

ANNEX: 2

Environmental Code of Practice (ECOP)

The Environmental Code of Practice is developed for project activities such as the construction and rehabilitation of water supply and sanitation facilities. The ECOPs aim to ensure compliance with the national laws and World Bank OP 4.01 environmental safeguard policy and provincial guidance to good engineering and housekeeping practices. It sets out standard practices and procedures for managing the potential negative impacts on local environment and rural communities of all civil works to be carried out.

1 GENERAL PRINCIPLES AND PLANNING

1.1 PREPARATION OF THE INITIAL ENVIRONMENTAL EXAMINATION (IEE)

In the preparation of the IEE, relevant primary and secondary data will be gathered that includes surface water flows during the wet and dry season, water quality, upstream and downstream catchment characteristics, among others. The assessment will include analysis of potential impacts of water abstraction on water reliability for downstream users. An assessment of project impacts and risks on biodiversity and natural resources will also be undertaken for subprojects and components located near or within critical habitats or legally protected areas. Issues regarding natural and critical habitats will be covered in the IEE report. Pollution prevention for conservation of resources particularly technology for management of process wastes will be addressed in the IEE report.

1.2 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

A Project Environmental Management Plan (EMP) will be prepared for each Sub project (Village Cluster). The EMP will identify the major construction activities. Project EMPs will also identify the mitigation measure/best practice for each environmental impact. This is to include any mitigation required as a condition of the IEE. The project EMP will set out how the contractor intends to manage construction and will set out specific control measures necessary to deliver the requirements of this ECOP and any other mitigation measures that have been committed to by the project owner that relate specifically to the construction phase of the project.

Occupational health safety and community health safety will be properly addressed in the EMP section of the IEE report. Climate change and natural hazard impacts on the project (especially in the design of components/activities) shall be considered and integrated. The document will also reflect meaningful consultation and disclosure processes with a provision of grievance redress mechanisms.

1.3 CONTRACTOR RESPONSIBILITY

The contractor is responsible for making best effort to reduce and mitigate the potential negative impact on local environment and local residents including making payment for all damages that may occur. Performance of the Contractor will be closely supervised and monitored by the Construction

Supervision Consultant (CSC) and/or qualified field engineer as well as periodic monitored by a qualified consultant to be assigned by the Department of Water Supply (DWS). Results of the ECOP compliance monitoring will be included as part of the subproject progress report. Compliance with ECOP will be required throughout the construction period.

1.4 NON-COMPLIANCE REPORTING PROCEDURES

The contractor must comply with the final ECOP. To ensure that necessary action has been undertaken and that steps to avoid adverse impacts and/or reoccurrence have been implemented. The CSC, DWS and/or contractor must advise the Project Steering Committee (PSC) within 24 hours of any serious incidents of non-compliance with the final ECOP that may have serious consequence. The contractor must keep records of any incidents and any ameliorative action taken. The records on non-compliance that could be practically addressed (not cause serious impacts) will be reported to the PSC on monthly basis.

1.5 COMMUNITY RELATIONS

The contractor shall be ensured that local residents nearby the construction sites will be informed in advance of works taking place, including the estimated duration. In the case of work required in response to emergency, local residents shall be advised as soon as reasonably practicable that emergency work is taking place.

The contractor shall be managed the work sites, work camps and worker in a way that is acceptable to local resident and will not create any social impact due to workers. Any construction worker, office staff, contractor's employees, or any other person related to the Project found violating the "prohibition" activities listed in section 1.1.8 below may be subject to disciplinary action that can range from a simple reprimand to termination of his/her employment depending on the seriousness of the violation.

