Somali Water for Agro-pastoralist Livelihoods Pilot Project (WALP)

(P152024)

Environmental and Social Management Framework (ESMF)

CONTENTS

1) Executive Summary

Water resource development which has not kept pace with increasing human and livestock populations in Somaliland (SL) and Puntland (PL) has been undermined by conflict. Water scarcity is increasingly a driver of both local-level resource conflict and a component of macro tensions over territory.

This project aims to reduce the competition and tension over water resources by building state capacity to increase access to water supply in rural areas. However, it is recognized that the act of intervening in water resource development may potentially create environmental impacts, but also polarize stakeholders into winners and losers. Hence, water resource development has potential to disrupt existing patterns of cooperation over water or worse be the focus of new conflicts playing into the existing micro and macro drivers of conflict.

The Project Development Objectives (PDOs) thus are *to improve the pastoral and agro-pastoral communities' access to, and management of, small-scale water resources and to enhance the capacity of the governments to implement small-scale water interventions in targeted arid lands of Somaliland and Puntland.*

The conflict potential will be minimized by careful priority assessments and partner consultation workshops undertaken in the early stages of the project, which will determine exact locations and beneficiary numbers. The main beneficiaries of this project will be pastoral and agro-pastoral communities in targeted areas of Somaliland and Puntland.

This ESMF has the purpose to provide a basic environmental and social framework to guide project planning, design and implementation, and integrate and operationalize key findings from preceding studies. The impact typologies and severity were assessed and brought into context with the physical, biological, chemical and socio-economic baseline conditions. Through careful site identification and selection, as well as a set of generic mitigation measures the major part of potential impacts will be avoided and minimized. Remaining impacts that cannot be circumnavigated will be mitigated and managed to acceptable levels during project implementation (i.e. the impacts related to construction and operation of the panned structures / investments).

This ESMF contains tabular compilations of all expected negative environmental and social impacts, as well as of monitoring methods and criteria. It is comprehensive and detailed in its coverage and designed in a way to be easily transferred into environmental and social management plans (ESMPs) for specific locations and dam construction projects.

The ESMF was disclosed in SL and PL to the potentially affected stakeholders, and public meetings held to receive feedback on the ESMF scope and contents. The comments received have been incorporated into this final version of the ESMF.

2) Introduction

This ESMF has the purpose to provide a basic environmental and social framework to guide project planning, design and implementation, and integrate and operationalize key findings from preceding studies. A major part of potential impacts will thus be avoided and minimized as early as during site identification and selection, and remaining impacts mitigated and managed to acceptable levels during project implementation (i.e. the construction and operation of the panned structures / investments).

Under the World Bank's operational policy OP4.01 on environmental management and assessment the project has been deemed to have limited impacts (E&S category "B"), warranting a limited environmental and social assessment and the production of an E&S management instrument.

As during project preparation the exact location of the project sites is not yet known (only watershed level identified) an ESMF (environmental and social management framework) as opposed to an ESMP (ESM Plan) was chosen. The nature and range of impacts of the planned investments are well known, and the overall baseline conditions are quite uniform over the entire project area (meaning that all potential sites will experience similar conditions in terms of topography, climate, hydrography, biology, socio-economic conditions etc.), which will facilitate an easy adaptation of this ESMF into location-specific ESMPs once sites have been identified.

The ESMF should, however, be already used and applied during the site selection process and design phase, as it contains a number of both environmental and socio-economic criteria that are important to consider maximizing positive impacts and the investments' sustainability, and minimizing risks and negative impacts.

3) Project description

Project Development Objective (PDO)

The Project Development Objectives (PDOs) are *to improve the pastoral and agro-pastoral communities' access to, and management of, small-scale water resources and to enhance the capacity of the governments to implement small-scale water interventions in targeted arid lands of Somaliland and Puntland.*

This will directly contribute to providing safe water for human consumption, sufficient quantities of water for livestock and as an input to enhancing fodder and agricultural production around these water resources.

Water resource development has not kept pace with increasing human and livestock populations in Somaliland and Puntland and water scarcity is increasingly a driver of both local-level resource conflict and a component of macro tensions over territory (the disputed area between Somaliland and Puntland).

While this project aims to reduce the competition and tension over water resources by building state capacity to increase access to water supply in rural areas it is also recognized that the act

of intervening in water resource development creates winners and losers. Hence, water resource development has potential to disrupt existing patterns of cooperation over water or worse be the focus of new conflicts playing into the existing micro and macro drivers of conflict.

Thus a key objective underlying the primary intervention of this project is to closely monitor the impacts of the water resource development at both the local and macro level in order to understand and document the dynamics of resource competition and cooperation. These lessons will be key to designing the larger SPARS project and ensuring that it is conflict sensitive.

Project Description:

To gain both economic and health benefits rural water supply solutions need to address both the quality of water for people and the quantity needed by livestock. Progress towards meeting the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) for water and sanitation in Somalia has been aided by the progress in urban areas but greatly held back by the lack of progress in rural areas. Somalia was unable to meet the MDGs and an estimated 3 million rural Somalis need to gain access to improved water supplies and double that, 6 million, for universal access. Finding solutions for rural water supply is complicated significantly by: (i) continued conflict, (ii) the low rainfall and very complex hydrogeology of the country, (iii) the centrality of pastoralist livelihoods to the economy, and (iv) weak or absent local government institutions. The majority of existing rural water supply solutions provide the quantity of water required for livestock but not the quality of water required for people. Finding solutions that meet both these aims means physically separating livestock from the water sources and protecting or treating water for people.

Project Components

The project is articulated around 3 components:

Component 1: Developing under-utilized agro-pastoral water supply technologies. The dry rivers/wadis of the project areas are one of the key resource patches of agro-pastoralists and pastoralists, especially during the long dry season when surface water storage is exhausted. Recent development of the wadis has focused on basic, appropriate technology to increase storage at key points of the wadis and allow off-take for potable and agricultural purposes. In general sub-surface or sand dams impound the storage, shallow wells sunk with cassion rings serve as the off-take and pumped water is distributed through animal troughs and/or standpipes. In few cases infiltration galleries have been fitted to maximize off-take flow rates but this remains an experimental technology in the project areas so far.

