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PROGRAM: IMPROVING ACCESS TO WATER AND SANITATION IN RURAL SOMALIA

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

COUNTRY: FEDERAL REPUBLIC OF SOMALIA

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Preparation Team	Team Leader:	Mr. John Sifuma, Senior Water and Sanitation Officer, OWAS.2/EARC
	Team Members:	Ms. Elizabeth Ndinya, Senior Environmentalist, ONEC.3/SARC Mr. Christopher Mutasa, Principal Financial Analyst, EARC/OWAS.2 Ms. Anne Mukudi, Senior Gender Officer, OWAS.2/SARC Mr. Gupta Parveen Kumar, Principal Procurement Officer, ORPF.1/EARC Mr. David Mutuku, Principal FM Specialist, ORPF.2/EARC Mr. Olufunso Adegbenga Somorin, Senior Policy Analyst, ORTS.1/EARC Ms. Desma Tunya, Intern, EARC Mr. Bernard Maina, Environmental Specialist, Consultant
	Sector Manager:	Mr. Osward Chanda, OWAS2
	Sector Director:	Mr. Mohammed El Azizi, OWAS/AWF
	Sector Director	Mr. Sibry Tapsoba, ORTS
	Regional Director:	Mr. Gabriel Negatu, EARC

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

SUMMARY

Project Name	**:Improving Access to Water and Sanitation in Rural Somalia**
Country	**:Somalia**
Department	**: OWAS**
Project Code	**:P-SO-E00-002**

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1. Introduction

This document is a summary of the Environmental and Social Management Plan (ESMP) of the Improving Access to Water and Sanitation in Rural Somalia project. In line with national regulations and the Integrated Safeguard System (ISS) of the African Development Bank (AfDB), the project is classified as Category 2. This summary was prepared in accordance with AfDB guidelines and procedures for Category 2 projects. It describes the project and its environment, followed by its key environmental and social impacts as well as the requisite mitigation and improvement measures. The summary then presents the public consultations held during ESMP design and development, and then concludes with a description of the monitoring programme, estimate costs and implementation schedule for the ESMP.

2. Objectives of the ESMP

The specific objective of the study is to provide a plan which describes the actions that will be taken by Federal Government of Somalia (FGS) through the International Organization of Migration (and relevant ministries) to enhance positive impacts and to avoid, minimize, mitigate, compensate / offset negative impacts of the Improving Access to Water and Sanitation in Rural Somalia project. The ESMP describes the mitigation and management measures, clarifies responsibilities for implementation, and provides an implementation plan with the necessary time schedule and costs.

3. Context of the ESMP

3.1 National Context

Over the past two decades, Somalia has witnessed consistent unrest and anarchy that have led to the destruction and mis-management of public facilities including water and sanitation. As a result, large populations in the rural and urban areas were faced with scarcity of water. Water scarcity heightened competition and conflict over the resource resulting in many more people being displaced.

Persistent efforts in bringing peace and stability to Somalia are slowly bearing fruit and the country is now on a path emerging from fragility to recovery and aims to re-assert its sovereignty to maintain peace and stability. The Federal Government of Somalia (FGS) with support of Development Partners is implementing the New Deal aimed at ensuring ownership and responsibility for the country's future. However, the country still remains one of the poorest countries in the world with a low Human Development Index (HDI)

of 0.285[1] and did not meet the Millennium Development Goals for water supply and sanitation.

Access to improved water supply in Somalia is estimated at 32%, while population with improved sanitation is estimated at a staggering 24%[2], one of the lowest in the world. Recurring droughts, now a common natural feature of Somalia, combine with internal displacement and a deteriorated network of water points to compound poor access, forcing supply needs often to be met through emergency operations, such as water trucking. Lack of access to clean and safe water has exacerbated incidences of water-borne diseases especially cholera which is endemic in Somalia. This has contributed to a high under-five child mortality rate of 133 per 1,000 live births.[3] Climate change continues to negatively impact Somalia's ability to achieve food and water security. In rural areas, an inadequate network of pastoral water structures that supply both domestic and livestock water remains the major cause of conflict between pastoralists and settled communities.

The FGS partnered with the African Development Bank (AfDB) to address the water and sanitation challenges. A joint study by the FGS and African Development Bank (AfDB) in 2014 identified the gaps in the water and sanitation sector with limited infrastructure and weak institutional capacity featuring prominently. The depressing statistics on child mortality and the low per capita access to potable water, prompted IOM and AfDB together with FGS to partner to reverse the trend in Somalia by initiating an infrastructure improvement project in Somalia. The proposed water and sanitation project aims to build the capacity of the Ministry of Energy and Water Resources (MoEWR) and four regional states through supporting development of national and regional water sector strategies and policies including rehabilitation of infrastructure and capacity building (training, equipment and logistics).