1.6 IMPLEMENTATION OF THE ENVIRONMENTAL HEALTH AND SAFETY (EHS) GUIDELINE

In line with World Bank (WB) safeguard policy, the Contractor is required to comply with Environmental Health and Safety Guideline (EHSG) established for the project investment with financial support from the WB group (WBG). The EHSG provides general guidance on the pollution prevention and abatement measures and workplace and community health and safety guidelines that are normally acceptable in Bank-supported project, particularly in case where the borrowing country does not have standards, or when its standards fall significantly short of international or industry-wide norms. The EHSG are divided in two parts: general guidelines on health and safety and pollution prevention and abatement, including general standards for air and water quality, and a set of sector-specific guideline for various types of development projects. For the Project, the contractor will prepare an EHS plan with an aim to identify the potential impacts and develop a mechanism for the environmental health and safety of project activities during the construction. The EHS Plan will be incorporated into the Contractor's own Standard Operating Procedures (SOPs). At a minimum the following EHS rule will be strictly followed:

Site EHS Rules:

- EHS orientation session before starting work;

- Wearing of personal protective equipment (gloves, helmets, safety shoes, dungarees, goggles, etc);
- Follow the message and instruction displayed on EHS notice boards installed on site;
- Promptly reporting all accidents to the concerned authority;
- Maintain appropriate barricades as required;
- Vehicles must be driven at a safe speed, observing speed limits of 30km/h and designated routes as mentioned in Contractor’s Mobility Map;
- Drivers must have a valid driving license for the class of vehicle they are operating;
- Vehicles shall only be parked in designated parking area; and
- Mine clearance of the project investment area.

Health and Hygiene:

- Provision of adequate medical facilities to the staff;
- Provision of cooling and heating facilities to the staff; and
- Provision of drainage, sewerage and septic tanks in camp area.

Security:

- Regular attendance and a controlled time keeping of all employees;
- Restriction of un-authorized persons to the residential and work areas;
- Restriction of carrying weapons and control hunting by employees; and
- Provision of boundary walls/fence with proper exits to the camp.

1.7 IMPLEMENTATION OF “CHANCE FIND” PROCEDURES.

If the contractor discovers archeological sites, historical site, remains and objects, including graveyards, and/or individual graves during excavation or construction, the Contractor will carry out the following steps:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the National Culture Administration take over;
- Notify the project engineer, supervisor (CSC), and/or PSC who in turn will notify the responsible local authorities and the provincial Culture Department immediately (within 24 hours or less);
- Responsible local authorities and the provincial Culture Department would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists of National Culture Administration. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values.
- Decisions on how to handle the finding shall be taken by the responsible authorities and the provincial Culture Department. This could include changes in the layout (such as when finding an

irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;

- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and
- Construction work could resume only after permission is given from the responsible local authorities or the provincial Culture Department concerning safeguard of the heritage.

1.8 PROHIBITIONS

The following activities are prohibited on or near the subproject sites:

- Cutting of trees for any reason outside the approved construction area;
- Hunting, fishing, wildlife capture, or plant collection.
- Buying of wild animals for food;
- Having caged wild animals (especially birds) in camps;
- Poaching of any description;
- Explosive and chemical fishing;
- Disturbance to any thing with architectural or historical values;
- Building of fires;
- Use of unapproved toxic materials, including lead-based paints, asbestos, etc.; Use of firearms (except authorized security guards);
- Use of alcohol by workers in office hours;
- Driving in an unsafe manner in local roads;
- Washing cars or machinery in streams or creeks;
- Maintenance (change of oils and filters) of cars and equipment outside authorized areas;
- Creating nuisances and disturbances in or near communities;
- Disposing garbage in unauthorized places;
- Indiscriminate disposal of rubbish or construction wastes; Littering the site;
- Spillage of potential pollutants, such as petroleum products;
- Collection of firewood;
- Urinating or defecating outside the designated facilities; and
- Burning of wastes and/or cleared vegetation.

2 GENERAL SITE OPERATION

2.1 OBJECTIVE

The works will be carried out in such a way as to limit, as far as reasonable practicable, the adverse environmental impact of the construction activities.

