

Initial Environmental Examination

January 2016

LAO: Greater Mekong Subregion Biodiversity Conservation Corridors Project

Prepared by Department Of Forest Resource Management. Ministry Of Natural Resources And Environment (MONRE) for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 31 January 2016)

| | | |
|---------------|---|---------------|
| Currency unit | – | Lao Kip (LAK) |
| LAK1.00 | = | \$0.0059 |
| \$1.00 | = | LAK8,150.00 |

ABBREVIATIONS

| | | |
|------|----|--|
| DAFO | – | district agriculture and forestry office |
| EMP | -- | Environmental Management Plan |
| IC | -- | infrastructure consultant |
| IEE | -- | Initial Environmental Examination |
| NPA | – | national protected areas |

NOTE

In this report, "\$" refers to US dollars, unless otherwise stated

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Appendix 1
Ban Panone Water Supply Improvements
(and Sanitation)
Initial Environmental Examination (IEE)
And Environmental Screening Checklist

ENVIRONMENTAL IMPACTS SCREENING CHECKLIST

Sub-Project No: 24
Sub-Project Name: Village water supply (Gravity Fed System)
Province : Sekong
District : Kaluem
Village : Panone

Background Explanation: The Small-scale infrastructure component of the GMS Biodiversity Conservation Corridor Project focuses on community participation in the identification, design and implementation with an inclusive strategy of making the infrastructure improvements implemented more environmentally friendly as well as being closely matched to the needs of the community. The following types of sub-projects are planned for:

- roads (access and internal village roads)
- village water supply
- buildings which can include school, health clinics, market place, village meeting hall, school building / teachers' house, and patrolling house
- irrigation and irrigation repairs
- sanitation
- bridge or ford
- paddy field and bund development

Environmental assessment helps planners to think constructively about ways of protecting and improving the environment. The first step in the environmental assessment process determines the scope and level of analysis for the rest of the assessment and is called scoping and is important to ensure the important issues receive appropriate attention, and provides data for sub-project evaluation and design.

Using the following checklists, the survey and data collection teams will identify and collect the information required to allow the environmental impacts to be fully assessed as the sub-project design proceeds.

Description of the Environment:

Panone village comprise of 1 cluster with a total population of 146 of which 70 is female and a total of 12 households. It shares a border with Tavang village to the north, with Ayun to the south (Dak Cheung district), with Abuin village to the East and with Boving and Patang to the west. Panone village is one of targeted village of GMS Biodiversity Conservation Corridor project under output-3 small scale infrastructure. Pre-survey discussion with villagers and the local authority found that the distance between a proposed headwork location and public tap stand is 1,200 meters and the elevation of the headwork is 1,300 meter above sea level. The topography of the proposed location is sloppy with soils of clay soil and rocky compounds. Annual precipitation of 1,200 mm on average, climate and weather is cool during December, average temperature is 19°C. The water source for this project is a stream which has sustained flows during the dry season. The vicinity of proposed headwork site covered by forest and is unpolluted and far away from the disturbance of people and animals, and therefore a suitable for the intake of the gravity fed system.

Potential Environmental Impact:

Based on the feasibility study pre-survey and consultation meeting with the community the potential environmental impacts have been assessed as minor and capable of being mitigated by a simple environmental management planning (EMP) for managing any potential environmental impacts related to the project location, land clearance at

the intake, the main pipe alignment and installation leading to the village and the water point and water tap within the community. Potential environmental impacts relate to the design such as material selection, timber, sand and gravel sourced locally. However in the scale of the proposed works these are minor issues and can be mitigated through the Environmental Management Plan (EPM).

Mitigation Measures:

In order to avoid the potential environmental impacts related to project location, the detailed design will select a suitable and appropriated location for the intake with assessment of soil and watercourse stability. HDPE pipe has been selected to allow installation in a shallow trench and sufficient flexibility for laying the pipe around vegetation and trees. A hardstand with drainage will be provided to limit any problems of standing water or pugging of the soil around the water point.

1. Check List for Identification of likely Environmental Impacts

| Potential Environmental Effects (Likely impacts if any, on) | What the Effect is Likely to Be | Is it Significant (Y/N) |
|---|---|-------------------------|
| Environmental Considerations Due to Sub-project Location | | |
| Residential, agricultural and common property land. | | N |
| Effects on vegetation. | | Minor |
| Effects on wildlife. | | N |
| Effects on fisheries. | | N |
| Effects on cultural property or artifacts. | | N |
| Influence on current land uses. | | N |
| Influence on economic activities. | | N |
| Relation to other plans (national or local development, environmental, conservation plans etc.) | Note; Sub-project cannot conflict with, or be provided for in other development plans. If this conflict exists move to the sub-project which is the next village priority. There is no conflict with other plans or projects | |
| Land tenure problems or land use conflicts. | Note: If land tenure or land use problems are identified the subproject cannot be accepted. Proceed as above. There are no land tenure or land use conflicts. | |
| Ethnic minorities. | | N |
| Environmental Considerations for Sub-project Design Response | | |
| Choice of materials for construction and their sources (e.g. timber products). | | N |
| Quarries and borrow pits for laterite and fill materials. | | N |
| Land drainage and drainage facilities. | | N |
| Land formation, construction of bunds and flood overflows and relief. | | N |
| Land stability. | Minor land clearance | Minor |
| Sanitation, receiving environment, separation from households, wells and natural water bodies. | | N |