This component will develop sand dams, and under-utilized methods that collect and store water in sand rivers for multiple-use water services provided through shallow wells, troughs and standpipes. This will be done at 4-8 sites across SL and PL (equally distributed) deploying standard designs and labor-intensive methods. Each site will involve a series of sand dams and river training structures and will include a means of extracting high quality water for domestic use as well as mechanisms to ensure sufficient quantity for livestock and agricultural uses. Should the pilot projects prove that the technology and approaches are accepted they will then be scaled up into the larger MPF-financed SPARS.

Component 2: Government capacity building and community empowerment. This component will provide training and technical support to (i) enhance provision of services by decentralized extension staff from Ministries, and (ii) empower communities to sustainably manage water resources, bringing a cross-sectorial "landscape" approach showing how water, pasture, livestock and agriculture production, public health and conflicts prevention are fully integrated in pastoral systems. This component has two sub-components:

Sub-component 2.1 - Support central and local government: This will include training provided directly through workshops and seminars; short courses; exchange visits to sites that have successfully deployed these technologies, and; learning-by-doing working with mentors and facilitators for Government's staff to acquire, use and adapt skills needed to plan and oversee the development of multiple-use water services:

Technical skills: needed for designing, siting, and implementing sand dam and related technology required to provide multiple-use functionality; hygiene promotion and communication; livestock production and health and natural resources management.

Administrative skills: public financial management, procurement and contract management;

Community mobilization skills: to establish, strengthen community-based water and sanitation and hygiene and conflict management institutions.

Sub-component 2.2 - Community-based management: This sub-component will work with traditional structures and community leaders and will establish / strengthen community-based institutions (women's groups, water user associations, etc.) for community-based management methods to plan and manage the water sources and surrounding natural resources. This will include overseeing the development and enforcement of locally appropriate cost recovery mechanisms for operation and maintenance of the facilities; the customary norms/Xeer for accessing and managing surrounding land and pasture; public and animal health; conflict resolution mechanisms, and liaising with local and national government on water quality monitoring, sanitation and hygiene promotion. This will be done through dialogues, training, workshops, identifying key stakeholders for securing access to natural resources, information meetings, and support to traditional conflict management mechanisms.

Component 3: Project Management and Monitoring & Evaluation (M&E). The Ministries in charge of implementing the project (Ministry of Environment and Rural Development (MOERD) in SL and Ministry of Environment, Wildlife and Tourism (MoEWT) in PL) will each host one Project Coordination Unit. This component will support project related incremental operating costs, as well as key feasibility studies aimed at preparing or documenting project's interventions. M&E activities will include regular monitoring of implementation performance and results, annual intermediate outcome evaluations, technical audit of infrastructure, and case studies. The M&E activities will provide the evidence to document the lessons learned from the project at the local, national and regional level. These lessons learned will be documented as the project is implemented by the respective lead ministries. This component will also support key preparatory studies for the SPARS project, such as those related to environmental and social safeguards issues, including those related to conflict-sensitivity and risk, and gender.

The project will be complemented by separate Bank-executed activity that will support: (i) Technical assistance for measuring the effect of the WASH interventions on under five mortality and morbidity; and (ii) Knowledge generation/dissemination research and surveys around the established water supply facilities, to assess their full integration into the "landscape" approach required to address pastoral issues, resilience and development. and (iii) One year after project completion an impact assessment of how service delivery has been sustained and whether or not the project has contributed to state and peace building. All the line ministries involved will be closely associated with this component.

4) Environmental, Social and Conflict Baseline Conditions

Climate:

The Somali climate is hot, arid to semi-arid. There are two wet seasons (*Gu* April to June, and *Deyr* October to November) with approximately 500 mm rainfall annually in the northern highlands, 50-150mm along coast, and 300-500 mm in the southwest. With the impact of climate change extreme weather patterns such as droughts and floods (see also natural disasters) are likely to increase in frequency and magnitude.

Land Forms:

The Somali region is characterized by a rather uniform scope of land forms, comprising mostly flat plateaus and plains, coastal plains, and few mature mountain ranges with moderate elevation and relief especially the Golis range that spans northern Somaliland and Puntland. The Juba and Shabelle are the main and only permanent rivers. Due to the soft valley and ridge topography in large parts of the basins, these rivers have large catchment area that contribute to high peak floods during the wet seasons. Somaliland and Puntland are incised with significant dry river valleys (wadis) that flow only during the wet seasons.

Land Use:

13% of the country is considered potentially arable (2001), of which 20-30,000 ha are irrigated. Permanent pastures (dry and wet season areas) constitute over 50% of Somalia's area.

Vegetation, forests and woodlands:

The vegetation in Somaliland and Puntland is predominantly dry deciduous bushland and thicket dominated by species of Acacia and Commiphora, with semi-desert grasslands and deciduous shrub land in the north and along much of the coast.

About 12% of the Somali region is under forest (or woodland) cover, although with an average deforestation rate of 0.97% per annum. Extensive areas of riverine forest and areas along major wadis have been cleared for agriculture, and localized dryland forest clearance occurs driven by charcoal production. Endemic juniperous mist forests in north are the only true forests (with adapted forest ecosystems) and are considered vulnerable. There is increased pressure on forests for charcoal production for which –especially in urban areas – there is huge demand, combined with a growing export trade.

Biodiversity and Conservation:

Only 0.8% of the Somalis area is under some form of protection (2000). A National Conservation Strategy used to exist, but is now extremely low on the territories' agenda. Somalia is part of Conservation International's Horn of Africa Hotspot which has over 60 endemic genera and over 2,750 endemic species. Somalia is a part of Somalia-Masai steppe geographic region of plant endemism (savannas and shrub lands) and has 24 important bird areas. Generally fauna has been depleted due to hunting and culling to protect livestock. Invasive species (e.g. Prosopis spp. and the Indian House crow, Corvus splendens) have widespread effects on local fauna and flora and important to address, although Prosopis could be used to substitute endemic trees for charcoal production.