2.2 SITE SPECIFIC REQUIREMENT

The contractor will be responsible to comply with, but not limited to the following:

- The contractor shall be installed the Work Camp on area far enough from water points, house and sensitive area in consultation with the community. Good quality sanitary equipment should be installed in the Work Camp.
- The contractor shall be managed all activities in compliance with laws, rules and other permits related to site construction regulations and will protect public properties. Degradation and demolition of private properties will be avoided. Paying compensation to damage to the public facilities and/or private property will be required.
- The contractor is responsible for protection of local environment against dust, air, noise, vibration, exhaust fuels and oils and other solid residues generated from the work site. The contractor shall be managed waste properly and do not burn them on site and will also provide proper storage for construction materials, organize parking and displacement of the machines in the site. Used oil and construction waste materials mu be appropriately disposed and adequate waste disposal and sanitation services will be provided at the construction site next to the generated area. In order to protect soil, surface and ground water the Contractor must be avoid any wastewater discharge, oil spill and discharge of any type of pollutants on soils, in surface or ground water, in sewers and drainage ditches.
- The contractor shall be responsible for maintaining good hygiene, safety, and security of the work sites, including protection of health and safety of staff and workers. The contractor will prevent standing water in open construction pits to avoid potential contamination of the water table and the development of a habitat for disease-carrying vector and insects.
- The contractor shall be prohibited for quarrying material directly from the River. The contractors shall be procured construction materials from government-permitted source/suppliers only.
- During construction, the contractor must be take serious action to control dust by using water or through other means and the construction site will be cleaned on a daily basis.
- The Contractor will work with local authority and management local traffic effectively and ensure traffic access of road safety of local residents and road users during the works. Speed limit at work sites and community area will be applied to all vehicles and cars. All vehicles and their drivers must be identified and registered and the drivers are properly trained.
- Install barriers and safety warning signs on road sections and if necessary deploy traffic aides/ flag persons at affected locations. Information boards at blocked roads will provide information about the temporary closure of roads, schedule of works and the traffic-rerouting plan.
- The contractor should install signaling of work, ensure no blockage of access to households during construction and/or provide alternative access.
- The contractor must be immediately rehabilitate the excavated areas and any damaged road and path sections;

2.3HOUSEKEEPING

The Contractor will follow a ‘good housekeeping’ policy at all times. This will include, but not necessarily be limited to the following:

- Ensure considerate site behavior of the Contractor’s staff;
- Open fires will be prohibited at all times;

- Ensure that appropriate provisions for dust control and road cleanliness are implemented;
- All site areas will be kept in clean and tidy condition, rubbish and food waste will be removed frequently;
- Wheel washing facilities will be brushed or sprayed clean frequently;
- Storage sites, fixed plant and machinery, equipment and temporary buildings will be located to limit adverse environmental effects
- Frequently inspect, repair and re-paint as necessary all site hoardings to comply with the local conditions and local regulations, all flying post/board is to be removed as soon as reasonably practicable and within 24 hours of notice;
- Adequate toilet facilities will be provided for all site staff;

2.4 WORKING HOURS

Core working hours will be from 08:00 to 16:00 on weekdays and 0800 to 1300 on weekend. Individual site requirements which differ from the above will be considered on a site by site basis. Noisy operations shall not take place outside these hours without prior approval from delegated agencies and local authorities.

In the case of work required in response to tan emergency (or which if not completed would be damaging and unsafe), the relevant local authority will be advised as soon as is reasonably practicable of the reasons for and likely duration of such works.

