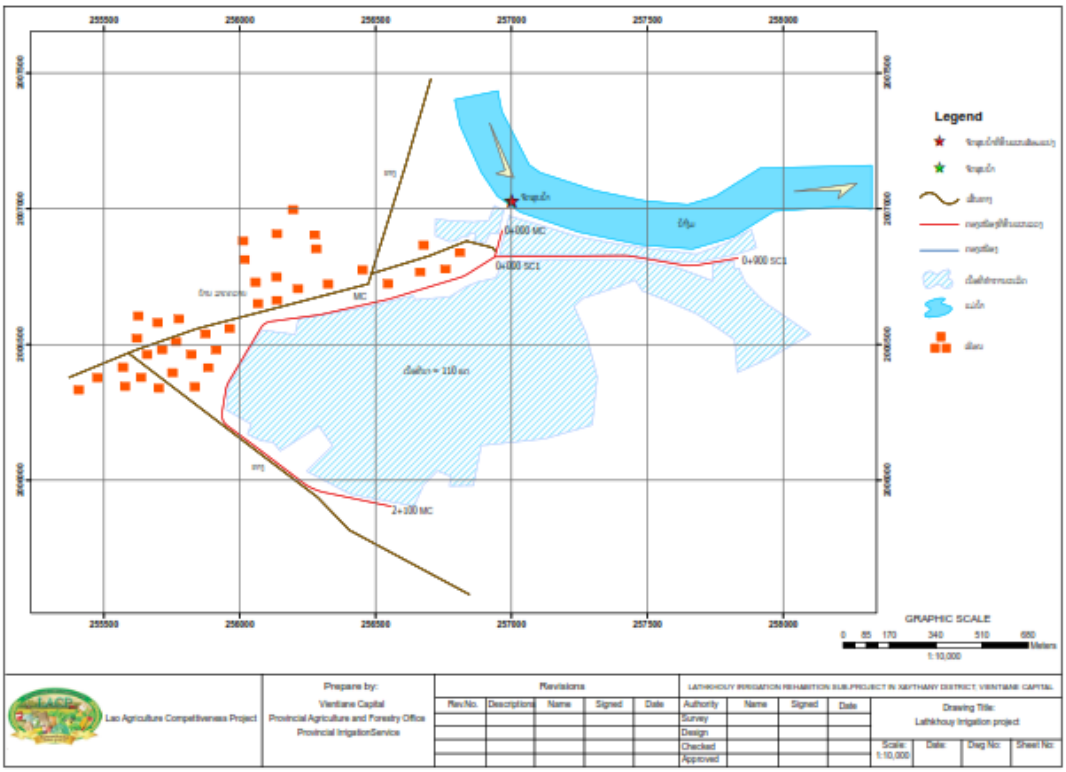

Figure 4. Ladkhouay Sub-Project Layout

Ladkhouay irrigation pump scheme consists of: one pontoon pump station and contribution canal networks for irrigation scheme including

(I) The Pump station comprises: (1) One set of pontoon, (2) Two pumps 75 kw, (3) it supports electricity, (4) delivery steel pipes and (5) Stilling basin structure; the replacement of pump is only one set.

(II) The Canal networks:

- One earth trapezoidal main canal (L=2,100 m) with in conveyance structures (b = 1.0m B= 2.3 m, h= 1.0 m, inside slop m =1).
- Earth trapezoidal SC1 canal (L= 900m), with in conveyance structures. (b = 0.5 m, B = 2.31m, h= 0.6 m, inside slop m =1).

Figure 5. Existing and Proposed Pumping Station upgrading *(Ladkhouay scheme)*

3.1.3 Nathear Irrigation Pump Scheme 100 ha

Ban Nathear Pumping Irrigation Scheme is located in Nathear village, Xaythany District, Vientiane Capital. This project is a pumping system, which consists of two electrical pumps. The project was developed in 2002. At that time, two electrical pumps were installed with 75 KW motor each on a pontoon and the earthen canals were constructed supported by the government. Since then, the project was operated and managed by the Water User Group (WUG). Two Flexible pipes were replaced in 2012 supported by the government. In 2020, two flexible pipes were replaced. So far, two pumps are working, but they need to be repaired every year. For instance, villagers have spent about 7 million Kip to repair the pumps to ensure the delivery of water to the paddy fields. However, a flexible pipe is leaking and cannot be used this year. Therefore, with the proposed improvement, one set of flexible pipes and one 75 KW pump set, including electric control box will be renewed.