In line with the requirements of the FGS and the African Development Bank's safeguard policies, the proposed project is subject to an Environmental and Social Impact Assessment (ESIA). The principal objectives of the ESIA and planning include among others: (i) To describe the baseline environmental conditions of the project sites; (ii) To find as well as to predict what problems are likely to be caused by the implementation of the proposed Project; (iii) To analyse identified environmental impacts likely to be generated from the project activities; (iv) To find ways and means of avoiding the problems and/or assess the project's alternatives including "No Alternative" to develop the best alternative model so as to promote the integrity of the environment; (v) To make appropriate recommendations for mitigation measures, training needs and cost estimates as well as defining responsible parties to address any resultant adverse effects; and (vi) To develop an Environmental and Social Management Plan (ESMP) that highlights the opportunities and suggest ways and means of enhancing the positive effects of the project;

4. PROJECT DESCRIPTION

4.1 Project description

The overall objective of the project is to improve access to water and sanitation services in peri-urban and rural areas of Somalia and contribute to reduce infant and under-5

[1] Somalia Human Development Report 2012, Empowering youth for peace and development, UNDP.
[2] UNICEF/WHO Joint health and nutrition assessment in 2013
[3] African Development Bank Statistics Department Database (October 2013) World Bank Development Indicators

mortality caused by WASH related diseases. The project comprises three main components:

Component 1: **Enhanced WASH policy, strategy and institutional capacity coordination**. In collaboration with the FGS and regional Ministries of Water and Energy, Health, and Planning and International Cooperation, the proposed project will provide a platform to address the underlying causes of WASH sector gaps in Somalia through strengthening the capacity and development strategy of the FGS and the three federal states, namely Jubaland, Southwest, and Galmudug. This will be achieved through the development of the water and sanitation sector policy and strategy of the FGS and three federal states to guide the systematic development plan of the water supply and sanitation sector at the federal and states level. The project will also involve the rehabilitation and upgrading of physical infrastructure for national and state water agencies and the procurement of office and logistical equipment. Institutional capacity will also be built through the training of key government staff on water quality monitoring. Experts from the Somali diaspora will also be recruited and placed in relevant ministries to build the knowledge and skill base of the staff and contribute to policy development.

Component 2: **Improved rural water supply system, sanitation and hygiene conditions**. This component of the project will involve construction of additional water supplies, rehabilitation of strategic rural water supplies and treatment of river water. Appropriate and tested innovations that are environmentally friendly, cost-effective and thus sustainable will be used. It will involve the use of solar powered water pumps and the use of three-tank systems that use a natural water flocculent product (poly-Glu). The project will help develop, improve and rehabilitate 15 water sources, put up sixty five (65) small-scale water systems including 15 in schools/market and health and implement Community-Led Total Sanitation (CLTS) and hygiene awareness. The project will also cover rehabilitation of public water and sanitation infrastructure such as water agencies buildings including water-testing laboratories. Water accessibility to local communities will be improved through rehabilitation of strategic boreholes, construction of shallow wells and pumping of water from the intake of a river. In terms of sanitation, the project will introduce Community CLTS and hygiene and promotion. Under this component, the project intends to undertake CLTS in each of the five regions. This component of the project intends to benefit 65 rural communities along the Shabelle and Juba rivers where there are frequent outbreaks of Acute Watery Diarrhoea (AWD) and cholera. The project will also promote Open Free Defection (ODF) in riverine and rural communities and increase access to water in 15 schools and/ or health centers in the riverine and the rural areas. The project will improve access to water among 15 nomadic communities and their livestock to improve their resilience to climate change

Component 3: Project Management. This relates to the day-to-day implementation of the project. It will entail the management cost of the Third Party Implementing Agency as well as logistics and routine project operating expenses. The cost of project supervision and M&E will be part of this component.

4.2 Project Location

The project will cover four (4) Federal members states and eleven (11) rural areas in Lower Shabelle region (Afgooye and Walwenyn rural areas), Middle Shabelle region

(Balcad and Jowhar), Lower Juba region (Kismayo and Afmathow), Hiran region (Beledweyn), Mudug/Galgaduud (Cadaado and Hobyo) and Gedo region (Doolow and Luq) to develop, improve and rehabilitate ten water sources, put up sixty five (65) small scale water system, rehabilitate 15 strategic boreholes and construct 15 water and sanitation facilities in schools/market and health and implement Community-Led Total Sanitation (CLTS) and hygiene awareness.

