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Republic of Yemen
Ministry of Public Works and Highways

ROAD MAINTENANCE FUND
Road Asset Management Project

EXECUTIVE SUMMARY FOR
ENVIRONMENTAL AND
SOCIALMANAGEMENT PLAN

PROJECT:
CONSTRUCTION AND OPREATION OF FOUR AXEL
LOAD STATIONS.

3- BRUM SITE - HADRAMOUT GOVERNORATE

December 2014

1. EXECUTIVE SUMMARY

Brum axel load station is located at the bottleneck points of the national road network to control moving vehicle loads. This should decrease damages to roads, improve roads conditions and increase its lifetime. This sub-project is part of the Road Maintenance Fund (RMF), financed under the Road Asset Management Project (RAMP). This ESMP report complies with the Bank's Environmental and Social Policies and the Relevant Yemen Regulations. Due to the limited scale of the project and scope of works, the project is classified as category B (according to the WB OP 4.01).

Brum axel load station is a small project (estimated cost of civil works is about 240,000 US\$) located in a remote vacant area on Mukalla-Aden coastal main road in Hadramout Governorate. The original project site was located in a distance of about 5 km from Brum town and about 32.5 km from Mukalla city towards the west. The site was situated at the edge of wadi discharging to the sea (distance about 2 km) where the coast is proposed to be designated as Marine Protected Area (MPA).

Following the recommendations of the Ecological Survey of the project area, the project site was moved by about 2 km West to minimize impacts on the coastal area. First, there are no major wadis near the new site running to the coastal area, as it was the case of the old project site. Second, the topography of the new project site is flat and wider than the originally proposed site and is also surrounded by some volcanic hills. Third, the new site is located about 7km to the south and 4km to the east and northeast to the Marine Protected Area (MPA). Moreover, there are chains of hills that separate the proposed new site from the coastal area. Therefore, no negative environmental or social impacts are anticipated if the mitigation measures that are included in this study are implemented. The project area is largely vacant land where only scattered settlements and low human activities exist.

The ESMP document prepared for the new site location identifies and assesses the environmental and social risks and impacts of the project. In addition, the report determines the necessary mitigation measures and summarizes the necessary management and monitoring plans to ensure that impacts are dealt with and mitigation measures are followed during the project activities. The environmental and social review guidelines stipulated in the OP 4.01, impact screening and scoping checklists, and consultations with the PAPs were the main tools used during the preparation of this report. The project triggers also the OP 4.04 on Natural Habitats due to its proximity to the proposed MPA.

Construction and implementation of this station may have minor negative short-term environmental and social impacts. The expected long-term positive impacts are very high due to the improved road conditions and long lifetime of roads.

Keeping the current situation without axle load control may have many significant irreversible negative impacts on roads and socio-economic issues, such as:

- Damages to roads, bridges and culverts.
- Damages of vehicles.
- Accidents due to difficulty to control overloaded vehicles, articulated type in particular.

An initial evaluation of the potential impacts associated with this project was carried out during screening and scoping phase. No major potential environmental impacts are expected, but only minor impacts associated with solid and liquid waste generation and storage, site preparation, earth works, traffic and safety. The potential negative impacts of attention are:

- Generation, temporary storage and disposal of construction waste, and domestic waste from the labor camp. These may cause dust emissions, erosion, littering, damage to soil.
- Contamination of soil and groundwater by stored fuel, lubricants, paints, and refueling of vehicles.
- Increased level of noise and dust nuisance during the preparation of site, excavation, paving and trucking materials, as heavy machinery will be involved in the construction works.
- Damage to the bird habitats and scaring off migratory birds due to elevated construction noise levels.
- Safety of labor during the construction phase within the site and around it.

The positive impacts of attention during the construction phase are the local employment opportunities, which offer the local community the chance to enhance their income level. The mitigation measures proposed to address the potential negative impacts of the project during the construction phase include:

- Storage of fuel and lubricants in sealed containers.
- Refueling of diesel and oil should be conducted only on sealed areas to avoid contamination.
- Spraying of water during excavation, site preparation and paving works.
- Restriction of earthworks during strong wind periods.
- Restriction of use of noisy equipment to the daytime business hours.
- Planting of trees and bushes around the project site.

Environmental and social monitoring plan was prepared to specify monitoring arrangements, frequency and responsibilities. The plan will allow effective monitoring of the contractor's performance against the environmental and social mitigation measures (see table 2). It is envisaged that the monitoring activities will be carried out by monitoring specialist that will devote about 25% of his time to monitoring compliance of the Brum weigh station with the ESMP. The expected monitoring costs of 4,000 USD will include also vehicle, fuel and camera.

The summary ESMP Table 1, (including mitigation and monitoring measures) is presented below. The total cost of mitigation and monitoring measures are estimated to reach 7,000 USD.

The team conducted also social consultations with local community through field interviews. The consultations reached 15 interviewees including car drivers, local council representative and the local citizens in the area. All interviewed people near the weigh station site stressed the benefits that will be achieved by the project.

Table 1: Summary of the Environmental and Social Management Plan (ESMP) during the construction and operation phases of the Brum axel load station.