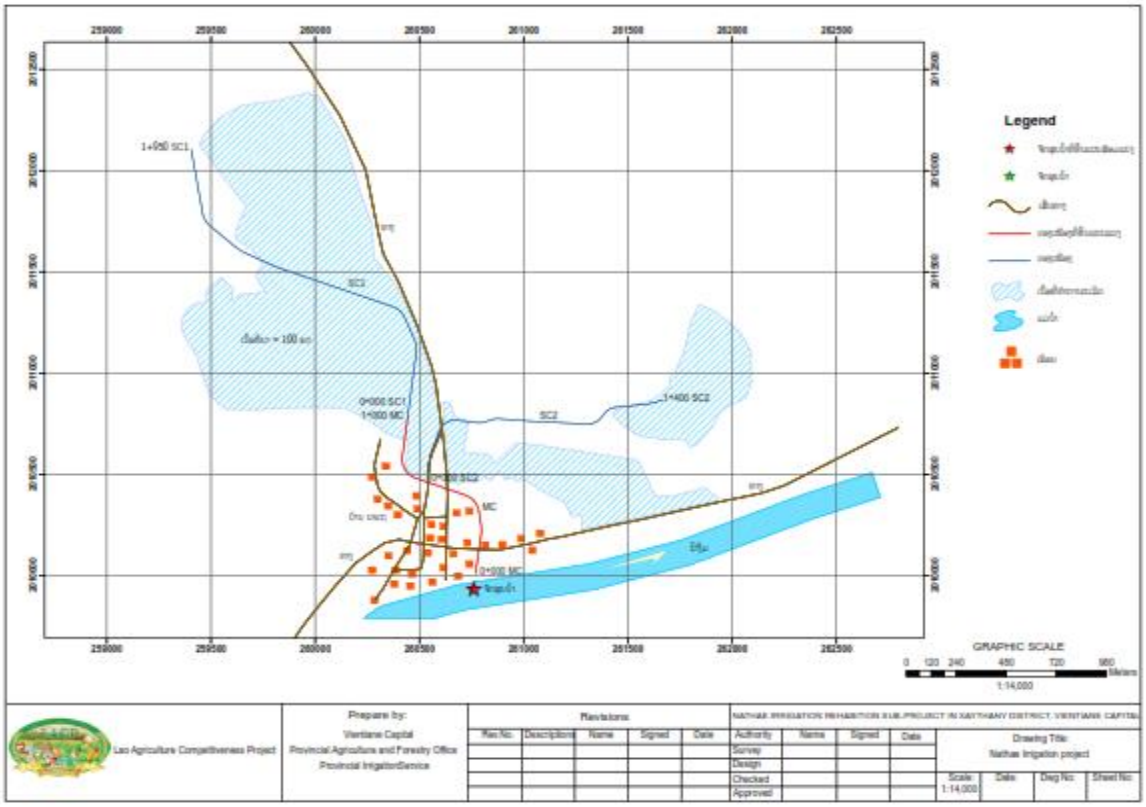

Figure 6. Nathear Sub-Project Layout

Nathear irrigation pump scheme consists of: one pontoon pump station and water distribution networks for irrigation scheme. The scheme system include (I) The Pump station comprises: (1) One set of pontoon, (2) Two (2) pumps 75 kw, (3) it supports electricity, (4) delivery steel pipes and (5) Stilling basin structure; (II) The Canal networks:

- One earth trapezoidal main canal (L=1,000 m) with size b=1m, B=3.2m, h=1.10 m, inside slope (m=1). It has 2 farm inlet structures, 1 division box structures.
- Earth trapezoidal SC1 canal (L= 1,950m), with size b=0.5m, B=2m, h=0.8m, inside slope (m=1).), include 11 farm inlet structures, and 1 tail structure.
- Earth trapezoidal canal SC2 (L=1,400m) with size b=0.5m, B=2m, h=0.8m, inside slope (m=1), include 7 farm inlets and one tail structure.