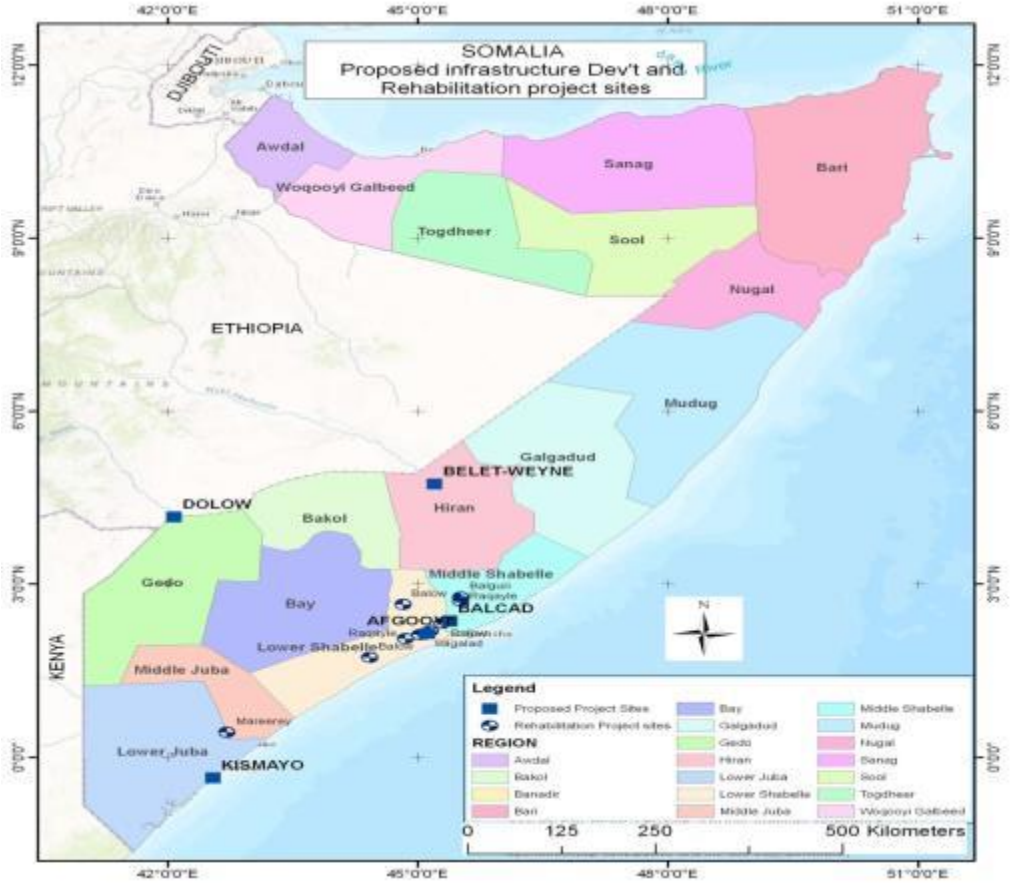


Figure1: Proposed infrastructure and rehabilitation sites (Source: International Organization for Migration (2016), ESIA Report)

5. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

5.1 Constitution of Federal Republic of Somalia

The 2012 constitution of the FGS remains the principal instrument that guides all policies and legislations on environment and other social issues. There are a number of chapters and articles that reflect the wish, aspirations and dreams of the Somalis when it comes to environment and development related issues. **Chapter 2, Title two, Article 25(1)** gives every citizen the right to an environment that is not harmful to their health and well-being, and protects citizen from pollution and harmful materials. **Article 27 (1)** gives citizen the right to clean water. The two articles are emphatic that access to portable water and healthy environment is part of fundamental human rights and must be safeguarded at all times while pursuing economic development. Any development activity, which may be injurious to the bio-chemical and social environment and the access to portable water, is violation of one's human rights. While pursuing development activities such as water and sanitation, and rehabilitation of infrastructure, care must be taken not to violate these basic fundamental human rights. One way to

avoid violating such basic rights is to subject development activities to ESIA as espoused by the Bank's Environmental and Social Assessment Procedure (ESAP). **Chapter 3 on land, property and environment, Article 45(1)** is emphatic that the FGS shall give priority to conservation and preservation of the environment against activity that may cause harm to the biodiversity and ecosystem. The **Article 45 (2)** reads in part "---inspire citizen to safeguard, enhance the environment and participate in the development, execution, management, conservation and protection of the natural resources and the environment".

The Bank's Environmental and Social Safeguards Policy

The African Development Bank's Integrated Safeguards System provides the framework that promotes the social and environmental sustainability of the Bank's projects outcomes. The Bank requires borrowers/ clients comply with these safeguards requirements during project preparation and implementation.

The Bank's Integrated Safeguards Policy Statement sets out the basic tenets that guide and underpin the Bank's approach to environmental safeguards. In addition, the Bank has adopted five Operational Safeguards (OSs), which sets out the Bank's overarching requirements for borrowers or clients to identify, assess, and manage the potential environmental and social risks and impacts of a project, including climate change issues. Operational Safeguard I requires the preparation of an Environment and Social Impact Assessment (ESIA), which assess the potential environmental and social impacts of the Project. The proposed Project is rated as environmental assessment category "2" and may have limited adverse environmental and social impacts, triggering the following safeguard policies:

Safeguard Policies Triggered	**Yes**	**No**	**TBD**
Environmental and Social Assessment (OS 1)	**X**		
The proposed project shall involve civil works / physical interventions on the natural environment; therefore OS 1 is triggered. A detailed ESIA (including ESMP) has been prepared to address all impacts attributed to the construction and operation phases.			
Involuntary Resettlement: Land Acquisition, Population Displacement and Compensation (OS 2)		**X**	
Involuntary resettlement is unlikely to occur since the works will be carried out on existing systems and pre-designated sites.			
Biodiversity and Ecosystems Services (OS 3)		**X**	
The project infrastructures involve rehabilitation of exiting systems. It is not anticipated that new greenfield areas currently not under cultivation will be opened up. Therefore, OS.3 is not triggered.			
Pollution Prevention and Control, Hazardous Materials and Resources Efficiency (OS 4)	**X**		
OS 4 is triggered because of the potential pollution and wastes generated during construction phase of the project.			
Labour Conditions, Health and Safety (OS 5)	**X**		
OS.5 is triggered since the contractors shall employ staff or workers during project			

Safeguard Policies Triggered	Yes	No	TBD
implementation.			

6. DESCRIPTION OF PROJECT ENVIRONMENT

6.1 Climate

The climate of Somalia varies spatially between tropical and subtropical, and between arid and semi-arid. The mean temperature in the inland areas is about 28^{o}C and as low as 0^{o}C in the mountains and as high as 47^{o}C along the coast. The average annual rainfall is about 280 to 500mm in western *Ogo* highlands.

The country experiences cyclic droughts in every 2-3 years accompanied by devastating floods particularly in the South Western regions. The floods occur when the *Shabelle* and J*ubba* rivers, whose origin is the Ethiopia highland, burst their banks and in the process cause displacement and destruction of properties. Floods in these regions affect the livelihoods of about 1.8 million people.

6.2 Hydrogeology

Pre-Cambrian rock and sandy limestone from the Cretaceous and Jurassic periods constitute the main sources of sandy soil that occur widely throughout Somalia. The South-Central region where the proposed project will be located is a rugged and precipitous north-facing cliff of the *Karkaar* that extends to Ethiopia at the tip of the horn. This rock formation influences soil type, vegetation, aquifer type and productivity (availability of water) and the livelihood systems in Somalia.