3 WORKS MANAGEMENT

3.1 ENVIRONMENTAL CODES OF PRACTICE APPLICABLE TO CONSTRUCTION AND REHABILITATION OF WATER SUPPLY

ENVIRONMENTAL IMPACT	MITIGATION MEASURES
Impact on land acquisition and community assets	<ul style="list-style-type: none"> • Develop and implementation the land acquisition and compensation plan. • Provide the compensation for the loss of community assets due to land acquisition and damage to properties based on the land acquisition and compensation. • Design access roads to minimum necessary width and installation of pipelines within the Right-of-Way when feasible.
Impact of location of raw water intake on other water users	<ul style="list-style-type: none"> • Shall be selected the raw water resource that substantial flow year-round to ensure sufficient water for water supply and other water uses. • The abstraction rate for the water supply system shall be limited to the designed capacity of the WTP. •
Impact to Natural resources and protected areas	<ul style="list-style-type: none"> • Cutting of trees will be undertaken as per approved design and only upon approval. • Avoid cutting of trees much as possible and minimize damage to native

	<p>vegetation.</p> <ul style="list-style-type: none"> • Trees that need to be cut in private land will be compensated in cash in accordance with the approved Land Acquisition and Compensation Plan
Impact on Historical and Archaeological Sites	<ul style="list-style-type: none"> • The Contractor will ensure that the workforce are briefed on the implementation of “Chance find” Procedure. As state in section 5 above in the event of accidental finds any historical, archaeological site and/or relics they should immediately cease any works in the area and promptly report the find to their supervisor.
Temporary disruption of existing community roads, pathways, and accesses	<ul style="list-style-type: none"> • Walking access will be maintained to affected properties and access routes will be temporarily lined with timber or similar material. Particular attention will be given to ensuring safety along roads and paths used by pedestrians. • Side street parking of construction vehicles on prolonged basis will not be allowed. • Install barriers and safety warning signs on road sections and if necessary deploy traffic aides/ flag persons at affected locations. Information boards at blocked roads will provide information about the temporary closure of roads, schedule of works and the traffic-rerouting plan. • Require the contractor to immediately rehabilitate the excavated areas and any damaged road and path sections. • Enclose the WTP, reservoir, and intake perimeters so that pathway use and stream access remains unimpeded.
Air pollution	<ul style="list-style-type: none"> • Require the contractor to cover materials with tarpaulin or other suitable materials while in transit to avoid spillage of materials. • Moisten earthen roads during dry and dusty conditions, particularly roads near residences and through the town core area. • Impose speed limits on construction vehicles. • Conduct regular maintenance on construction equipment and vehicles to control air emissions during vehicle operation. • Do not burn site clearance debris (trees, undergrowth) or construction waste material. • Keep stockpile of aggregate material covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals
Noise	<ul style="list-style-type: none"> • Limit construction activities, particularly operation of noise generating equipment at night. • Position any stationary equipment that produce high noise levels such as diesel generators as far as practical from sensitive receptors. • Erect temporary barriers around construction sites especially near schools, hospitals, and houses. • Install noise suppression devices to noise generating equipment. • Require drivers to minimize blowing of horn and to comply with speed limits. • Provide information to community on schedule of construction activities through billboard/signs.