Figure 7 Existing and Proposed Pumping Station upgrading (**Nathear scheme)**

The detailed design of three sub-projects rehabilitation show in Figures below

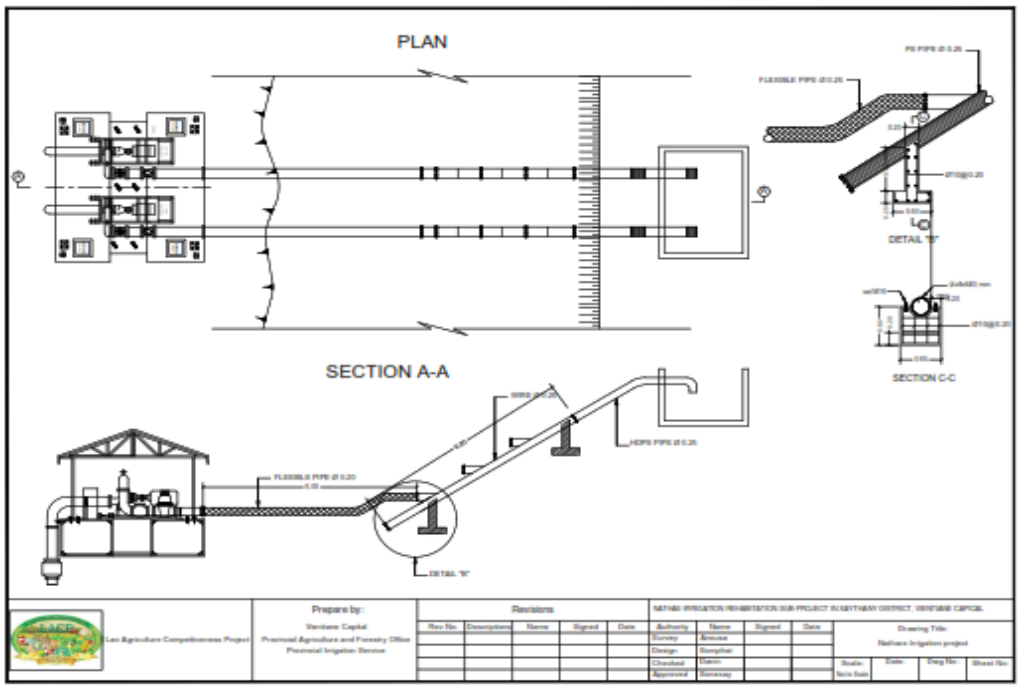

Figure 8. Proposed Pumping Unit Installation view and cross-section

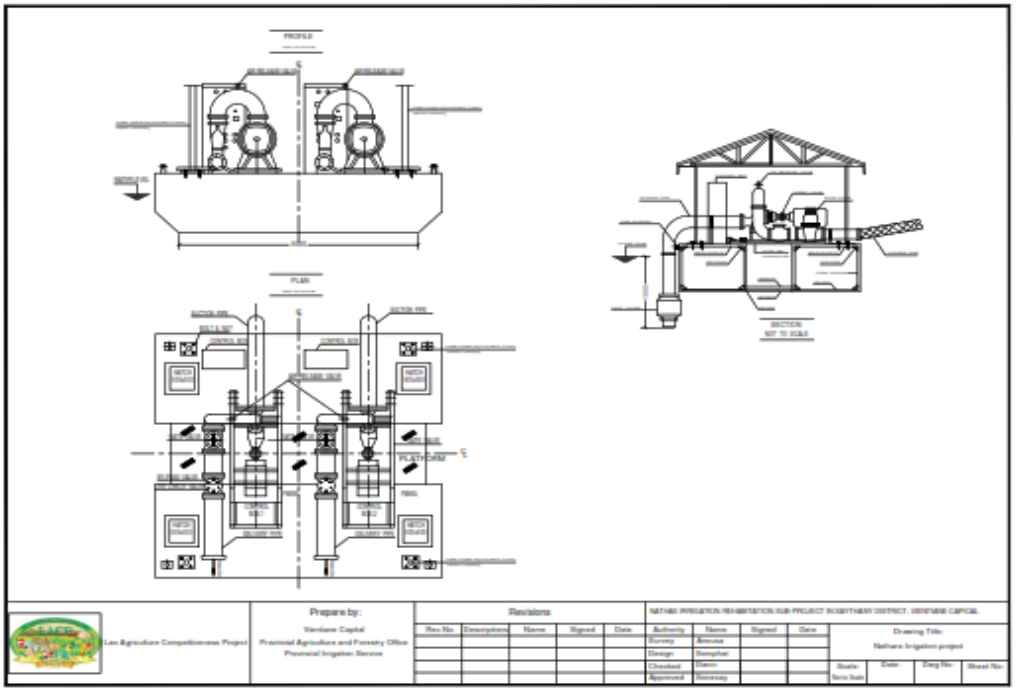

Figure 9. Proposed Pumping Unit Installation and pontoon view and cross-section

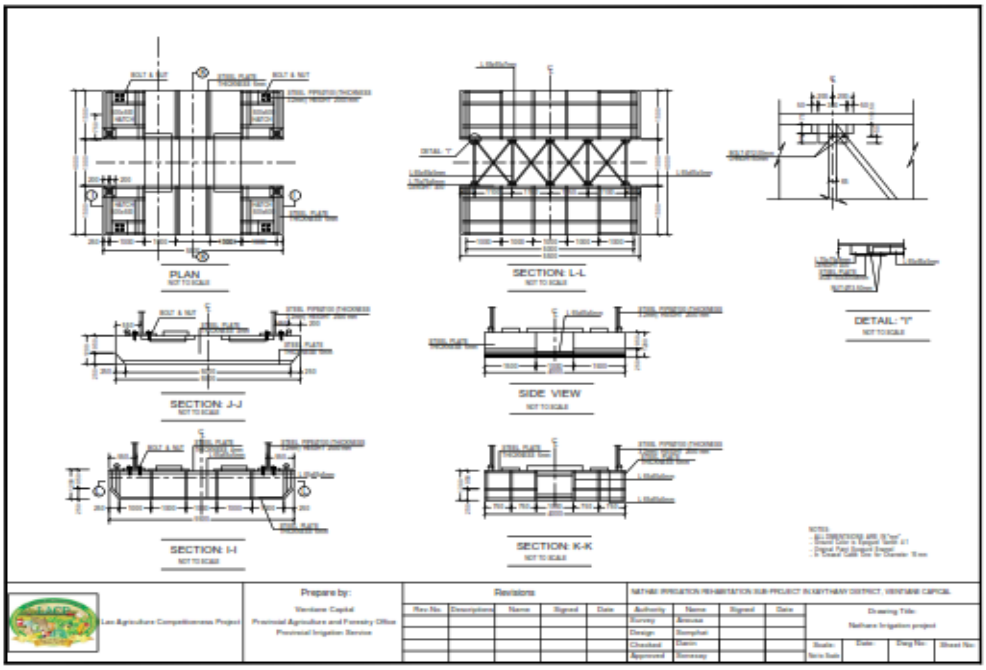

Figure 10. Pontoon view and cross-section

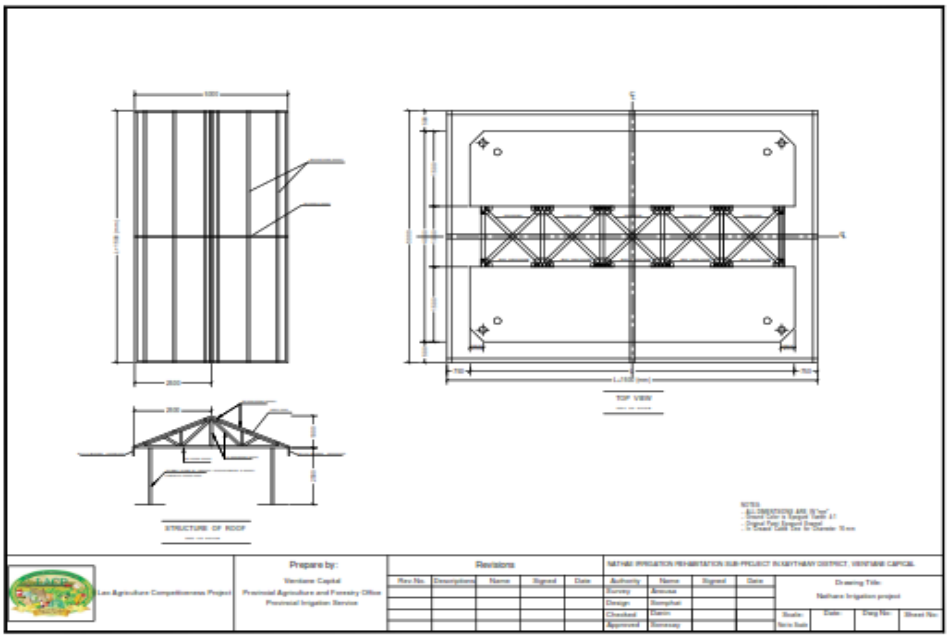

Figure 11. Pontoon roof and cross-section

3.2 SOCIAL CONTEXT

Haithagone, Latkhoua Kao and Nathear are located in Xaythany district, Vientiane Capital. The three villages are similar in terms of livelihood activities and infrastructures available .
Most of the income of Haithagone, Latkhoua Kao and Nathear comes from agricultural production and animal raising (cattle, buffalos, pigs and poultries). Rice production in both wet and dry season is the main sources of livelihood and income followed by vegetables.
There are primary schools, in each of the three villages.
Water resources are mainly rivers and groundwater for domestic utilization. Tap water is also available for Haithagone, Latkhoua Kao and Nathear and other in the surroundings.
The three villages are accessible by road all year for transport of goods and movement of people. The villages are all connected to the electricity grid the telecommunications network.
According to the village consultation and group discussion, which was carried out during ESAR, villagers fully support the project implementation.