Generally, there are about ten aquifers in Somalia, which influence groundwater site selection. Major sources of water in the South-Central region are boreholes and shallow wells. Most of the boreholes are deep and saline while the shallow wells are susceptible to contamination since they are not well protected.

The two main rivers *Shabelle* and *Juba* flow through the region are main source of water for public use and irrigation. Groundwater forms an essential source of water in most parts of Somalia and is accessed through boreholes, shallow wells and temporary springs. The aquifer is of high productivity, medium to high infiltration capacity. Test yields of the production boreholes ranged from 12 to 20 l/s, with drawdown of less than 20m.

6.3 Demography

The last official census of Somalia was in 1975, when 3.2 million people were registered. However according to UNISAR and UNIFPA (2014) the population is estimated at 10.5 million. The average density population was estimated at 167 people/Km^2 with 61.4% percent of the people living in the rural areas and about 38.6% in the urban. Population growth was estimated at 4.1 percent per year for 1975-1980 but this dropped to 3.1 percent per year for the period of 1995-2000 mainly because of the internal conflict, which caused many to flee the country to neighbouring countries. As a result of the prolonged civil war and cyclic droughts about 1.1 million Somalis have become internally displaced (UNIFPA 2014) and moved to major urban centers. This has left some urban centers over-populated; further stretching existing water and sanitation facilities while leaving some rural areas less populated.

Almost all proposed project sites are faced with excess population compared to existing water and sanitation services demand. Majority of the Somalis that moved to the urban centers live in squalid and dangerous conditions. It is estimated that more than 1 million Somalis have fled the country including neighbouring countries such as Kenya, Ethiopia and Yemen among others. These include the educated and skilled labour, leaving the country human resource poor particularly in the water and sanitation sector. As a result of the war, the numbers of disabled persons that need access to water and sanitation have increased substantially and majority of them are found in the urban centers. The proposed water infrastructure and rehabilitation will reverse the declining standards of water and sanitation in the country.

6.4 Education

The education system in Somalia collapsed with the central authority in 1991 and it has so far not recovered. Many learned people have fled the country and for the last two and half decades the humanitarian organisations in the country have done little to resuscitate the sector. In the process few individuals have initiated private primary, secondary and tertiary education with no oversight regulatory framework in place. This means the education system operating in the country is commercial orientated and not designed to address the prevailing socio-economic needs of the country. The lack of policy framework to guide the sector has made Somalia education system to be ranked the lowest in Africa (World Bank 2006). The steady declined in accessibility and standards has had serious implications on service delivery and governance in the country and most affected are the public health and water and sanitation sectors. According to UNICEF Somalia annual report of (2014a), 60% of the children in Somalia are not in school and the worst is the Central-South region where 78% of the children are not enrolled in school. However things are relatively better in Somaliland and Punt land where the education system is slightly organised.

Parallel to the private-managed schooling system is the informal school system based on the Islamic faith, which is popular with families who cannot afford the private schools. In some regions more so those controlled by insurgent there is complete shutdown of formal schooling system. One of the greatest challenges facing Somalia is insecurity and prevalence of high child morality partly because of water-borne diseases. As strategy to rebuild peace and improve delivery of service including water and sanitation sector is for the FGS to invest in education.

6.5 Water and Sanitation

Somalia is a water scarce country and there is variation in water sources. For example, much of the north and northeast depend on groundwater in the form of boreholes and the water is generally saline, while in the south water is accessed through rivers and shallow wells.

Access to clean water is very low and is significant in Somalia since it is viewed as an economic and social good and is often the underlying cause of conflict. The situation is expected to worsen because of the declining annual renewable freshwater in Somalia. Somalia's annual renewable freshwater has declined with a prediction of 363 m^3decline in 2025.When the annual renewable freshwater falls below 1,000m3/year water scarcity is a reality and will compromise human health and well-being as well as the economic

development of the country. When the value goes below 500m3/year it becomes life threatening. Somalia has the lowest percentage in terms of access to water and sanitation in the world and this partly contributes high incident of waterborne related diseases and child mortality. It is estimated that only 31 percent of the population in the north-west of the country has access to safe drinking water compared to 19 percent in the north-east and only 20 percent in southern part of the country (UNICEF/WHO 2014). In urban towns such as Mogadishu, only 35 percent of the population has access to safe drinking water while in rural areas this is as low as 10 per cent. The situation is worse in the Central-South Somalia where the proposed project activities will be located in order to address the challenge of water and sanitation**.**

Since the collapse of central authority, the water and Sanitation sector has been managed through responses to humanitarian crises that are focused on saving human life and relief of human suffering. The focus was not the development of the WASH sector as a long-term priority with links to other sectors of development. Coordination is done by the WASH Cluster whose mandate is centered on responding to emergencies, with limited oversight and enforcement of standards in the country. The recently established Federal Ministry of Energy and Water Resources (MoEWR) is the only institution with a mandate to provide the oversight and enforcement, but it lacks the human capacity and resources needed to undertake the mandate.

The approach taken by the proposed water infrastructure and rehabilitation project aims to address most of the gaps through the development of policy for the sector, mainstreaming environmental concern in the project through the use of tested technology, rehabilitation of public buildings including water testing labs and equipping them, and development of human capacity through training to run the sector. These efforts need to be complemented through comprehensive hydro-geology surveys to improve the success rate of borehole drilling in the country, particularly in the South-Central zone and mainstream environmental concern in all development projects.