Water and wetlands:

Annual internal renewable water resources are estimated as 1,700 m^3 per person per annum, but this distribution is highly skewed[1] and Somaliland and Puntland are both highly water stressed. Drought is a recurrent problem. Water is a critical resource ultimately determining livelihoods. Historically water management was closely integrated with livestock management, and larger planning strategies have been absent due to the civil war. Unplanned water supply construction (berked, Balli, wells) many of which are individually owned may increase pressures on rangelands but provide for HH water security.

Somaliland and Puntland are arid or semi-arid where inter-annual variability of rainfall is high and characterizes these regions as predominantly non-equilibrium rangelands. Rainwater is harvested but surface water tends to last for only a few months of the year; although some improved dams whose bottoms and sides are cemented and covered to ensure that water is not lost to evaporation and seepage (Amuyunzu, 1997). Underground aquifers are also widely exploited, either through boreholes, shallow wells or at natural springs and these permanent sources provide for the majority of town supplies and act as buffer to drought.

Geology:

Mesozoic to Recent sediments, such as limestones, marls, sandstones and cherts make up most of the exposed rocks of Somalia. Two isolated uplifted Neoproterozoic and early Cambrian complexes occur to the west of Mogadishu in the Bur region (Bur Massif), and in northern Somalia paralleling the Gulf of Aden. The Bur Massif in central Somalia consists of metamorphic rocks such as gneisses, amphibolites, quartzites and marbles, intruded by igneous rocks, mainly granites. It is part of the Neoproterozoic Mozambique Belt system. The northern regions are geologically highly complex with outcropping basement crystalline rocks, including the Darkainle complex that is part of an early Paleozoic folded belt[2].

Generally, clastic and marine Jurassic sediments (sandstones, limestone) overlie the Precambrian and early Paleozoic igneous and metamorphic series. Cretaceous to Tertiary sediments with clastic sequences (sand- and siltstones, greywacke), evaporites (salt deposits) and marine successions (limestone, marls and silt/claystones) cover large parts of the region

[1] http://www.fao.org/nr/water/aquastat/countries_regions/SOM/index.stm
[2] http://www.fao.org/nr/water/aquastat/countries_regions/SOM/index.stm

and constitute that major aquifers. Small areas with young basaltic to liparitic volcanics are exposed close to Djibouti and in the Gulf of Aden area, as well as in an area close to the Ethiopia/Kenya/Somalia border junction[3].

Soils:

The types of soil vary according to climate and parent rock. The arid regions of Puntland and Eastern Somaliland have mainly thin and infertile desert soils. The limestone plateaus of the interfluvial areas have fertile, dark gray to brown, calcareous residual soils that provide good conditions for rain-fed agriculture. The most fertile soils in Somalia are found on the alluvial plains of the Jubba and Shabeelle rivers. These deep vertisols (black cotton soils) have a high water-retention capacity and are mainly used for irrigation agriculture.

There are also large areas of dark cracking clays (vertisols) in the southern part of Somalia that appear to have a higher water-holding capacity than the generally sandy soils found elsewhere. According to both the FAO and USDA soil taxonomy, a vertisol is a soil in which there is a high content of expansive clay mineral known as montmorillonite. This soil forms deep cracks in drier seasons or years. Alternate shrinking and swelling of the soil causes self-mulching, where the soil material consistently mixes itself. This heaving of the underlying material to the surface often creates micro-relief known as “gilgai”.

Natural disasters:

Effects of droughts and floods are the most frequent and serious natural disasters. From 1961-2004 it is reported that 18 recorded floods directly killed 2,600 people, and 12 recorded droughts directly killed 19,600 people.[4] With land conversion (for irrigation, charcoal, urban needs), effects of droughts are likely to be progressively exacerbated. Massive coral bleaching occurred worldwide in 1998 due to climate change and resulted in widespread coral mortality, which is likely to have impacted Southern Somalia and Gulf of Aden coast of Somaliland and Puntland.

Current Environmental Issues, Concerns and Problems

The following key environmental issues, risks, problems and ongoing negative impacts are notable for Somalia (IUCN 2006):

1. Unsustainable tree use through clearing for agriculture, charcoal production both for local use and export, where export is driving much of the deforestation activities. Due to the poor transport infrastructure in Somalia, much of the charcoal production is concentrated around urban areas.
2. Regulating charcoal export is a key issue to slow the depletion of woodland areas, especially in areas with easy access to seaports and through those to the Gulf states.

[3] http://www.fao.org/nr/water/aquastat/countries_regions/SOM/index.stm

[4] IUCN (2006) “Country Environmental Profile for Somalia”, Prepared for: The European Commission Somalia by IUCN Eastern Africa Regional Office, Nairobi, Kenya.

3. Expansion of land for cultivation into areas inappropriate for cultivation, creating increased risk of damage from flood and drought.
4. Irrigation resulted in clearing of riverine forests without concern for broader landscape management. This is a historical issue, which nevertheless needs to be linked into wider, contemporary environmental management.
5. Insecurity means that environmental issues are not considered a priority by governments and the populations.
6. Due to a lack of security in terms of rights to land and natural resources, and clarity in land tenure, land access is often dominated by the well-connected and powerful.
7. Illegal offshore waste dumping (oil, industrial and municipal waste, some of which toxic) by international fleets, though evidence difficult to substantiate.
8. Illegal, unregulated and unsustainable fishing by international fleets (especially trawlers from Asia and Europe), but also at artisanal level.
9. Unplanned private water development (especially for berkeds) increasing pressures on surrounding rangelands, exacerbated by increased use of private enclosures for grass which curtails grazing routes.
10. Donor attention to environment not given seriousness and support needed – seen as mainstreaming, but need for accountable indicators to the environment in all such activities and so identification of priority intervention areas and sectors. Need to go beyond the rhetoric.
11. Invasive species need to be managed as these could encroach and degrade the landscape – esp. Prosopis spp. around in Puntland and Somaliland
12. Policy and legislative framework for environmental issues weak to non-existent.
13. Biodiversity and conservation not seen as important for its own sake.
14. Management of both energy and more broadly urban emissions as a result of expanding urbanization and effects on ground water, waste management, pollution.
15. Soil erosion, and erosion of gullies and wadis depletes pastureland and may create secondary hazards (steep relief, geotechnical instabilities).