Impact of borrow materials	<ul style="list-style-type: none"> • The contractor will be prohibited from quarrying materials directly from the River. • Shall be procured construction materials from Government-permitted sources/ suppliers only.
Impact on ecological resources	The contractors will prohibit activities such as collection of firewood for cooking, hunting, or wildlife trade.
Clearing of vegetation	<ul style="list-style-type: none"> • Cutting of trees will be undertaken as per approved design and only upon approval of relevant authorities. • Avoid cutting of trees as much as possible and minimize damage to native vegetation. • Trees that need to be cut in private land will be compensated in cash accordance with the approved Land Acquisition and Compensation Plan. • Roads and paths to the intake, WTP, and reservoir will only be sufficiently wide to accommodate construction vehicles/ equipment to minimize land take. • Manual labour will be utilized in sloping terrain where use of heavy equipment would cause unnecessary damage. Steep exposed slopes will be graded and covered with bush and grass to minimize erosion. • Implement landscaping and planting of trees/vegetation at sites of the proposed facilities.
Water pollution - Sediment runoff	Construct silt traps, deviation channels, mounting barriers or trenches around the stockpiles of materials.
Water Pollution - Worker's camp	<ul style="list-style-type: none"> • Provide adequate water supply and temporary toilet facilities (septic tank and latrines) at the worker's camp. • Ensure that (i) washing areas, demarcated and water from washing areas and kitchen is released in sumps, (ii) septic tanks of appropriate design have been used for sewage treatment and outlets are released into sumps and must not create a pond of stagnant water, and (iii) the latrines, septic tanks and sumps are built at a safe distance from water body, stream, or dry streambed, and the sump bottom is above the groundwater level.
Water pollution - Generation of residual chlorine during pipeline and reservoir disinfection	<ul style="list-style-type: none"> • Follow the recommended dosage of chlorine during the disinfection of pipes and reservoir. • Ensure the discharge water with residual chlorine is below the allowable limits. • Use chlorine test kit and use 10x15x dilution with distilled water or use high range chlorine test kit with high range tablets to detect chlorine residual before flushing.
Generation of construction waste - Generation of excavated	<ul style="list-style-type: none"> • During pipe laying, excavated material will be utilized to backfill the trench. The contractor will be required to properly reinstate the excavated trench after completion of pipe laying.

soil	<ul style="list-style-type: none"> • Surplus excavated material/cut soil from construction of the WTP and reservoir will be used as backfill material for low-lying areas that have been identified by the village authority.
Generation of construction wastes – Solid, Inert and Hazardous Wastes	<ul style="list-style-type: none"> • Provide appropriate segregation bins or areas for construction wastes. • Secure and control storage of all hazardous materials including fuels. • Reuse recyclable construction wastes such as wood, steel, and scaffoldings or sell to junk shops. • Solid waste to be collected and disposed in approved disposal site of the District. • Train workers on correct transfer and handling of fuels and other substances and require the use of glove, boots, aprons, eyewear and other protective equipment for protection in handling highly hazardous materials. • Maintain waste (including soil for foundation) at least 300meters from rivers, streams, lakes and wetlands.
Community health and safety	<ul style="list-style-type: none"> • Install barricades/barriers and sturdy plate covers in open excavations during non-working time. • Install warning signs in the area.
Occupational health and safety	<ul style="list-style-type: none"> • Provision of first-aid facilities readily accessible by workers. • Provision of personal protective equipment (PPEs) such as hard hats, gloves, rubber boots, etc., • Wearing of PPEs while working onsite will be a mandatory requirement for workers. • Posting of safety signs/reminders in strategic areas within the construction area. • Installation of sufficient lighting at night. • Employ only trained personnel in handling chlorine during the line disinfection process. • Ensure that vehicle and equipment operators are properly licensed and trained. • Provide staff with communicable disease and HIV-related awareness training.

3.2 ENVIRONMENTAL CODES OF PRACTICE FOR LATRINES INSTALLATION

Issues	Environmental Measures
Latrine Location	<ul style="list-style-type: none"> • Should be located more than 30 meter of an existing water supply wells or surface water body, unless a lack of available site area. • Located downstream from water resources wherever possible • Should be located in a place where is odor cannot reach the house or the kitchen • The latrine pits should be at least two meters above water table, particularly where groundwater is used for drinking. The site should be well drained and above flood level. • Should not be built upstream of a well, particularly in area of

	<p>fissured rocks such as limestone, since feace pollution may be carried directly to a well through cracks and joints in the rocks to a well.</p>
Latrine Installation/Operation	<ul style="list-style-type: none">• Enclose the latrine construction site to prevent access and limit disruption for the use of the schools and public buildings.• Earth up soil/pave concrete around sub-foundation to avoid stagnant water accumulation around the latrine.• Keep the latrine floor clean by cleaning with water supply• Provide hand washing facilities (water, soap) near the latrine at all time.