7. ALTERNATIVE SOLUTIONS

7.1 No Project Option

This option entails not undertaking infrastructure development and improvement in which case the status quo would remain. This means inaccessibility to clean water and a lack of improved sanitary conditions. Under this alternative, the country will keep on experiencing a high incidence of water-borne diseases and likely upsurge in the loss of human life. Somalia has experienced the horrors of civil war for many years and in the process, the infrastructure was damaged significantly. Currently there is a diminished skilled human capacity to redeem the sector. This entails that the ‘’ without project’’ cannot be the best option. Degraded environment and dilapidated water and sanitation sector will continue to exist and have implications on human health, livelihood of vulnerable groups and on investment.

7.2 Minimum infrastructure development and improvement activities without addressing direct or indirect impacts

Under this alternative the project will be implemented but the likely environmental impact associated with the project will not be addressed. The environmental impact associated with the project on the existing environmental degradation (mainly due to charcoal making and overgrazing) in the proposed project area would further worsen the situation on the ground. In the long run, the benefits associated with implementing the project without addressing associated impacts will be outstripped by the accumulative environmental damage and the attendant social and economic loss, thus undermining the

objective of the project. This potential consequence calls for alternative means for solving the problem and associated issues.

7.3 Infrastructure development and improvement activities with the identification of direct and indirect environmental impacts, and their remedy

This option will address the likely environmental impact associated with the proposed project. It addresses the needs and aspirations of the local Somali men and women of having access to portable water and stable sanitary condition. This alternative provides an opportunity to mainstream environmental concerns within the project to lead to sustainable development. The development of water and sanitation infrastructure while addressing attendant environmental concerns will protect the bio-physical environment, reduce child mortality, improve the livelihood of vulnerable groups, particularly the riverine and pastoral communities, attract investors and thus give impetus to the socio-economic development of the country. This option will act as a catalyst to sustainable development including human resource and therefore appeal to all levels in the FGS as it links environmental governance to all other spheres of development.

8. MAIN ENVIRONMENTAL AND SOCIAL IMPACTS AND CLIMATE CHANGE RISKS

8.1 Potential Positive Impacts

Reduced risk of waterborne diseases: There is an increased incidence of cholera and AWD during the prolonged dry season in the target areas. It is estimated that diarrhoea alone contributes to 19 percent of child mortality in Somalia (UNICEF 2014). According to UNICEF May and March 2016 reports, there was an outbreak of AWD/cholera in all the proposed projects sites in the Central-South where 441 deaths were recorded with case fatality rate of 4.8%, well above the 1% emergency threshold. This high mortality was associated with scarce and remaining contaminated water sources. The proposed project will create reliable and clean sources of water and reduce periodic outbreak of water-borne related diseases in the Central-South region.

The project will not only develop additional sources of portable water but also repair and upscale existing debilitated water sources and therefore less people will be exposed to contaminated sources. The project also intends to increase access to sanitation by constructing latrines and train beneficiaries on basic hygiene. This will reduce incidents of waterborne diseases.

Increased child survival rate: The proposed project intends to improve access to clean water and sanitation and this will improve the child mortality rate, particularly the under-five year. According to UNICEF (2014) only one in seven children under the age

of 5 years celebrates his/her fifth year birthday in Somalia. This high mortality is associated with waterborne related diseases including AWD.

Improved food security: Farms adjacent to the river intake and those along the delivery system will have access to water for irrigation even during the dry season, which will enable food production throughout the year. This will improve food security in the project area and reduce malnourish about the target population.

Creation of employment opportunities: It is anticipated that the construction phase of the project will engage the local labour force. When the project becomes fully operational more people will be engaged in irrigated agriculture thus creating more employment opportunities. Irrigated agriculture will also created season base employment where unemployed youth will be engaged in planting and harvesting of crops.

Improved household income: The proposed project will also help beneficiaries pursue diverse sources of income such as beekeeping; fruits tree nurseries or pasture production, conservation of hay and selling of hay to livestock keepers during the dry season. This will broaden and strengthen the income of local communities and improve their ability absorb shock. Reliable sources of water will save man-hours that can be used for other productive engagement such as farming. During the focus group discussions, participants revealed that women spend a lot of time collecting water and that in the dry season women may walk up to 12 km to fetch water. This can result in health issues such as miscarriages.

Increased privacy and restored dignity of the beneficiaries: Most of the local communities in the rural areas have no access to proper sanitation and 83% of the rural population use open defecation (UNICEF 2014). The proposed project intends to enhance sanitation conditions of both the rural and urban population. This will not only improve public health and hygiene but also restore the dignity and privacy of vulnerable groups such as women and physically challenged persons in the rural areas. In rural areas women remain in-doors until the fall of darkness so that they can relief themselves with the attendant risk of being sexually molested under the darks. The project intends to construct toilets at close proximity and will enhance the privacy, dignity and safety of the rural women.

Riverbank Protection: Most of the riverine vegetation has been cleared exposing the *Shabelle* and *Juba* rivers to riverbank erosion. This has created a lot of weak points along the riverbank further exacerbating the effects of flooding and leading to the destruction of properties particularly towns such as *Beletweyn* and *Jilibil*. To safeguard properties and infrastructure, including water pumps at the river intake, there is a need to stabilize river banks through the planting of trees along the bank. Training of farmers on riverbank protection and the establishment of tree nurseries will ensure sustainability of the project.

8.2 Potential Negative Impacts

8.2.1 Negative Impacts during construction phase

The construction phase of the proposed Project has potential negative impacts associated with engineering works including the risks associated with drilling activities, pollution, inappropriate handling construction wastes.

