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1. Environmental Guidelines for Contractors

1.1.General

The project has been classified as Category 2 in accordance with the Bank's new Integrated Safeguards System (ISS) and the environmental assessment instrument for this type of program is the Environmental and Social Management Framework (ESMF). The ESMF Summary has been prepared and is posted on the Bank website since September 25th 2014.

Consistent with economy and efficiency in the execution of the project, the Contractor must prevent, minimize, or mitigate environmental damage during all erection activities. The natural landscape should be preserved to the extent possible by conducting operations in a manner that will prevent unnecessary destruction or scarring of the natural surroundings. Except where required for permanent works, storing and processing areas and camps, all trees, saplings, and shrubbery should be protected from unnecessary damage by Contractor's operations. After unavoidable damage, relocating, replanting, or restoration are required promptly to prevent further damage (e.g., erosion), and to restore quasi-original conditions where appropriate.

The Contractor's facilities, such as warehouses, labour camps, and storage areas, should be planned in advance to decide what the area will look like upon completion of work. These facilities should be located so as to preserve the natural environment (such as trees and other vegetation) to the maximum extent possible. After project completion, camps and buildings should either serve as permanent residences and form future communities, if such use can be foreseen, or be torn down and the area restored to its quasi-original condition in order to avoid deterioration into shanty-areas.

The Contractor shall comply with any specific Environmental Management Plan (EMP) for the works he is responsible for. The Contractor shall inform himself about such an EMP, and prepare his work strategy and plan to fully take into account relevant provisions of that EMP. If the Contractor fails to implement the approved EMP after written instruction by the Employer/ Engineer to fulfil his obligation within the requested time, the Employer/ Engineer reserves the right to arrange for execution of the missing action by a third party on account of the Contractor.

Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an EMP. In general these measures shall include but not be limited to:

- (a) Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities.

- (b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.
- (c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels is maintained and/or re-established where they are disrupted due to works being carried out.
- (d) Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes.
- (e) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards.
- (f) Upon discovery of ancient heritage, relics or anything that might or believed to be of archaeological or historical importance during the execution of works, immediately report such findings to the Employer/ Engineer so that the appropriate authorities may be expeditiously contacted for fulfilment of the measures aimed at protecting such historical or archaeological resources.
- (g) Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities.
- (h) Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.
- (i) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.
- (j) Ensure that, in as much as possible, local materials are used to avoid importation of foreign material and long distance transportation.
- (k) Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.
- (l) Ensure not to recruit children below the age of 16 years for the works he is responsible for.

- (m) Ensure to pay daily rates of reasonable amount for the daily labourers depending on their skills.

The Contractor shall indicate the period within which he shall maintain status on site after completion of civil works to ensure that significant adverse impacts arising from such works have been appropriately addressed.

The Contractor shall adhere to the proposed activity of the implementation schedule and the monitoring plan / strategy to ensure effective feedback of monitoring information to project management so that impact management can be implemented properly, and if necessary, adapt to changing and unforeseen conditions.

Besides the regular inspection of the sites by Employer/ Engineer for adherence to the contract conditions and specifications, the Employer may appoint an Inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. State environmental authorities may carry out similar inspection duties. In all cases, as directed by Employer/ Engineer, the Contractor shall comply with directives from such inspectors to implement measures required to ensure the adequacy rehabilitation measures carried out on the bio-physical environment and compensation for socio-economic disruption resulting from implementation of any works.

Transformers or equipment containing polychlorinated biphenyls (PCBs) or PCB contaminated oil should not be installed, and existing equipment involving PCBs or PCB contaminated oil should be phased out and disposed of in a manner consistent with the requirements of the host country.

Processes, equipment and central cooling systems involving the use or potential release to the environment of chlorofluorocarbons (CFCs), including halon, should not be installed, and their use in existing processes and systems should be phased-out and disposed of in a manner consistent with the requirements of the host country.

1.2. Worksite/campsite waste management

All vessels (drums, containers, bags, etc.) containing oil/fuel/surfacing materials and other hazardous chemicals shall be bundled in order to contain spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed off at designated disposal sites in line with applicable government waste management regulations.

All drainage and effluent from storage areas, workshops and camp sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.

Used oil from maintenance shall be collected and disposed off appropriately at designated sites or be re-used or sold for re-use locally.

Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, etc. to reduce the potential of soil erosion and water pollution.

Construction waste shall not be left in stockpiles along the road, but removed and reused or disposed off on a daily basis.

The disposal sites for spoiled materials shall be located in areas, approved by Employer/ Engineer, of low land use value and where they will not result in material being easily washed into drainage channels. Whenever possible, spoiled materials should be placed in low-lying areas and should be compacted and planted with species indigenous to the locality.

1.3. Material excavation and deposit

The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas.

The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall in traditional land.

New extraction sites:

- a) Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 5km from such areas.
- b) Shall not be located adjacent to stream channels wherever possible to avoid silting to river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites.
- c) Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection.
- d) Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted.
- e) Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.
- f) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing.

Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.

Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.

The Contractor shall deposit any excess material in accordance with the principles of the general conditions, and any applicable EMP, in areas approved by local authorities and/or the Employer/Engineer.

Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by Employer/ Engineer and appropriate local and/or national authorities before the commencement of work. Use of existing, approved sites shall be preferred over the establishment of new sites.

1.4. Rehabilitation and soil erosion prevention

To the extent practicable, the Contractor

- shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction.
- shall always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.
- shall not store the top-soil in large heaps. Low mounds of no more than 1m to 2m high are recommended.
- shall re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.
- shall locate stockpiles where they will not be disturbed by future construction activities.
- shall reinstate natural drainage patterns where they have been altered or impaired.
- shall remove toxic materials and dispose of them in designated sites. Excavated areas shall be backfilled with soils or overburden that is free of foreign material that could pollute groundwater and soil.
- shall Identify potentially toxic overburden and screen with suitable material to prevent mobilization of toxins.
- shall ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.
- shall minimize the long-term visual impact by creating landforms that are compatible with the adjacent landscape.