3.2.1 Haithagone Pumping Irrigation Scheme

Haithagone Pumping Irrigation Scheme is located in Hai village, Xaythany District, Vientiane Capital. The total number of households is 424 hh, including 479 families. The population is 2,298 people, of whom 1,514 are women. 80% of the population are Lao Ethnic, who believe in Buddhist religion, while 15% is Hmong and another 5% is Kmu ethnic. Given that these small number of ethnic households and people are well integrated into the predominant Lao Tai group, an EGDP is therefore not required. These ethnic households were however, invited and engaged in the process of inclusive consultation, impact screening and subproject design and their concerns and feedback are documented and considered in the subproject design and future planning. The number of households expected to benefit from this project is 63 HH in Hai village of which 5HH are Hmong, but no Khmu Ethnic benefit from this project due to they have no paddy field in this area. However not only villagers from Hai

village can cultivate rice in the project area, but also some farmers from the neighboring villages can cultivate rice or other crops by renting lands/paddy fields.

3.2.2 Latkhouay Kao Pumping Irrigation Scheme

Latkhouay Pumping Irrigation Scheme is a pumping system, which consists of two electrical pumps located in Latkhouay Kao village, Xaythany District, Vientiane Capital. The total household is 1168 hh, including 1169 families. The population 3,948 population, of which 1,869 women. 80% of population living in Latkhoua village are Lao Ethnic, who believe in Buddhist religion, while 20% is Hmong. For the same reason as above, EGDP is therefore not required. Given that these ethnic households and people are well integrated into the predominant Lao Tai group. They were however, invited and engaged in the process of inclusive consultation, impact screening and subproject design and their concerns and feedback are documented and considered in the subproject design and future planning. The total households in Latkhouay are 1,196 households, of which the project benefited households are 96 households. There are 301 people benefited from this project, of which there are 168 women. These include 10 Hmong household or 65 people, 38 women.

3.2.3 Nathear Pumping Irrigation Scheme

Nathear Pumping Irrigation Scheme is pumping system, which consists of two electrical pumps located in Nathear Kao village, Xaythany District, Vientiane Capital. The total household is 248 hh, including 250 families of which 1,267 population, 629 women. 90% of population living in Nathear village are Lao Ethnic, who believe in Buddhist religion, and the other 10% is Hmong ethnic. EGDP is therefore not necessary as that these ethnic households and people are well integrated into the predominant Lao Tai group. They were however, invited and engaged in the process of inclusive consultation, impact screening and subproject design and their concerns and feedback are documented and considered in the subproject design and future planning. The total households in Ban Nathear are 248 households, of which the project benefited households are 56 households. The benefited households accounted for about 23% of the total village's households. There are 286 people benefited from this project, of whom 142 are women. 3 Hmong households (22 people) will also benefit from the improved irrigation.

IV. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

4.1 ENVIRONMENTAL IMPACT ASSESSMENT

Field visit was conducted after the feasibility study (FS) and Detailed Design (DD) have been completed with scope and corridors of impacts are determined. During the site visit, consultation was conducted with the targeted village to be potentially affected by this sub-project with sub-project detailed design and information disseminated. The reassessment of the sub-project activities is shown that the sub-project location is not located near the protected areas or sensitive habitats or its buffer zone. The sub-project does not have potential impacts on any cultural resources (both physical and intangible) and to result in restrictions access to land and forest resources. According to the discussion with villagers, subproject locations are minor potential to have a risk of floods and droughts. Therefore, replacing of electric motor

pump and its spare parts will bring benefit to farmers not only rice cultivation but also vegetables and other cash crops.

Potential environmental impacts related to replace electric motor pump and spare parts are minor and they can be mitigated by providing the environmental code of practice (ECOP) such as health safety of technicians and workers during installation of pump, motor, electrical control box, electric transformer, pontoon and roofing. Farmers will be temporarily be disturbed and have insufficient water supply for rice production during to the installation of new pump units. This installation and replacement work will require a limited number of workers of 5-8 people and from the consultation, local villagers are available to work as workers during installation. A technician is needed for the electric installation, which will be completed in one day. Therefore, worker camp and facilities are not required.

4.2 SOCIAL IMPACT ASSESSMENT

In all three villages, the work is mainly pump replacement and the work will be done by 5-8 contracted workers, that will be recruited from the village within the duration of one week. No significant social impacts are envisaged. There could be potential risks of occupation and community health and safety during the replacement of the electric pump. During the operation phase, potential competition and dispute over water from the improved irrigation scheme may be arising between those who can access and those who cannot benefit from the subproject and between upstream and downstream water users.

4.2.1 Positive social and economic impacts in three subprojects in general:

The potential positive impacts of the Rehabilitation of the Haithagone, Latkhouay and Nathear Irrigation Pump Schemes are included:

- Improved crop productivity of farmers;
- Employment generation during rehabilitation, farm operations and maintenance phases;
- Enhanced income and livelihoods of farmers;
- Increased food production and food security in the village, district and the provincial at large;
- Improvement in the local and national economy.