Social and Resource Conflict Issues

The social impacts and potential aggravation of resource-related conflicts is well documented in a range of pastoralist and agro-pastoralist assessments carried out in the Somali region. [5] A review of these during the preparation of the project raised the following main findings regarding the nexus of access to water and conflict:

Reducing Resources-based Conflict by Enhancing State Service Delivery Capability: Access to water and pasture is a fundamental source of both conflict and co-operation between clans and civil authorities throughout the Somali region. In terms of conflict, extensive trans-boundary movements of livestock and limited access to the combination of water and pasture is one of the primary drivers of conflict across the HoA and within Somalia. Long and well documented records of conflict and cooperation over access to water and pasture in pastoralism domain

[5] Lewis (1961) A Pastoral Democracy. Lewis (1998) Understanding Somalia. DfID (2005) Somalia: Drivers of Conflict. Gomes (2006) Access to water for pastoral resources management

exists[6]. Following decades of low investment in Somaliland and Puntland, water points with adequate surrounding pasture are especially scarce, claimed by clans, fiercely guarded and intrinsically linked to resource conflict.

Due to the overall State fragility and instability and historic conflicts between clans, the Government's capacity to develop and manage water points in rural Somaliland and Puntland is limited. Water supply and sanitation services underpin multiple aspects of human and economic development. To prevent resources-based conflicts, especially between pastoral nomadic and settled communities, they require public intervention to complement community based measures that ensure adequate and equitable supply, benefit from economies of scale and are highly visible services.

Thus creating additional water resources should implicitly constitute both a key component of a peace dividend and a basic indicator of state functionality.

5) Legal and Regulatory Framework

In all Somali territories policy and legislation with respect to the environment is nascent or outdated, in terms of assessing the potential impact of such policies on the environment, or how they could contribute to environmental conservation and sustainable livelihood improvement. A process of Strategic Environment Assessment (SEA) could be used as an important internationally recognized tool to identify, in all sectors, policies and laws where environmental issues are, or could be important. However, this will not be possible in the context of the operation for which this ESMF has been prepared.

A number of international agreements and Multilateral Environment Agreements (MEAs) exist, and although binding on Somalia there has been little progress in implementation due to the chronic conflict, the lack of recognition for Somaliland and the applicability in Puntland. Such international environment agreements relate to: Biodiversity, Desertification, Endangered Species, Law of the Sea, Ozone Layer Protection and Marine Dumping.

In recent years Somaliland has effected a constitution within which article 12 addresses: Public Assets, Natural Resources and Indigenous production. Although there are no Environmental Policy and Act in place an Environmental and Social Assessment Framework has been produced through the SDF program. Protection and use of Somaliland water resources is the responsibility of the Ministry of Water Resources that has put a policy, act and regulatory framework in place. In Puntland an Environmental Policy was produced in 2014 and framework documents for EIA guidelines and regulations put in place.

For both Somaliland and Puntland the institutions at National, Regional and District Levels responsible for the implementation and monitoring compliance of both national and international agreements as shown below and include:

6 E.g.: *A pastoral democracy*, Lewis (1961), *Understanding Somalia*, DFID (2005), *Somalia: Drivers of Conflict*, Gomes (2006), *Natural Resources & conflict management- the case of Land,* Economic Commission for Africa Sub-Regional Office for Eastern Africa (SRO-EA, 2012).

1. The Minister, in consultation with the Parliamentary Environment committee and civil society organizations working in the environment shall establish Environmental Watch Councils at National level (NEWC)
2. The MoERD in Somaliland and the MoEWT in Puntland with consultation with Regional Authorities, in consultation with civil society, at the Regional level, and communities shall establish the Regional Watch Councils (REWC).
3. The MoERD and MOEWT in consultation with the Local Government Councils/ District Governor, local CSO/CBOs and the community shall establish the District Environment and Environment Watch Council (DEWC).
4. The members of the Council shall come from both genders and should be Somaliland citizens in good standing in the community and are environmentally conscientious. The council shall serve five-year terms at a time and can be re-appointed.

The environmental licensing process in Somaliland and Puntland are quite straightforward and controlled mainly by the Ministries. The key principles are:

1. The MOERD (SL) and the MOEWT (PL) or any person authorized by him/her may grant any of the licenses enumerated. Every license shall be subject to such conditions as may be specified therein
2. The Minister or any person authorized by him/her may at any time cancel or suspend any license granted by or on behalf of the Minister, the holder of which has been on reasonable grounds suspected by the Minister or such other authorized person, to have infringed any of the conditions upon or subject to which said license has been granted, and may at any time vary the conditions of any such license.
3. Any person aggrieved by any order under this Article may appeal to the Minister of MOERD for SL and MOEWT for PL whose decision shall be final.

The scope of activities requiring licenses include charcoal production, mining and quarrying, collection of plants and grasses, collection of gums and resins, and investment projects including sectors such as waste, wastewater, roads, and energy infrastructure.

In practice, although recent developments in policy and civil law are encouraging there is a long way to go in terms of regulation and the adaption of institutionalized practices. As such the licensing procedures are not yet robust, as the technical criteria supporting the issue or revoking of any given license are poorly defined, and the licensing process thus wide open for interpretation and manipulation. Conversely, again due to the lack of clear technical standards, the supervision process is somewhat subjective and not governed by transparent, measurable and reproducible technical criteria.