Cluster	Impacts	Mitigation measures	Monitoring Responsibilities	Cost [USD] (mitigation and monitoring)
Construction Phase				
Waste management	<p>Solid wastes of construction materials such as plastics and metals may pollute the environment near the site.</p> <p>Solid wastes such as debris are left (after completion of works) nearby the structures, on the existing habitat features.</p> <p>Disposal of oil and fuel and spare parts on surrounding pasture land.</p> <p>Littering of the area by wind</p>	<ul style="list-style-type: none"> - Regular collection, temporary storage and & disposal of generated waste. - Fuel and liquid wastes from machinery to be stored in sealed tanks to prevent leakages. - Refueling and minor repairs should be undertaken in sealed areas. - Domestic solid waste should be stored in waste skips and regularly transferred and disposed off to a local dumpsite. 	RMF operation team under supervision of RMF headquarters.	Included in operational costs of RMF
Land resources	Soil erosion and visual intrusion.	<ul style="list-style-type: none"> - Planting trees surrounding the site and appropriate plants inside. - Restoration of vegetative cover. - Rehabilitation of disturbed sites. 		
Air quality and noise	<p>Noise pollution from the construction equipment and machinery.</p> <p>Dust emission during the construction works.</p>	<ul style="list-style-type: none"> - Regular inspection of machinery and equipment used in construction to ensure that they are in good working condition. - Noisy construction works should be restricted to daytime hours (6 am to 6 pm) - Water spraying for dust control 		
Socio-economics	Generation of local employment	<ul style="list-style-type: none"> - Provision of work opportunities for the local community. 		
Coastal ecosystem, flora and fauna	Negative impacts on bird habitats in the wadi mouth, especially on migratory birds.	<ul style="list-style-type: none"> - Adequate storage, removal and disposal of liquid and solid wastes. - Restriction of noisy construction activities to daytime hours. - Workers should avoid any interference with natural habitats. 		
Safety	<p>Accidents of the workers</p> <p>Reduced number of road accidents</p>	<ul style="list-style-type: none"> - Compliance with General Health, Safety, and Environment Regulations. - Traffic management, speed control, warning signs, etc. 		
Operation Phase				
Waste management	Generation, storage and disposal of solid and liquid waste.	<ul style="list-style-type: none"> - Oil should be stored in sealed containers. Refueling and minor repairs should be undertaken in sealed areas. - Domestic solid waste should be stored in waste skips and regularly transferred and disposed off to a local dumpsite. 	RMF operation team under supervision of RMF headquarters.	Included in operational costs of RMF

Land resources	Soil erosion, and visual intrusion	– Maintaining trees and plants surrounding the site.		
Safety and traffic management	Risk of accidents involving station staff, visitors and traffic	– Preparation and implementation of safety plan for spillage or fire of hazardous liquid substances. – Implementation of traffic management, speed control and warning signs.		
Socio-economics	Increased longevity of the road surface, bridges and culverts. Reduced number of car accidents.	– Provision of adequate access roads and parking. – Strict application of administrative regulations and procedures.		
Fauna and Flora	Disturbance to vegetation and animals	– Re-vegetation and planting trees – Always keep site clean and free from accumulated wastes. – Adequate storage, removal and disposal of liquid and solid wastes.		
Hydrology	Blockage of surface water drainage	– Adequate maintenance of existing surface water drainage culverts.		

Table 2: Environmental and Social Monitoring Plan (construction phase)

Indicator	Measurements (incl. methods & equipment)	Frequency	Implementati on responsibility	Cost
Solid and liquid waste collection, storage and disposal	<ul style="list-style-type: none"> - Maintaining a record of solid and liquid waste generation from construction, machinery and labor camp. - Temporary storage of construction waste in designated area agreed with the local community. - Storage of domestic waste in containers. - Final disposal of waste in designated area agreed with the local authority. 	Continuous: monthly	<ul style="list-style-type: none"> - E&S specialist of the contract engineer - RMFIU 	<p>Cost of hiring monitoring specialist (25% of time input), vehicle, fuel and camera. Equivalent of USD 4,000</p>
Land soil erosion and visual intrusion	<ul style="list-style-type: none"> - Site inspection and photographic documentation of excavation, earthwork and land disturbing activities. - Photographic documentation of planting and re-vegetation activities 	<ul style="list-style-type: none"> -Once before - commencement -Once during construction -Once after completion 	Ditto	
Dust and Noise	<ul style="list-style-type: none"> - Visual observation and photographic documentation of equipment induced emissions and dust clouds during excavation activities - Site supervision/inspection and documentation to ensure the implementation of noise mitigation measures 	<ul style="list-style-type: none"> -Once during earth works. -Once during asphalt works. -On any complaint. 	Ditto	
Socio-economic activities	<ul style="list-style-type: none"> - Site inspection and documentation of community activities and complaints nearby site. 	<ul style="list-style-type: none"> -Once before commencement -Once during construction -Once after completion 	Ditto	
	Follow the chance find procedures.	In case of chance finds	E&SU	
Vegetation and animals	<ul style="list-style-type: none"> - Site inspection and photographic documentation of excavation and re-planting activities 	<ul style="list-style-type: none"> -Once during site preparation and -Once during planting activities 	Ditto	
Coastal ecosystem	<ul style="list-style-type: none"> - Site inspection and photographic documentation of intertidal zone. - Bird counting 	<ul style="list-style-type: none"> -Once before commencement -Once during construction -Once after completion - After local flooding (if any) 	Ditto	
Surface water drainage	<ul style="list-style-type: none"> - Check conditions of the surface water drainage system. 	<ul style="list-style-type: none"> - Once during construction Once after rain (if any) Once after completion 	Ditto	
Accidents and injuries	<ul style="list-style-type: none"> - Inspection and photographic documentation - Checking records of injuries and accidents specifying cause and location 	Continuous monthly	Ditto	