Vegetation Clearing: Borehole drilling and installation of a water pump at the intake may require bush clearing, which will include the cutting of trees. Some of the trees may include indigenous high valued trees. Borehole drilling may involve site clearing (bush clearing) using heavy machines, which compact the soils, and this leads to surface runoff and leaching of nutrients. Wind erosion can also occur due to soil disturbance by the machines

Pollution: The dust, noise and smoke pollution relates to the bush clearing by the heavy machinery, particularly during the drilling of boreholes. As the heavy machinery will knock down trees and transport them to a safe place during the bush clearing, a running high pitched engine noise will be created. The noise will be accompanied by thick volumes of dust, which could cause poor visibility, skin and eye allergies, and respiratory problems. Dust emissions can potentially aggravate the health conditions of persons with asthma.

Soil erosion and compaction: Borehole drilling may involve site clearing (bush clearing) using heavy machines, which compact the soils that can lead to surface runoff and leaching of nutrients. Wind erosion can also occur due to soil disturbance by the machines.

Other impacts during construction

Hazardous materials and Accidental spills: Hazardous materials such as oils and fuel for machinery and cement may be used during the construction phase. If stored and handled inappropriately or if spilled, these materials may pollute soils and canal waters.

Liquid effluents from preparation of concrete, sediment dewatering and wastewater from portable toilets or offices may contaminate the canal waters.

Dust and air emissions: The use of machinery and the construction traffic will generate emissions of fumes and dust.

8.2.2 Impacts during operation phase

Conflicts: Three forms of conflict are anticipated, namely i) conflict between the farmers, ii) human-wildlife conflict, and iii) and crop-livestock conflict (land use conflict). Conflict between farmers is likely to occur over water schedule (crop watering) and issues related to crop-livestock interactions occur when livestock stray into a farm and destroy the crops. Human-wildlife is another conflict, which is common in the area. Wildlife stray into farms and inflict heavy crop damage to farmers. Interview with the farmers revealed that crop-livestock and human-wildlife conflicts are frequent in the dry seasons.

Water Pollution: In the operation phase, farmers adjacent to the river-intake site that may benefit (from the use of raw river water for irrigation) may use agro-chemicals (i.e. fertilizers and pesticides) to improve production. During a heavy downpour or the bursting of main pipes such chemicals will be washed into the river and find their way into the food chain. This can have a negative impact on useful soil microorganisms such as nitrogen fixing bacteria.

Impact on Aquatic Ecosystem: The project area is generally flat and the rivers are approaching the mature stage before joining the Indian Ocean and in the process-changing course. In this situation, river intake will be without water to pump. There are

a number of weak points along the riverbank where the river releases an excess energy of water. The riverine project sites have a number of such points, which flood surrounding areas. The situation is compounded by the fact that there are *laggas*[1] that bring a large volume of water into the rivers. Field observation revealed that some of the proposed intake points are devoid of vegetation and are susceptible to riverbank erosion and floods. Over the years the floods have caused untold damage to towns and farms in Hiraan and Jubaland states. Apart from flooding, the rivers sometimes change course and move away from the intake point and this disrupts water supply to local communities.

Water Abstraction: Over abstraction of water may occur in boreholes and river intake sites. For the purpose of proper planning and sensible use of water resources, the rate of recharge and abstraction has to be monitored.

8.2.3 Climate Change Risks

Climate change will intensify extreme events such as drought and flood, and change the precipitation and temperature patterns.

The project has been classified as Category 2 according to the Bank's Climate Safeguards System. The project will contribute in building resilience against climate variability and change by enhancing protecting water sources, and providing reliable water supply services. The project interventions are designed as climate change adaptation measures with minimum carbon foot print.

9. ENHANCEMENT AND MITIGATION MEASURES PROPOSED AGAINST IMPACTS

The project activities shall be executed in compliance with the constitution of the Somalia government and the Bank's requirements.

The main measures for preventing, mitigating and managing potential negative impacts of the projects can be summarized as follows: (i) Measures for reducing land clearing (ii) Measures for limiting the impacts of construction wastes on water quality, by preventing re-suspension and protecting river systems, (iii) Measures for disposing of the excavated and dredged material in an appropriate way, (iv) Measures to stabilize riverbanks through the construction of gabions and planting of trees and grasses.

An Environmental and Social Management and Monitoring Programme (ESMMP) embedding the framework of an ESMP and monitoring plan is detailed below. The required organization and costs for implementing these measures are described in the ESMP.

Table 2: Proposed enhancement/mitigation, monitoring of the potential environmental and social impacts of the Improving Water in Rural Somalia Project

Ref.	Issue	Impact	Mitigation measures	Actor/Responsibility	Due Date / Frequency	Monitoring activities	Frequency
Planning and Design Phase							
D_1	Infrastructure design	Design of the technology is not environmentally sound , therefore Bill of Quantities ((BOQ), critical path and mitigation cost is not easy to workout	Coordination and collaboration in the design of infrastructure	IOM, Ministry of Water and Energy (MoWE)	Designing phase of the project	Design of the technology in place, prepared BOQ and cost of the project in place	Once
D_2	Coordination	Delay in tendering and implementation	Formation and regular meetings of a coordination committee	Ministry of Planning and International coordination (MOPIC)	Every month	Work progress. Monitoring report	Twice a month
D_3	Vulnerability	Marginalization of women, disabled persons, riverine & pastoral communities	Putting in place policy that 30% of employment and position reserved for the vulnerable groups.	Ministry of Labour , Gender Department, local administration, contractor	Every month	-Maintaining a list and number of people employed by the project	
D_4	Access to water	Conflict / Dispute over access to water	Training beneficiaries on conflict resolution and management mechanism; using existing traditional conflict mechanism	Ministry of Energy and Water Resources (MoEWR), Community elders	Training on conflict resolution before the start of the project	-List of number of people trained -Developed material used for training. -Number of conflicts resolved	Regular basis
D_5	Environmental quality	Loss of aesthetic, ill health due to environmental pollution	Landscaping, proper management of waste through recycling Restoration of sites	Contractor, MoEWR and Ministry of Environment (MoE)	Work in progress	Monitoring the no of patients admitted on ill-health related to polluted environment at public health units, landscaped	Regular basis