For the project implementation this means that E&S management will have to fully rely on the WBG's environmental and social standards, as laid out in the World Bank's safeguards policies and environment, health and safety guidelines (EHSG), and the IFC's performance standards. Where there are no clear standards and criteria in any of these, norms from other accepted international sources would be used, such as WHO, EU and US-EPA.

6) Description of Relevant Activities

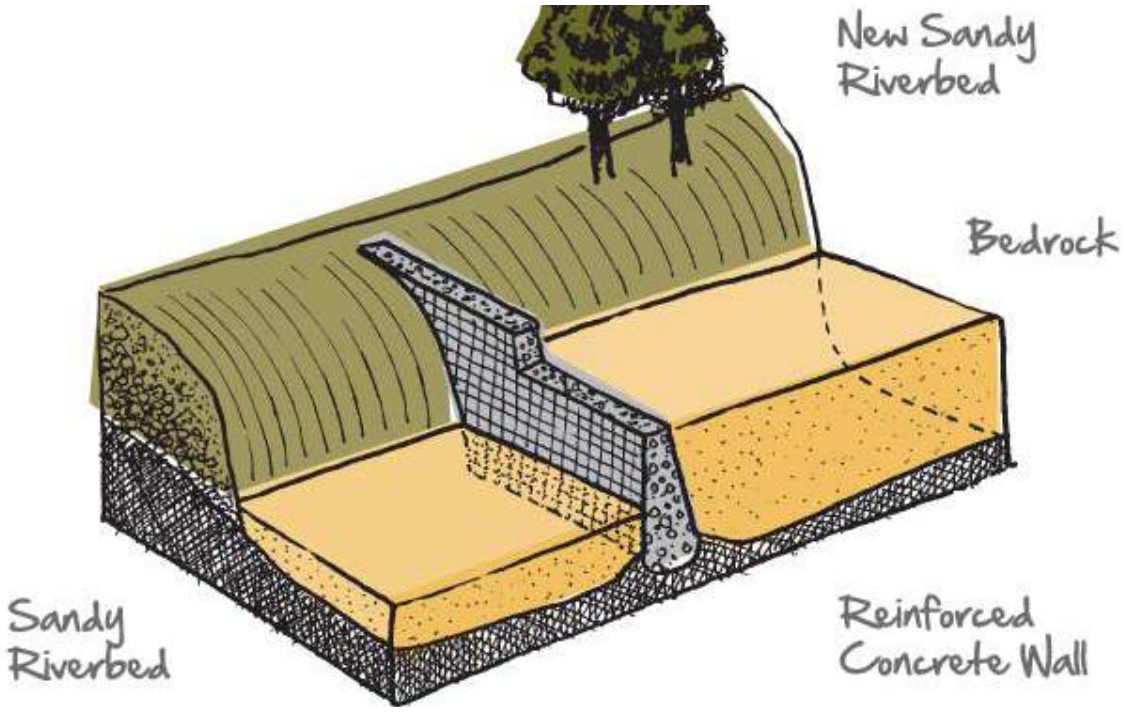
The activities of the project for which environmental and social (E&S) impacts are anticipated are exclusively associated with Component 1, specifically the establishment of 4-8 sand dams in Somaliland and Puntland. The following sections contain a technical description and the main anticipated E&S risks and impacts from the construction and operation of sand dams.

Technical Description of Sand Dams

"Sand dams" are simple structures that can be constructed with a minimum of technological support, essentially involving concrete masonry, reinforced concrete and gabion techniques, at streams and rivers with seasonal flow, that are characterized by relatively short periods of flow, and long periods of dry conditions with no flowing water in the river bed.

The basic idea behind sand dams is to erect a low weir (typically between 2-5 m high, including underground foundations) across a suitable section of a river, where there is solid ground or bedrock close to the surface and sufficient reservoir space exists to create a body of porous sediment (ideally well sorted sand) in which part of the river's runoff is retained long after surface water has evaporated. This artificial near-surface aquifer can then be tapped with wells, drainage pipes or traditional scoop holes to access and utilize the stored water.

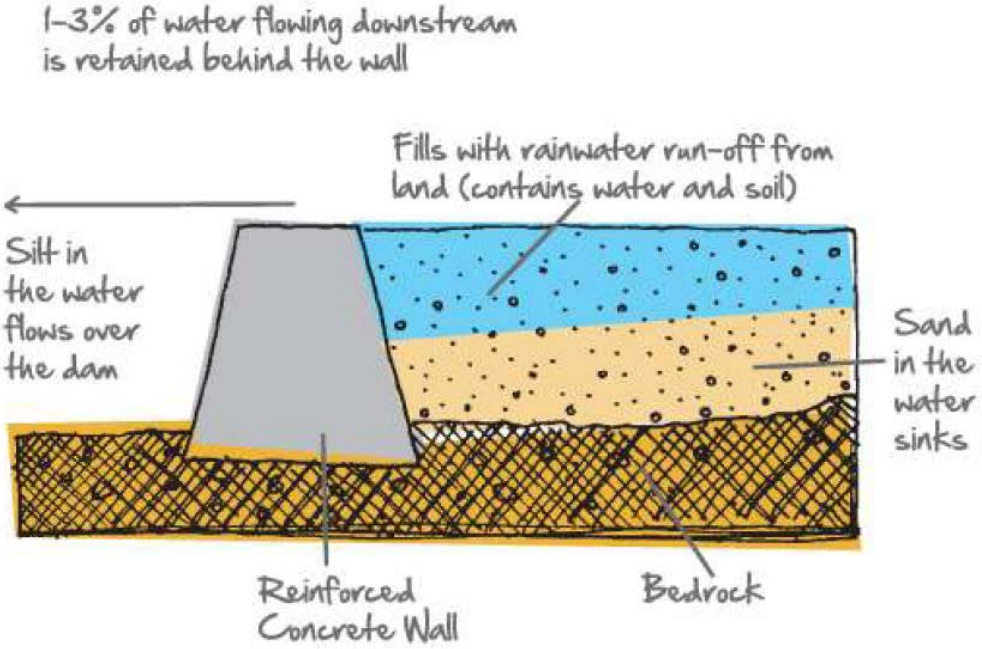
The following figures[7] illustrate the basic principles of sand dam construction and operation:



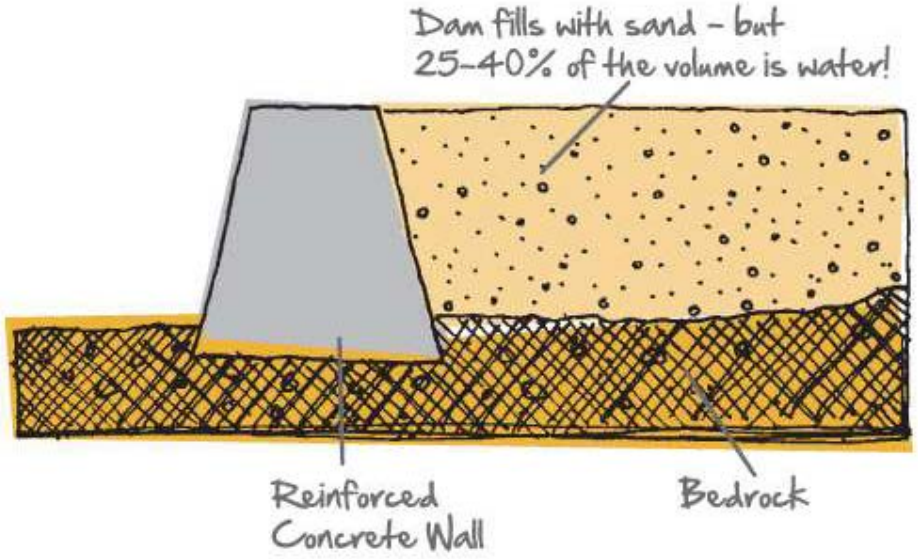
[7] from a presentation of the NGO Excellent - www.excellent.org.uk

The principle is to create an artificial barrier in the river bed in which sediments of the sand fraction are trapped and deposited, as flow speeds decrease upstream of the barrier. The dams are built with a spillway that allows water to pass freely during flow periods and carry finer sediment fractions, such as silt and clay, over the dam.

The following cross section shows a sand dam which is in the process of being filled with sediment. As the flow velocity increases upstream of the weir, sand sinks and is deposited, while silt and clay remain suspended and move further downstream. This is environmentally significant, as the finer sediment fraction often plays an important role as fertilizer for agriculture along the river.



Empirical data suggest that only about 1-3% of the total flows at a particular river cross section are retained by a sand dam, varying of course with the hydrographic characteristics of the given watercourse.



The above figure, again a cross section through a sand dam, shoes the reservoir filled to capacity with sand. Depending on grain size distribution and grading (percentage and the range of grain size classes, such as clay, silt, fine, medium and coarse sand, and gravel) of the material, the porosity, and thus water storage capacity typically lies between 20-40 Vol%. The sand is usually deposited in a geotechnically stable manner, especially if the grading is fairly wide, and the dams pose a minimal safety risk (the scenario of a dam breaking e.g. during a seismic event and the deposited sand liquefying and flowing out is extremely low). The World Bank's dam safety policy thus is commonly not triggered for sand dams.

The following two pictures[8] show - as an illustrative example - a location at a seasonal river in Northern Kenya before and after construction of a sand dam:

[8] from a presentation of the NGO Excellent - www.excellent.org.uk

Before construction the river bed has some patches of sandy sediment, but also exhibits large areas where the bedrock is exposed. The sand dam location was chosen due to the presence of a dyke of comparatively harder rock that forms a natural barrier in the river, and provides excellent foundations for the weir. Bedrock foundations are ideal to ensure the longevity of the structure by preventing undercutting and erosion, both in the river bed and the abutments.

The above picture shows the sand dam completed and the reservoir filled to capacity, providing water for an extended time period that may extend well into the dry season or even provide water throughout the year.

Despite their the apparent structural simplicity sand dams do require significant skills as if not built well they fail and therefore experience in engineering design, hydrology, hydro-technical engineering and hydraulics to be built and maintained in a sustainable manner with minimal environmental impacts is key. Some technical preconditions include the right type of river sediment, the presence of bedrock as solid foundation, the right topography to create a sufficiently large reservoir, and the local availability of construction materials such as stones and sand.

7) Anticipated Risks and Impacts

As described in section 4, the E&S baseline conditions in the project areas are generally not of high sensitivity. Nevertheless this ESMF has identified a number of E&S risks and negative impacts, and - in the following section - proposes corresponding preventive, mitigation and management measures designed to minimize and enhance the overall environmental and social performance of the project.

The risks and impacts are differentiated into the following phases:

1. Identification of sites for sand dam construction
2. Creating access to sites, transport and storage of materials
3. Construction activities
4. Operation, esp. impacts on river bed, banks, hydrology and local biodiversity
5. Social risks and impacts during construction and operation

Identification of sites for sand dam construction: The environmental impact of any engineered hydro-technical structure is largely determined by its location. For the sand dams planned under the project the following positive and negative criteria were developed: (i) sites with outcropping bedrock in the river bed and on the banks are preferable: the risk or undercutting, erosion, bypassing of the dam, as well as on riverine fauna and flora will be the lower, the less soils and vegetation are present at the prospective location; (ii) sites with naturally occurring pools or ponds of surface water, that remain well beyond the rivers flow period or are perennial should be avoided; here the presence of vegetation at the river banks and riverine fauna and flora, and the resulting biodiversity value will be higher, and also the need for additional water supply by a sand dam less arguable; (iii) sites in, or neighboring protected areas (PA) may not be selected; even if not within a PA the induced impact from the enhanced water supply of a sand dam on agro-pastoralist activities could have a detrimental effect on the indigenous biodiversity and wildlife, through larger numbers of people and livestock, longer presence in the dam area (potentially perennial as opposed to seasonal) and more area converted to agricultural use.