Positive social and economic impacts in specific sub-projects

1. Hai Village

In Hai village 63 out of total 424 households are expected to benefit from the irrigation renovation subproject. The benefitting households account for about 15% of the total village's households. There are 306 people benefitting from this project, of which 155 are women. The actual irrigation areas of this project are around 200 ha for Wet Season and 100 ha for Dry Season. The expected irrigation areas after rehabilitation of the scheme will be around 200 ha for Wet Season and around 200 ha for Dry Season. Dry Season cropping areas will be increased by 100 ha after rehabilitation work.

2. Latkhouay Village

In Latkhouay village, 96 out of total 1,196 households are expected to benefit from the subproject. The benefitting households account for about 25% of the total village's

households. There are 301 people benefitting from this project, of which there are 168 women. The actual irrigation areas of this project are around110 ha for Wet Season and 70ha for Dry Season. The expected irrigation areas after rehabilitation of the scheme will be around 110 ha for Wet Season and around 110 ha for Dry Season. Dry Season cropping areas will be increased by 40 ha after rehabilitation work.

3. Nathear Village

56 out of 248 households in Nathear village are expected to benefit from the subproject. The benefitting households accounted for about 23% of the total village's households. There are 286 people benefitting from this project, including 142 women. The actual irrigation areas of this project are around 100 ha for Wet Season and 50 ha for Dry Season. The expected irrigation areas after rehabilitation of the scheme will be around 100 ha for Wet and Dry Season. Dry Season cropping areas will be increased by 50 ha after rehabilitation work.

4.2.2 Potential Negative social impacts:

- **Occupation health & safety (OHS) for workers:** Workers will be exposed to noise, dust and vibrations and possibility of electricity short circuit especially without the use of appropriate PPEs. There is a high risk of accidents and injury from handling with electricity and working at height to install the pontoon roofing as well as the use of machinery and equipment if safety procedures are not adhered to.
- Specific work related to the electrical connection of the pumps will be done by outside workers. These electricity pump technicians will complete their tasks in one day. Attention needs to be paid to manage the risk of communicable diseases, COVID-19 when workers and technicians from outside the village will work in the subproject site.
- Community health and safety (CHS) issues: visit by the team of 5-8 workers and mechanics to be hired to do the work during the period of 1 weeks for the three villages could potentially bring about communicable waste, air and water borne diseases to the local communities particularly the COVID-19.
- During operation phase (after replacement of pontoon and electric control unit), potential impacts envisaged is an increase in disputes and competition over water from the improved irrigation scheme for their crop production between those farmers who can access the water and those who cannot.

V. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN OR ESCOP

ESCOP is prepared to be applied by the pump irrigation subproject. ESCOP incorporates site specific Environmental Code of Practice (ECOP), which is equivalent to site specific EMP and social management plan to address and mitigate the above described potential environmental and social impacts and issues anticipated during and after the civil work.

5.1 ENVIRONMENTAL CODE OF PRACTICE (ECOP)

To avoid and mitigate the potential environmental impacts related to each stage, mitigation measures in ESMF and ESCOP proposed in this report ANNEX 1 will be used; before installation of electricity pump, electricity must be switched off and double check to ensure no electricity leakage, provide proper PPE to workers such as gloves, boots, medical masks and

electricity leak detector, limit working time from 7:30 am-17:00pm. Technicians and workers working on pontoon are required to wear safety gear to avoid falling to water. Waste from replacement of pumps, flexible pipes, control box, and roofing need to be properly disposed.

To facilitate transportation during construction, villagers will be informed through village meeting and consultation for the project commencement and completion date before starting civil works. Existing main canal embankment shall be used to facilitate vehicles accessing to the pump station (no new temporary road to pontoon pumping stations is required).

5.2 SOCIAL MANAGEMENT PLAN

To mitigate and manage social risks and impacts anticipated during subproject pump installation, villagers were and will be informed and consulted through village meeting before starting civil works. The above described OHS risk including safety-at-work issues will be addressed and mitigated through ECOP as integral part of ESCOP whereas CHS issues (communicable diseases including COVID-19 transmission) will be managed through ESCOP and contingency plan for COVID-19 responses and CoC to prevent and address SEA, SH, GBV and VAC incidences provide in the annexes. To minimize disturbance and limitation of access to paddy land, the farmers will be informed on the rehabilitation work schedule to ensure that it will be carried out before crop cultivation or after crop harvesting and that the work will be completed in a timely manner or as soon as possible.

To address and mitigate potential dispute and conflict over the water from the rehabilitated irrigation scheme, technical O&M manuals of Irrigation project need to be prepared and provided to the Water Users Association (WUA) and farmers by Project Consultants, who will be responsible for O&M and WUG development. Training and technical support will be also provided for the WUA and water users to enable them to effectively manage the irrigation scheme and handle with grievances and conflicts that may happen.

Guide the WUG to operate and maintain the irrigation scheme properly, the mandates and rules of WUG need to be revised to meet the actual situation and needs. The capacity of WUG board members needs to be strengthened in the following topics (1) Operation and maintenance of the irrigation scheme: planning and implementing of cropping and water supply; (2) Management of the WUG/WUA: how to implement mandates, rules, WUG/WUA financial management, conflict management, general WUG/WUA management and so on; (2) Production techniques including the Pest Management.

Measures to mitigate potential conflicts among Water users include (iii) inclusion of downstream residents (who have no access to the improved irrigation schemes) in other economic activities of the project, (iii) include representatives of downstream water users in the Water User Groups/Association for join decision making and management of the irrigation scheme; (iv) where necessary and feasible, construct high-drums to supply downstream residents with water for micro-irrigation systems and domestic use.