			through landescape			rehabilitated sites	
D_6	Institutional capacity	Malfunctioning water and sanitation facilities, debilitated building due to a lack of maintenance	Training of staff from line ministries -Formation and training of water user associations	MoEWR and Partners-IOM and AfDB	Work in progress	- list of staff trained and their cadre	Quarterly
Construction Phase							
co	De-vegetation at project and camp sites	Soil, wind erosion and river bank erosion, loss of aesthetic	Planting of trees at the project site	Contractor, MoEWR and MoE	Ongoing	Keeping a record of the number of tree seedlings planted and the number of tree nurseries established	Weekly
C_1	Air Quality(dust)	Increased respiratory infections and allergy due to dust	Regular watering of work site	Contractor and MoE	Daily	Routine inspection of worksites	Daily
C_2	Air Quality (fume)	Increased respiratory infections and allergy due to exhaust fumes	Regular maintenance of construction vehicles, plant and equipment	Contractor	Ongoing	Routine inspection and keeping maintenance records	Daily
C_3	Noise Level	Nuisance and disturbance for local communities and in the office work environment	Regular maintenance of construction vehicles and equipment	Contractor, MoEWR	Ongoing	Raise noise level concern to the project manager through the local administration. Measuring and recording noise levels	Daily

C_4	Storm water	-Storm water from rehabilitated building can cause soil erosion	Storm water harvesting structures Construction of storm drainage	MoEWR, contractor	Ongoing	Water harvesting structure and drainage incorporated into the design	Once
C_5	Building ventilation and lighting system	Poor working environment	Designing well ventilated structures that allow natural light	Ministry of public works	Once only at the design phase	Design building with adequate air circulation and lighting system	once
C_5	Hydrology of the area	Over abstraction of river water	Developing diverse sources of water, maintaining and repairing non-functioning water sources, Contractors using independent water source, mapping of functioning and non-functioning water sources	Contractor, MoWR	Work in progress	Monitoring level of recharge and abstraction	Regular basis
SC_6	Building construction waste	Impact on the aesthetics of the surroundings and can block/obstruct entrance to property/roads (access)	Sorting and reuse of building rubble and the remains disposed at an approved dump site	Contractor, MoEWR and Ministry of Public Works	As required	Maintaining a log of materials brought to or removed from site;	Daily
C_7	Traffic flow	Slow flow of traffic around construction sites; frequent movements of construction vehicles causing disturbances to properties along the construction site	Creation of diversion where necessary; construction vehicles moving at a limited speed and with care	Contractor	During construction	Routine inspection	Daily
C_8	Occupational Health and safety	Occupational hazards and risks of l workers and	All construction activities should be conducted in accordance with applicable	Contractor	Ongoing	Joint site inspection by relevant authorities to safety measure and	Weekly

		visitor	International Labour Organization(ILO) , Construction, Health and Safety Standards			equipment are in place	
C_9	Occupational Health and safety	Incidence of food poisoning due to the food sold by vendors at the construction/rehabilitation sites	The Contractor will comply with Health and Safety regulations agreed with the proponent.	Contractor and Ministry of Public Health and Hygiene (MoPH)	Ongoing	Routine inspection of worksites / Obtaining necessary permits	Daily / As required
C_{10}	Access to property	Access to private properties may be limited during the rehabilitation of public buildings	Early identification of properties likely affected and planning of access roads	Contractor and local authority	once	Site plan created indicating affected properties and planned access point	Once
Operation Phase							
O_1	Maintenance of infrastructure	Non-function water facilities, increase due to lack of maintenance conflict, - Increase in conflict over water because of few functioning water sources	-Adapt and follow maintenance manual of all machines, -Training of adequate personnel to do regular maintenance of water infrastructure	MoEWR	Routine	Work schedule of water infrastructure maintenance to be undertaken, -Record of maintenance water pumpse	Regular
O_2							

10. ESMP IMPLEMENTATION AND MONITORING PROGRAM

The overall responsibility of the environmental and social monitoring lies with the project Implementing Agency, International Organization for Migration (IOM), Ministry of Energy and Water Resources (MoEWR), Ministry of Environment (MoE) Ministry of Public Works, and Ministry of Public Health and Hygiene (MoPH) and community members. The monitoring unit will ensure compliance to environmental standards and procedures including relevant policies and legislations.

In accordance with the Contract provisions, the Contractor(s)will be accountable for the implementation of the mitigation measures during the construction and initial operation phases. The Contractor(s) will prepare Construction ESMP (CESMP) and include in their schedule of works all proposed mitigation measures. The Contractor(s) must have designated personnel to monitor environmental, safety and health matters during construction works, and report regularly to IOM. The CESMP will be reviewed and approved by the supervising consulting engineer and the respective Environmental Safeguard Specialist. At project completion, the Contractors will prepare a final environmental completion and decommissioning report to be approved by the supervising consultant, and IOM

Supervising Consulting Expert/Technical Assistance. An environmental expert (consulting firm) shall be appointed as part of the project to provide advice on the implementation and monitoring of environmental and social measures. Before construction, the supervising consultant will review the works contract and document environmental and social requirements, road safety, and quality assurance systems and plan the supervision functions to ensure that works are implemented while protecting the social and environment aspects. During the construction phase, the supervising consultant: (a) Monitors implementation of the Contractor ESMP and (b) prepares monthly and quarterly environment and social compliance reports, which are submitted to the PIU for consideration, as well as annual environment and social audit reports submitted to the IOM and MoE.