| Environmental Considerations Related to Construction Stage | | |
|--|---|-------|
| Construction of civil works, pavements and structures. | | N |
| Quarrying and borrow pit operation and remedial works. | | N |
| Bricks and brick making for building construction – source of materials and fuel for brick making. | | N |
| Likely use natural timber poles for scaffolding and the source of the poles. | Use timber as a formwork and supporting, framework using local material | Minor |
| Safety Issues. | | N |
| Depots and construction camps. | | N |
| Noise and noise control. | | N |
| Dust nuisance. | | N |
| Runoff and erosion. | | N |
| Spillage of oils and fuels, etc. | | N |
| Environmental Considerations Related to Sub-project Operations | | |
| Safety Issues. | | N |
| Effects of drainage structures. | | N |
| Maintenance Issues. | | N |
| Potential Environmental Benefits | | |
| Improved access for agricultural materials (roads and access.) | | N |
| Improved and more efficient movement of crops to secure storage of markets (roads and access). | | N |
| Improved cross drainage for irrigation, entrance to cropped areas (roads and access). | | N |
| Improved access to health services, education and social services (roads, access, health clinics, school buildings and teacher's housing). | | N |
| Improved rural incomes and economy and lifestyles (market places). | | N |
| Improved water supplies and community health and wellbeing. | | Y |
| Improved sanitation practices and community health and hygiene. | | Y |
| Introduction of improved low cost sanitation measures. | | N |

| | | |
|--|--|---|
| Improved community health and wellbeing (health clinics). | | N |
| Improved education (school buildings and teacher's houses). | | N |
| Improved food supply (less deficiency) (irrigation rehabilitation and improvements. Paddy field and bund formation). | | N |
| Improved management of NPAs and natural and forest resources (patrolling houses). | | N |
| Improved village cohesion and management / communication of village affairs (village meeting halls). | | N |
| Other – (nominate). | | |

1. Environmental Management Plan (EMP)

The following Environmental Management Plan (EMP) has been developed from the environmental screening of the Panone gravity water supply small-scale infrastructure subproject. The EMP addresses the potential environmental impacts identified in the above checklist of potential environmental impacts.

| Potential Environmental Problem Areas | Potential Environmental Problems | Possible Mitigation Measures | Responsibility for Implementation |
|--|--|---|--|
| Location | | | |
| Residential, agricultural and common property land. | Installation of pipelines in village roads and along common land. Placement of reservoir and tap stands on common village land. | Consultation with village authority and community. | Infrastructure consultant (IC) with district officers and village authority. |
| Influence on economic activity. | Effects on businesses if affected by construction activities. | Cover in specifications for construction. Consult affected businesses and the planning and organization of construction activities to minimize the impacts. | IC with district officers. |
| Design | | | |
| Nuisance from noise and dust. Use of local materials. | Limiting noise from construction and dust generated by construction activities Using materials sourced from approved local sources. | Cover in specifications for construction Limit working hours and not allowing work at night time. Allowing use only of approved local resources from an approved supplier or source. Spray water on stockpiles and | IC consultant with district officers. |

| | | | |
|--|---|---|--|
| | | exposed soils to layer dust. Timber products for formwork and construction to be sourced from approved (DAFO) suppliers. | |
| Land and site stability, erosion, and inundation. | Unstable land as a result of the subproject design. Unmanaged overland storm flows and erosion. Flooding of site and/or adjacent land as a consequence of the subproject design and implementation. | Provision of adequately designed drainage. Low-cost bio-engineering works to ensure land stability and control erosion and sediment. Design and provision of drainage channels and outlets to prevent/ relieve potential flooding. | IC Consultant with district officers and village authority. |
| Construction | | | |
| Construction of civil works, pavement and building structures. | Noise and vibration nuisance. | Limit working hours and not allowing work at night time. Planning of operations so that people are less disturbed. Avoidance of noisy operations during night times and near important wildlife. | Contractor. IC works inspector. |
| | Dust nuisance and health risk. | Wetting of surfaces during the dry season. | Contractor. IC works inspector. |
| | Spillage of oils and fuels, from equipment or workshop. | Cover in specification. Store in banded and covered area. Check and repair oil, fuel and hydraulic fluid leakages for equipment. Prevent flow to water courses. Have absorbent material (sand or sawdust) available to absorb spillages for safe removal. | Contractor. IC works inspector. |
| | Damage to vegetation | Cover in specifications. Avoid damage to tree roots Use flexibility of HDPE pipe to lay around trees and vegetation. | Contractor IC work's inspector with district officers and village authority. IC Environmental specialist during routine inspection |
| Safety Issues | Dangers to workers and local people. | Contractor's Safety Plan. Safety provisions in contract. Issuance of safety apparel. | Contractor. IC works inspector. |
| Depots and Construction camps | Nuisance to local people. Spread of infectious diseases from construction workers to local people. | Provisions for high standard of management in Construction camp and at all depots or temporary parking or storage sites. | Contractor. IC works inspector. |