VI. GRIEVANCE REDRESS MECHANISM (GRM)

Social and environmental related grievances either from directly or indirectly affected people, including affected people from ethnic group will be resolved through the Grievance Redress Institution/Mechanism))GRI/M). However, complainant retains the right to bypass this procedure and as such can direct their grievance directly to the PAFOs or the Provincial

Assembly, as provided by law in Lao PDR at each level within the GRI/M process, discussions and outcomes of lodged complaints will be documented and recorded in a grievance logbook . The status of the grievances submitted, and grievance resolution will be reported to PAFOs in monthly reports .In order to effectively and quickly resolve grievances of PAP, the following process will can be followed :

Stage 1 :if PAP and PAH are not satisfied with the resettlement plan or its implementation, PAP and PAH can issue a verbal or written complaint to the Village Mediation Unit or Committee (VMU/C). If it is a verbal complaint, the village should deal with this complaint and document it in a written record .The VMU/C should resolve the complaint or grievance within two weeks or calendar 15 days.

Stage 2 :if PAP and PAH are not satisfied with the result in Step 1, PAP and PAH can file an appeal with the District Office of Justice (DOJ) via DAFOs after PAP and PAH receives the decision made in Step 1 .The DOJ should make a decision within two weeks or 15 calendar days

Stage 3 :if PAP and PAH are not satisfied with the result of Step 2, PAP and PAH can file an appeal with the Provincial Assembly PA via PAFO for administrative arbitration after receiving the decision made by the DOJ .The administrative arbitration organization should make the arbitrated decision within 20 calendar days; and

Stage 4 :if PAP and PAH are still unsatisfied with the arbitrated decision made by the administrative arbitration organization, after receiving the arbitrated decision, PAP and PAH can file a lawsuit in a civil court according to the relevant laws and regulations in Lao PDR.

Day to day work related grievances may be raised by affected farmers and villagers during the construction period and should be responded and addressed on the spot. Thus, a contact detail including the mobile phone or WhatsApp numbers of site engineer and focal staff appointed from PAFO and DAFO should be provided to the Water User Association and the local community and displayed in the place publicly accessible such as the subproject site and notice board in the village office. In case of emergency and server incidences, the phone call will be one the most helpful and efficient mean of communication and reporting locally accessible.

VII. CONSULTATION AND INFORMATION DISCLOSURE

Consultation with the local communities and farmers/water user groups was conducted on 13-15 September 2021 in Hai, Latkhouay, and Nathear villages, respectively. The questions and answers were exchanged by the water user group members and E&S consultants. Consultation discussion included health safety and mitigation measure of technicians and workers during installation of the pumps as well Covid-19 prevention. This draft ESAR was distributed to the community 7 days before the consultation. Main outcomes and information provided during consultation:

- Approval of the FS/DD provided
- ESCOP implementation during rehabilitation and operation stages discussed and agreed or any comments
- Step forward to implementation of the project discussed and agreed or any comments?
- Covid-19 prevention and measure during project rehabilitation
- Collaboration among villagers, district, and provincial technical team including construction company before and during project implementation.

Further improvements are required by farmers as summarized each subproject below:

1. Hai Village
    - Metal pipe ϕ250mm about 3 pipes at a length of 6 meters each

- Clean and remove sediment from the secondary canal about 700 meters

2. Latkhouay village
    - 7 new control gates and farm inlets
    - Upgrading existing earth main canal to brick masonry canal about 3,000 meters.

3. Nathear villages village
    - Upgrading main canal from existing earth to brick masonry about 3,000 meters
    - Upgrading control gates and farm inlets.

In response to those requirements, the irrigation sector of PAFO of Vientiane capital will prepare an annual plan for improvement. Budget will request through state fund or financial projects from the current project or others depending on budget availability.

The final ESAR will be disclosed onto the MAF's website and hard copy will be available in POFO and DAFO prior to the subproject implementation.

VIII. IMPLEMENTATION, MONITORING AND REPORTING ARRANGEMENT

The implementation of the environment and social safeguard is followed by the project implementation arrangement. The project implementing agencies include MAF, MOIC, and the five project provinces. LACP is joining implementing by MAF and MOIC; MAF is the central agency responsible for coordination with concerning stakeholders and overall project implementation. MAF is core of implementing project activities and focusing on component A, C and coordinate with component, working with farmer and production group, upgrading on-farm infrastructure, farmer's production facilities and farm equipment. Technical department involved include DOPF, DOA, DOI and DTEAP.

MOIC is part of the project responsible implementing their respective activities under component B (Enhancing agricultural competitiveness) such as establishing productive partnerships between Abs and FOs and Matching grants for agribusiness (Abs) and farmer groups (FGs) to leverage investments in on-farm infrastructure, post-harvest machines, drying facilities, storages, cool rooms, packaging facilities.

DAFO is taken a lead responsible role at district level to supervise E&S consultant and PMU to conduct screening process, review and endorse sub-project proposal, monitor compliance of sub-project proposal implementation.
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E&S consultant will work closely with PMU and focal point to provide support to farmers and project proponents to prepare sub-project proposal, conduct E&S screening and prepare appropriate safeguard instrument .E&S consultant will also supervise and monitor the implementation of the ESCOP and review an environmental and social monitoring report from PAFO and DAFO before submitting to the World Bank.

IX. CONCLUSION AND RECOMMENDATIONS

The potential social and environmental impacts associated with the proposed subproject are expected to be minor and insignificant, mostly temporary, site specific and manageable during both operation phases. Health safety of technicians and workers can mostly be minimized

through the ESCOP, which combines ESCOP (equivalent to site specific ESMP and Social Management Plan as well as mitigation measure proposed in this report, which should form part of the construction contractor contract. Key provisions of ESCOP will be include in bidding documents and contract to be complied with by the contractor and supervised by the field inspection engineer and E&S consultants to minimize and address such impacts anticipated from the subproject implementation.