- shall minimize erosion by wind and water both during and after the process of reinstatement.
- shall compact the surfaces deep rip to relieve compaction unless subsurface conditions dictate otherwise.
- shall re-vegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

1.5. Water resources management

The Contractor shall at all costs avoid conflicting with water demands of local communities.

Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority.

Abstraction of water from wetlands shall be avoided. Where necessary, permission has to be obtained from relevant authorities.

Temporary damming of streams and rivers shall be done in such a way to avoid disrupting water supplies to communities down stream, and maintains the ecological balance of the river system.

No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses.

Wash water from washing out of equipment shall not be discharged into water courses or road drains.

Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

1.6.6. Traffic management

Location of access roads/detours shall be done in consultation with the local community especially in important or sensitive environments. Access roads shall not traverse wetland areas. Upon the completion of civil works, all access roads shall be ripped and rehabilitated. Access roads shall be sprinkled with water at least five times a day in settled areas, and three times in unsettled areas, to suppress dust emissions.

1.7. Blasting

Blasting activities shall not take place less than 2km from settlement areas, cultural sites, or wetlands without the permission of Employer/ Engineer.

Blasting activities shall be done during working hours, and local communities shall be consulted on the proposed blasting times.

Ambient noise levels reaching the communities from blasting and other activities shall not exceed 55 db in the daytime and 45 db in the nighttimes.

1.8. Disposal of unusable elements

Unusable materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures will be disposed off in a manner approved by Employer/ Engineer. The Contractor has to agree with Employer/ Engineer which elements are to be surrendered to the Employer's premises, which will be recycled or reused, and which will be disposed off at approved landfill sites.

As far as possible, abandoned pipelines shall remain in place. Where for any reason no alternative alignment for the new pipeline is possible, the old pipes shall be safely removed and stored at a safe place to be agreed upon with Employer/ Engineer and the local authorities concerned.

AC-pipes as well as broken parts thereof have to be treated as hazardous material and disposed of as specified above.

Unsuitable and demolished elements shall be dismantled to a size fitting on ordinary trucks for transport.

1.9. Health and safety

In advance of the construction work, the Contractor shall mount an awareness and hygiene campaign. Workers and local residents shall be sensitized on health risks particularly of AIDS.

Adequate road signs to warn pedestrians and motorists of construction activities, diversions, etc. shall be provided at appropriate points.

Construction vehicles shall not exceed maximum speed limit of 40km per hour.

The Contractor must ensure that his construction crew are equipped with the necessary safety materials (helmets, gloves, boots, etc.).

Adequate first aid facilities shall be provided at all sites where construction activities are being undertaken.

1.10. Repair of private property

Should the Contractor, deliberately or accidentally, damage private property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the Owner a certificate that the damage has been made good satisfactorily in order to indemnify the Employer from subsequent claims.

In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Employer has to be informed by the Contractor. This compensation is in general settled under

the responsibility of the Employer before signing the Contract. In unforeseeable cases, the respective administrative entities of the Employer will take care of compensation.

1.11. Contractor's environment, health and safety management plan (EHS-MP)

Within 6 weeks of signing the Contract, the Contractor shall prepare an EHS-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an EMP for the works. The Contractor's EHS-MP will serve two main purposes:

For the Contractor:, as an internal use, to ensure that all measures are in place for adequate EHS management, and as an operational manual for his staff.

For the Employer:, supported where necessary by an Engineer, to ensure that the Contractor is fully prepared for the adequate management of the EHS aspects of the project, and as a basis for monitoring of the Contractor's EHS performance.

The Contractor's EHS-MP shall provide at least:

a description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an EMP;

a description of specific mitigation measures that will be implemented in order to minimize adverse impacts;

a description of all planned monitoring activities (e.g. sediment discharges from borrow areas) and the reporting thereof; and

the internal organizational, management and reporting mechanisms.

The Contractor's EHS-MP will be reviewed and approved by the Employer/ Engineer before start of the works. This review should demonstrate if the Contractor's EHS-MP covers all of the identified impacts, and has defined appropriate measures to counteract any potential impacts.

As part of the monthly progress report, the Contractor shall prepare an EHS Report on compliance with these general conditions, the project EMP, and his own EHS-MP. It is expected that the Contractor's reports shall include information on but not limited to:

EHS management actions/measures taken, including approvals sought from local or national authorities;

Problems encountered in relation to EHS aspects (incidents, including delays, cost consequences, etc. as a result thereof);

Lack of compliance with contract requirements on the part of the Contractor;

Changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects; and

Observations, concerns raised and/or decisions taken with regard to EHS management during site meetings.

It is advisable that reporting of significant EHS incidents be done “as soon as practicable”. Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keep his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the monthly reports. Example formats for an incident notification and detailed report are given below. Details of EHS performance will be reported to the Employer/Engineer.

1.12. Training of contractor’s personnel

The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any project EMP, and his own EHS-MP, and are able to fulfil their expected roles and functions. Specific training should be provided to those employees that have particular responsibilities associated with the implementation of the EHS-MP. General topics should include:

EHS in general (working procedures);

emergency procedures; and

Social and cultural aspects (awareness raising on social issues).

1.13. Cost of compliance

It is expected that compliance with these conditions is already part of standard good workmanship and state of art as generally required under this Contract. The item “Compliance with Environmental Management Conditions” in the Bill of Quantities covers this cost. No other payments will be made to the Contractor for compliance with any request to avoid and/or mitigate an avoidable EHS impact