| | | | |
|---|---|--|---|
| | | Dumping, stockpiling and spreading of road construction materials in safe locations. | |
| Operation | | | |
| Environmental and natural resource considerations | Avoid damage to vegetation | Maintain system without impacts to vegetation | District officers and village authority |
| Maintenance Issues | Conflict among users Lacking budget for maintenance. | Provision for maintenance and repair as necessary. Set up water use group and establish regulations | District officer and village authority |

2. Environmental Monitoring Plan

| Impacts to be Monitored | Parameters | Location | Measurements | Frequency | Responsibilities |
|---|---|---|---|---------------------------------|--|
| Construction Phase | | | | | |
| Implementation of construction mitigation measures detailed in the EMP. | Noise & vibration nuisance. | Works site. | Reasonableness and hours of work | Ongoing throughout work period. | IC works inspector. |
| | Dust nuisance and health risk. | Works site and exposed areas of excavation. | Dust layers by wetting or other approved measures. | Ongoing throughout work period. | IC works inspector. |
| | Spillage of oils and fuels, from equipment or workshop. | Equipment storage area and workshop. | No spillage and all materials stored as specified. Accidental spillage blinded and cleanup for safe disposal immediately. All equipment maintained and operating without leaks. | Ongoing throughout work period. | IC work's inspector. IC environmental specialist during frequent inspection of works. |
| | Dangers to workers and local people. | Works site. | Warning signs in place. Excavations adequately barricaded. | Ongoing throughout work period. | IC works inspector. |

| Impacts to be Monitored | Parameters | Location | Measurements | Frequency | Responsibilities |
|-------------------------|--|------------------------------------|--|---|--|
| | Depots and construction camps - Nuisance to local people. Spread of infectious diseases from construction workers to local people. | Works Depots and construct'n camp. | Workers briefed on risks of HIV AIDS and related responsibilities. Depots and camps maintained in a clean and hygienic state. Refuse and organic wastes collected in hygienic manner and removed regularly and disposed of in approved manner. | Ongoing throughout construction period. Construction camps dismantled and area cleaned and reinstated following works completion. | IC works inspector. District officers and village authority. IC environmental specialist in regular works site visits. |
| Complaints | | | | | IC work's inspector IC environmental specialist |

3. Reporting of Environmental Monitoring Results

The IC's national Environment Specialist will report on the environmental safeguards on a three monthly basis. The reporting of EMP and monitoring results shall cover the information and the progress and results of mitigation (monitoring reports and feedback from the IC works inspector, district staff and the village authority). Issues identified will be included in the supervision report together with the steps being taken for full mitigation of the identified issues. The environmental and monitoring report formats are provided herewith.

Table A8-2-2b: Summary of Compliance with Environmental Mitigation Measures

| <i>Specific Mitigation Measures)</i> | <i>Compliance Attained (Yes, No, Partial)</i> | <i>Comment on Reasons for Non-Compliance</i> | <i>Issues for Further Action</i> |
|--------------------------------------|---|--|----------------------------------|
| 1. | | | |
| 2. | | | |
| 3. | | | |

Table A8-2-2c: Issues for Further Action

| <i>Issue</i> | <i>Cause</i> | <i>Required Action</i> | <i>Responsibility</i> | <i>Timing</i> | <i>Resolution</i> |
|----------------------------------|--------------|------------------------|-----------------------|---------------|-------------------|
| Old Issues from Previous Reports | | | | | |
| 1. | | | | | |
| 2. | | | | | |
| New Issues from this Report | | | | | |
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| <i>Report prepared by:</i> | | | | | |

Complaints (if applicable) will be reported as follows

- a. Provide details of any complaints that have been raised by the local population and other stakeholders (who, what, where, when).
- b. Document how the complaints were addressed or will be addressed, who are the responsible project staff, specific actions and dates.

Compliance with EMP

- a. Determine if the required mitigation measures are sufficient or still appropriate considering current site conditions and on-going site works.
- b. Describe any difficulties related to the implementation of the proposed mitigation measures. Indicate any changes proposed by the contractor to improve environmental protection.