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ANNEXES

Annex.1 Environmental and Social Code of Practice

Impacts during construction period	Mitigation measures

Unused spare parts, pipes, and other items from the old pontoon and electricity motor pumps	• These materials and items need to be safely stored in the approved area in consultation with communities and local authorities.
Safety Hazards to workers and risk of accidents during installation and operation of electric pumping system to workers and local people.	The contractor shall conduct the following: • Allocation of responsibility for site safety to the Contractor's site supervisors and staff, who will ensure that all reasonable safety measures, such as use of electricity leak detector, gloves, rubber boots, safety clothing and equipment will be used by workers and placing of adequate visible hazard warnings and instruction signs • Prepare and apply O&M manual of the electric pump and provide training on the O&M for the WUGs and committees, and local villagers • Electricity control box must be checked before installation a new set • before installation of electricity pump, electricity must be switched off and double check to ensure no electricity leakage, • limit working time from 7:30 am-17:00pm. • Technicians and workers working on pontoon are required to wear safety gear to avoid falling to the river. All safety gears must be provided to workers and wearing during working in pontoon • In case of emergency and severe incidents, the contract detail including mobile phone/WhatsApp numbers of site engineers and focal staff appointed from PADO/DAFO will be provided to the contractor, WUA and displayed in publicly accessible venues. The NPCO is required to report on any severe (fatal and severe injury) incidences to the Bank within 48 hours. • Pumps must be secured from falling during transport from the end of the road to the pontoon site. Workers must not be below the pump when it is to be transported downhill. • Pontoon is properly fixed and resilience during flood season.

Solid waste	• At all places of work, the Contractor shall provide litter bins, containers and reuse collection facilities. • Solid waste may be temporarily stored on site in a designated prior to collection and disposal. • Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. • No burning, on-site burying or dumping of solid waste shall be allowed. • Collect and properly dispose of small maintenance materials such as oily rags, oil filters, used oil, etc. Never dispose spent oils on the ground and/or water courses as it can contaminate to soil and groundwater. Safe disposal of spent by burning as a fuel. Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources for reuse, for use as fill, or for sale.
COVID-19 outbreak	• Observe the applicable national and WHO regulations and guidelines and the WBG COVID-19 Advisory note on Contingency Planning for existing operations dated March 16, 2020 and WBG Safeguard Interim Note on COVID-19 Considerations in Construction/Civil Works Projects, April, 2020 • Please refer to Annex 2: COVID-19 Rapid Assessment Form and Annex 3: Template of Contingency Plan for Response to COVID-19
Impacts during operation period	**Mitigation measures**
Effects of intensified agricultural production	• instruction on purchase and use of pesticides (year??) to be applied and monitored, • promotion of the informed use of mineral fertilizers, • promotion of the concept of integrated pest management, and • emphatic discouragement of the use of persistent pesticides and introduce IPM instead.
Extraction of water during the dry season	• Monitoring of river flows and extraction levels, ensuring that an adequate riparian flow is maintained.
Leaching of nutrients	• Promotion of sustainable irrigated agriculture and soil management methods
Potential competition and conflict over water from the improved irrigation scheme	• Prepare O&M manual/guideline covering water management and water use regulations • Provide training and support to the Water Users and Water User Association on the O&M and water use/management regulations • Include residents with no access to the irrigation scheme in other economic activities of the project • Include representatives of downstream water users in the Water User Groups/Association for joint decision making and management of the irrigation scheme, and • where necessary and feasible, construct high-drums to supply downstream residents with water for micro-irrigation systems and domestic use.

Annex 2: Contingency Plan for Response to COVID-19

1. In a situation when there is a spread of COVID-19, contractor has to apply or comply with the government guidelines launched in line with WHO. Additional suggestions which are adapted from WBG Response to COVID-19 Advisory note on Contingency Planning for Existing Operations dated March 16, 2020, and WBG Safeguard Interim Note on COVID-19 Considerations in Construction/Civil Works Projects, April, 2020.
2. It is worth noting that the WBG Response to COVID-19 Advisory note and Interim Note may be updated from time to time. Where there is a conflict with government or WHO guideline, the government or WHO guideline prevail.

(a) Preparing for Covid-19

- Contractor's senior manager or project manager should inform PCO and/or PAFO details of the preparations being made on site. PCO and/or PAFO will, as necessary assist the projects with these preparations. The senior manager should be taking the advice of their healthcare team and their health and safety specialists in preparing the site, although the PCO, and/or PAFO may also need to assist, for example with coordinating responses and/or connecting project sites with national/local healthcare official and/or specialists.
- Contractor should put in place measures to minimize the chances and contain the spread of the virus as a result of the movement of workers, ensure their sites are prepared for an outbreak, and develop and practice contingency plans so that personnel know what to do if an outbreak occurs and how treatment will be provided. These preparation measures should be communicated not only to the workforce but also the local community, to reassure them that the movement of staff is controlled, and to ensure that stigma or discrimination is reduced in the event of an outbreak.

(b) Movement of Staff

- Movement of staff can increase the risk of transmission of Covid-19 to a work site and the local community. Overseas, international and transient workers should adhere to government requirements and guidelines with respect to Covid-19 when travelling to or from worksites.
- Workers coming from or passing through countries/regions with cases of the virus[1] (a) Should not return if displaying symptoms and (b) Should self-isolate for 14 days following their return.

Self-Isolation arrangements: For self-isolation, the following actions should be considered (as appropriate):

- Workers should be provided with a single room that is well-ventilated (i.e., with open windows and an open door). If a single room is not available for each worker, adequate space should be provided to maintain a distance of at least 2meters and a curtain to separate workers sharing a room. Men and women should not share a room. A dedicated bathroom should be provided for the isolation facilities and there should be separate bathroom facilities for men and women.
- Workers in isolation should limit their movements in areas which are also used by unaffected workers shared areas), and should avoid using these areas when unaffected workers are present. Where workers in isolation need to use shared spaces (such as kitchens/canteens), arrangements should be made for cleaning prior to and after their use of the facilities. The number of staff involved in caring for those in isolation, including providing food and water, should be kept to a minimum and appropriate Personal Protection Equipment (PPE) should be used by those staff.
- At a minimum, isolation areas should be cleaned daily and healthcare professionals should visit workers in the isolation areas daily. Cleaners and healthcare professionals should wear

[1] WHO also updates information on countries reporting Covid-19 infection

appropriate PPE and ensure good hygiene when visiting workers in isolation. Further information is provided by WHO in *Home care for patients with suspected novel coronavirus (COVID-19)*

- Visitors should not be allowed until the worker has shown no signs and symptoms for 14 days.