Creating access to sites, transport and storage of materials: Once a site has been selected some means of access will need to be established. Where no roads / vehicle tracks exists, road access will have to be established, which may have direct impacts (vegetation clearing, dust, noise, impacts on wildlife) but also induced impacts through better accessibility of hitherto remote areas. While most materials should be sourced locally (stones, sand, gravel) some, such as cement, steel reinforcements, timber, fuels etc. will need to be transported and stored at the site. There is a moderate contamination potential for surface and groundwater through loss or spills of cement / cement slurries, fuels and lubricants. Construction waste, especially rebar waste, empty containers, household waste from worker's camps etc. may create hazards to people and livestock by injury or ingestion.

Construction activities: During construction some levels of emissions (dust, exhaust fumes, noise, vibrations) are unavoidable and will need to be managed to acceptable levels. Land will

be converted from a relatively natural state to platforms and laydown areas for camps, equipment and laydown areas, as well as the footprint of the weir. Vegetation and biodiversity will be locally impacted and wildlife may be disturbed. As construction will take place during dry periods, impacts on the rivers are expected to be minimal. No or negligible groundwater and surface water pollution is expected, if basic good housekeeping measures are applied. Construction waste could impact landscape aesthetics, pollute soil and surface runoff, and pose risk to people, livestock and wildlife through ingestion or injury. The sourcing of construction materials, especially sand and rocks could have impacts on landscape, soils, erosion and biodiversity if not well managed.

Operation: The main impacts will result from the modification of the flow pattern, and resulting topography of river bed and embankments. The hydrological impacts will be local, and minor to negligible due to the small proportion of the total flow retained, and the seasonality of the river, which will have created an ecosystem adapted to long dry periods intercepted by short periods of peak flows, that quickly subside again. The reservoir area will fill up with a body of sand, covering whatever sparse vegetation might grow there previously and locally altering water availability. The river banks in the reservoir area will be expected to profit from additional water availability and support a higher vegetation density, which in turn might attract biodiversity in form of birds and small mammals. Once the reservoir is filled to capacity, the impact on the river's sediment transport will be negligible. Even during the filling period mainly sand would be retained, while silt and clay will remain suspended and pass downstream.

There will be secondary / induced impacts due to the higher amount of people and livestock the reservoir could support. It will thus be important to assess, how far the surrounding pastureland will be able to remain in equilibrium with increased grazing activities.

Dam Safety: Given the small size of the sand dams and their limited potential downstream hazards allows using the footnote of paragraph 4 of the World Bank's dam safety policy (OP4.37). This postulates that for small dams, generic dam safety measures designed by qualified engineers are usually adequate. The task team together with the Recipient has ascertained that the planned dam types and dimensions would pose no risk or negligible risk of significant adverse impacts due to potential failure of the structure to local communities and assets, including assets to be financed as part of the proposed project. Also, the Recipient has agreed on appropriate safety measures, especially regarding the qualification and experience of the engineers involved in the dams' design and construction supervision.

Social risks and impacts during construction and operation: This potential will be managed and operationalized within the project via the following specific measures and actions:

During the planning phase of the project social assessments have been carried out and been integrated in the matrix of criteria for site selection. Also, during the planning phase and the identification of suitable sites, social criteria such as (i) agro-pastoralist land use patterns; (ii) clan and family affiliations; (iii) existing advantages / disadvantages in access to water and grazing land; (iv) community structure, leadership and cooperation were collected during consultations with potential beneficiaries and will be duly considered for the design phase.

Preceding studies and consultations have identified mechanisms for a just and equitable selection of manual labor. Benefit sharing will be planned and deployed in consultation with local communities and beneficiaries.

The allocation of paid labor and construction contracts will be confirmed after consultation with all PAPs, with special emphasis on local communities and potential beneficiaries.

8) Scope of Mitigation and Management Measures

The scope of foreseen management instruments and procedures, responsibility, and required cost are listed in the following table (mitigation and management plan), and how the implementation of environmental and social measures will be measured and monitored is summarized in the subsequent monitoring plan:

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
Design	• **Site Selection** *a) Positive site criteria* presence of shallow or outcropping bedrock in river bed and banks preferable	Give preference due to better engineering properties (foundations), lesser earthworks required, less impacts on fauna and flora	Nil	nil	Design engineer	NA	Site selection is a key decision point, as it determines much of subsequent impacts; to be specified in design contract / bid documents
	b) Negative selection criteria sites with naturally occurring ponds or surface water for extended time periods	Avoid sites as the criteria could indicate valuable or sensitive biodiversity; may make justification for sand dam more difficult	Nil	nil	Design engineer, environmental specialist	NA	
	c) Negative selection criteria sites within, bordering or sufficiently close to protected areas or sensitive habitats	Disallow these sites as the induced / secondary impacts of the sand dam could significantly increase stress on PA, including wildlife, fauna and ecology	Nil	nil	Design engineer, environmental specialist	NA	
Design	• **Dam Safety** hazards to downstream communities and assets resulting from potential dam failure	Employ qualified engineers during dam design process, as well as for construction supervision; review dam design by qualified independent 3rd party	minimal	minimal	Client / Design Engineer	Supervision Engineer	For small dams, para 4, OP4.37 allows integrating dam safety issues into ESMF as opposed to separate dam safety plan