The Project Implementation Team (PIT) established under IOM will coordinate the activities of all institutions. The PIU shall have 1 environmental and social safeguard specialist(s) who will monitor and manage the implementation of the ESMP in collaboration with the Supervising Consultant. The functions of the specialists will include working with consultants and reviewing reports as well as ensuring that safeguard decisions are adequately mainstreamed. They will also participate in monitoring and evaluation exercises.

Based on the environmental monitoring activities highlighted in table 2 above, the independent monitoring unit will seek to measure the project's progress, in a manner that highlights the various objectives in line with national goals and the Bank's Integrated Safeguards System (ISS). An annual monitoring report will be submitted to the IOM and the African Development Bank for review.

11.0 COST OF IMPLEMENTING THE ESMP

The cost for implementing the environmental and social impact mitigation measures, monitoring/supervision and capacity building is estimate at USD 0.64 million. These costs will be directly integrated into the main project budget. It is expected that the proposed ESMP budget may change depending on the work plan.

Table 3: Estimated cost breakdown for the Implementation of the ESMP

No.	Activity	Timeframe	Cost (US$)	Responsibility
01	Mitigation Measures	Construction and Operation phase	500,000	Contractor, IOM, MoEWR
02	**ESMP Monitoring**			
	• Regular supervisions	Entire project period until hand-over	Integrated in Project	Contractor, IOM, MoEWR,
	• Control missions	Quarterly and Annually during project period	Integrated in Project	IOM, MoEWR & AfDB
03	Capacity Development to address ESMP implementation capacity gaps at the MoEWR, MoE and IOM.	Prior to project works	100,000	IOM, MoEWR and AfDB
	Total		800,000	
	5% mark-up		40,000	
	Grand Total		**640,000**	

12.0 INSTITUTIOANL FRAMEWORK

The MoEWR has limited capacity to develop, improve and rehabilitate water and sanitation facilities in the country. Importantly, the ministry does not have a unit to address environmental and social issues of interventions within the sector. Hence, the IOM will be responsible for undertaking the implementation of the project through a project implementation team that will comprise an environment and social safeguards specialists.

As part of the long-term efforts to enhance the capacity of the MoEWR, a safeguards unit will be created and trained to monitor and implement the mitigation measures suggested in the ESMP. To keep the ministry functional and on course, the federal state agents can tap into the experiences and skills of local NGOs involved in developing the sector. This may involve under special arrangement seconding/ co-opting staff from NGOs to run units where the ministry lacks the capacity.

13.0 PUBLIC CONSULTATIONS AND DISCLOSURE

In compliance with the requirements of the Bank, consultations were undertaken as part of the preparatory studies and ESIA development process. To fulfill this requirement, key informants were interviewed, Focus Group Discussion (FGDs) were conducted, and semi-structure questionnaires were administered to randomly and purposively selected project stakeholders.

During the field visit, project sites that were secured but fairly representative of all project activities and stakeholders were purposely selected for the interviews and FGDs. During the interviews and FGDs respondents were given the opportunity to express their views on the likely impact of the project on the environment and social aspects. Where likely impact was highlighted respondents were given the chance to suggest possibly interventions.

Consultations showed that stakeholders have high expectations from the project. Analysis of respondents showed there are no real critical issues related to environmental and social impacts such as resettlement, biodiversity loss or loss of ecological integrity among others. However the few issues brought up by the stakeholders can be remedied through interventions suggested in the ESIMMP. The best approach for implementing the intervention is to include stakeholder representatives the in the monitoring unit.

14.0 CONCLUSION

Improving Access to Water and Sanitation in Rural Somalia Project will bring immense benefits to the water sector including strengthening the Federal Government of Somalia particularly the Ministry of Energy and Water Resources and four regional states technical capacity for sustainable water and sanitation sector strategy development through improving and rehabilitation of infrastructures, logistic, development of regional strategy and policy on water sector development, training and provision of incentives which will direct government institutions responsible water and sanitation sector as well the total population living regional populations. The project will also address the urgent needs of water and sanitation service delivery in rural and urban areas affected by recurrent drought and waterborne diseases such as acute watery diarrhoea (AWD) and cholera.

The ESIA study reveals that the project has no major environmental and social impact and that the few concerns highlighted can be addressed as suggested in the ESIMMP. In fact the benefits of the project completely outweigh the issues raised. However, a major challenge is the shortage of human capacity and skills within the Federal member state ministries to run the project after it is completed. This can be addressed through short and long term training programs to build capacity within the government. To achieve the objective of the project, the interventions suggested in the ESIMMP need to be followed with the exception of minor alterations where new needs arise which should be made in consultation with key stakeholders.

The anticipated environmental and social impacts of the project are localized and site specific and can be mitigated during by the application of mitigation measures specified in this Environmental and Social Management Plan. The ESMP will provide the mechanism to guide the assessment and mitigation of potential adverse environmental and social impacts of the project activities. The project is environmentally and socially feasible for implementation provided the recommended mitigation and monitoring measures are implemented, and the proposed implementation arrangements are upheld.

REFERENCE

International Organization for Migration, 2016. Environmental and Social Impact Assessment Study: Improved Water