(c) Preparing for an Outbreak

3. Medical staff at the facilities or medical service personal for the facilities should be trained and be kept up to date on Country and WHO advice (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance) and recommendations on Covid-19. They should take stock of the equipment and medicines that are present on site and ensure that there are good supplies of any necessary treatments, including paracetamol/acetaminophen and other medicine in line with country and WHO guideline.
4. The following measures should be considered (as appropriate):

- Ensure medical facilities or camp site are stocked with adequate supplies of medical Personal Protective Equipment (PPE), as a minimum: (a) Gowns, aprons; (b) Medical masks and some respirators (N95 or FFP2); (c) Gloves; and (d) Eye protection (goggles or face screens).
- Cleaners also need to be provided with PPE and disinfectant. Minimum PPE to be used when cleaning areas that have been or suspected to have been contaminated with Covid-19 are: (a) Gowns, aprons; (b) Medical masks; (c) Gloves; (d) Eye protection (goggles or face screens); and (e) Boots or closed work shoes. Cleaners should be trained in how to safely put on and use PPE by medical staff, in necessary hygiene (including hand washing) prior to, during and post cleaning duties, and in waste control (including for used PPE and cleaning materials).
- The medical staff should run awareness campaigns, training and arrange for appropriate posters, signs and advisory notices to be posted on site to advise workers on how to minimize the spread of the disease, including: (a) to self-isolate if they feel ill or think they may have had contact with the virus, and to alert medical staff; (b) to regularly wash hands thoroughly with soap and water – many times per day; (c) how to avoid disease spread when coughing/sneezing (cough sneeze in crook of elbow or in a tissue that is immediately thrown away), and not to spit; and (d) to keep at least 2meters or more away from colleagues.
- Hand washing stations should be set up at key places throughout site, including at entrances/exits to work areas, wherever there is a toilet, canteen/food and drinking water, or sleeping accommodation, at waste stations, at stores and at communal facilities. Each should have a supply of clean water, liquid soap and paper towels (for hand drying), with a closed waste bin (for used paper towels) that is regularly emptied and disposed off following government guideline.
- Where wash stations cannot be provided (for example at remote locations), alcohol-based hand rub should be provided.
- Enhanced cleaning arrangements should be put in place, to include regular and deep cleaning using disinfectant of catering facilities/canteens/food/drink facilities, latrines/toilets/showers, communal areas, including door handles, floors and all surfaces that are touched regularly. Worker accommodation will be in good state for keeping clean and hygienic, and for cleaning to minimize spread of infection.
- Working methods should be reviewed and changed as necessary to reduce use of PPE, in case supplies of PPE become scarce or hard to obtain. For example, water sprinkling systems at crushers and stock piles should be in good working order, trucks covered, water

suppression on site increased and speed limits on haul roads lowered to reduce the need for respiratory (N95) dust masks.

(d) Contingency Planning for an Outbreak

5. The contingency plan to be developed by contractor should set out what procedures will be put in place in the event of Covid-19 reaching the site and it should be developed in consultation with national and local healthcare facilities and PCO or PAFO, to ensure that arrangements are in place for the effective containment, care and treatment of workers who have contracted Covid-19.

6. The contingency plan should also consider the response if a significant number of the workforce become ill, when it is likely that access to and from a site will be restricted to avoid spread. The following measures should be considered, as appropriate:

   - Contingencies should be developed and communicated to the workforce for: (a) Isolation and testing procedures for workers (and those they have been in contact with) that display symptoms; (b) Care and treatment of workers, including where and how this will be provided; and (c) Getting adequate supplies of water, food, medical supplies and cleaning equipment in the event of an outbreak on site, especially should access to the site become restricted or movements of supplies limited. The contingency plan shall be align with the government guideline.

   - Specifically, the plan should set out what will be done if someone is suspected to become ill with Covid-19 at a worksite. The plan should: (a) Set out arrangements for putting the person in a room or area where they are isolated from others in the workplace, limiting the number of people who have contact with the person and contacting the local health authorities; (b) Consider how to identify persons who may be at risk (e.g. due to a pre-existing condition such as diabetes, heart and lung disease, or as a result of older age), and support them, without inviting stigma and discrimination into your workplace; and (c) Consider contingency and business continuity arrangements if there is an outbreak in neighboring communities.

   - Arrangements for the storage and disposal arrangements for medical waste, which may increase in volume and which can remain infectious for several days (depending upon the material). The support that site medical staff may need, as well as arrangements for transporting (without risk of cross infection) sick workers to intensive care facilities or into the care of national healthcare facilities should be discussed and agreed.

   - How to maintain worker and community safety on site should works be suspended or illness affect significant numbers of the workforce at any point. It is important that worksite safety measures are reviewed by a safety specialist and implemented prior to work areas being suspended.

(e) Communicating the plans

7. In order to reduce the risk of social stigma[2] or discrimination, and to ensure that individuals roles and responsibilities are clear, the preparation measures and contingency plans should be communicated widely. Workers, sub-contractors, suppliers, adjacent communities, and local healthcare authorities should all be made aware of the preparations that have been made.

When communicating to the workforce, their roles and responsibilities should be outlined clearly, and the importance for their colleagues, the local communities and their families that the workers follow the plans should be stressed. Workers may need to be reassured that they there will be no retaliation or discrimination if they self-isolate as a result of feeling ill, and also with respect to the compensation or

[2] Social stigma in the context of health is the negative association between a person or group of people who share certain characteristics and a specific disease.

insurance arrangements that are in place. Further guidance on preventing social stigma as a result of Covid-19 is available in WHO guidelines