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
Construction	• **Site Access and Preparation**						
	d) Construction of access roads: loss of vegetation, potential aggravation of erosion, effects of noise and dust on people, livestock and wildlife clearing	Minimize vegetation clearing, choose access with consideration of sensitive areas (villages, habitats, water-holes, migration routes) and impose speed limits and restrict working hours to daytime only. Source materials (sand, gravel, rocks) locally to minimize transport	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	Access roads can carry significant induced impacts due to improved access to remote areas. Site selection and routing need to be planned with E&S criteria fully considered.
	e) Risk of spills, loss of materials and risks to community health and safety due to road accidents	Impose strict speed limits and code of conduct, e.g. priority for cyclists, pedestrians and animals on access road; introduce punitive action for reckless driving and causing accidents. Train all drivers and machine operators in defensive and considerate driving.	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
Construction	**Material transport / storage**						
	f) Cement Dust	cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	To be included into bid documents in the technical specifications for the realization of works
	a) Stones Dust	wet or cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	
	b) Sand and gravel Dust	wet or cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	
	g) Storage of materials at construction site could cause contamination of soil and surface / groundwater by windblown dust, spills during handling, poor waste management practices and accidents	store materials in stable and secure laydown areas, which are protected from rain, storm-water runoff and wind, and clearly marked to avoid ingressions from animals, people and machinery	minimal	minimal	Supervision Engineer / Contractor	Supervision Engineer / Contractor	
Construction	• **Execution of Works**						
	h) Stone quarries dust, workers health and safety, ecosystem disturbance	Prefer (i) existing stone quarries if close to construction site or (ii) source stones at dam site (foundation construction) or in the future reservoir area	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	Identify win-win situations in terms of economy and environmental performance: sources close to dam and in reservoir area minimize transport, thus saving cost and emissions, and increase reservoir capacity.
	i) Sand and gravel borrow pits disturbance of river bed, water quality, ecosystem disturbance	source sand at dam site (foundation construction) or in the future reservoir area	nil	nil	Design Engineer / Contractor	Supervision Engineer / Contractor	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
Construction	• **Construction site**						
	a) Noise disturbance to human and animal population and workers	limit activities to daylight working hours (not between 8 p.m. and 7 a.m. or as agreed with public and authorities);	minimal	minimal	Construction Contractor	Construction Contractor	all these provisions to be specified in bid documents - Technical Specifications - for realization of works
	b) Air Pollution	water construction site and material storage sites, maintain machinery, avoid idling, no waste burning	minimal	minimal	Construction Contractor	Construction Contractor	
	c) Vibrations resulting from equipment work	limit work activities to daylight working hours (not between 8 p.m. and 7 a.m. or as agreed with public and authorities)	nil	nil	Construction Contractor	Construction Contractor	
	d) Traffic disruption during construction activity	especially at turnoff from main roads install warning signs for slow vehicles	minimal	minimal	Construction Contractor	Construction Contractor	
	g) Water and soil pollution from improper material storage, management and usage	Organize and cover material storage areas; isolate concrete, and other works from watercourse by using scaled formwork; isolate wash down areas of concrete trucks/mixers and other equipment from watercourse by selecting areas are not draining directly or indirectly into watercourse; treat water to remove solids.	minimal	minimal	Construction Contractor	Construction Contractor	Impacts on surface water and groundwater can be minimized or entirely avoided by selecting dry season as time window for main construction activities

Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
	h) Water and soil pollution from improper disposal of waste materials	dispose waste material at appropriate location protected from washing out, such as sufficiently deep pit that is covered with impermeable material after construction finishes; take all noxious / toxic substances (e.g. spent engine oil) off site for disposal in licensed facility	minimal	minimal	Construction Contractor	Construction Contractor	
	i) Potential contamination of soil and water from improper maintenance and fueling of equipment	proper handling of lubricants, fuel and solvents by secured storage; ensure proper loading of fuel and maintenance of equipment; collect all waste and dispose to permitted waste recovery facility	minimal	minimal	Construction Contractor	Construction Contractor	
	j) Destruction of crops, trees, meadows, etc.	ensure control of working zone and land acquisition; compensate damage	j) NA	depends on quantity of damage	Construction Contractor; Client	a) Construction Contractor; Client	can be entirely avoided if construction area diligently planned and located
	k)Workers safety	provide workers with safety instructions and protective equipment (glasses, masks, helmets, masks, boots, etc); safe organization of bypassing people & livestock	k)minimal	k)minimal	a) Construction Contractor	b) Construction Contractor	

Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
Operation	• **Hydrological Impacts**						
	a) Modification of flow pattern and sediment transport	will be minimal and restricted to filling period; no specific mitigation measures will be required	nil	nil	NA	NA	Should be addressed in baseline studies, especially on hydrology and hydrography, local geology and sediment transport as part of design.
	b) Erosion of dam foundations or abutments, resulting in damage and/or failure	Ensure engineering and environmental due diligence, including hydrological and hydraulic studies being conducted and integrated into dam design for maximum sustainability; conduct regular technical inspections of dam's structural integrity and provide "hotline" for dam users to report damage and incidents.	nil	nil	Design Engineer	Client	Part of the TA package shall be an operation and maintenance plan with a clearly assigned institutional responsibility for (i) regular inspections; (ii) maintenance and repairs and (iii) liaison with dam users

Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments
			Install	Operate	Install	Operate	(e.g. secondary impacts)
Social Risks and Impacts	*a) Induced impacts and potential conflicts by creation of additional water sources and the question of equitable access*	During the planning phase social assessments have been carried out and been integrated in the site criteria selection. Also, during planning and identification of suitable sites, social criteria such as (i) agro-pastoralist land use patterns; (ii) clan and family affiliations; (iii) existing advantages / disadvantages in access to water and grazing land; (iv) community structure, leadership and cooperation were collected during consultations with potential beneficiaries and will be duly considered for the design.	NA	NA	Client	Client	The social impacts and potential aggravation of resource-related conflicts was one of the key topics in the agro-pastoralist assessments carried out during the preparation of the project (references!). The key elements for managing the potential tensions and conflicts resulting from potential biases and discrimination in access to the water resources created by the project can be found in (references).
	b) Equitable access to labor and contracting services, benefit sharing	Preceding studies and consultations have identified mechanisms for a just and equitable selection of manual labor; contracting services will be tendered via NCB and rely on a set of objective and transparent evaluation criteria. Benefit sharing will be planned in consultation with local communities and beneficiaries.	nil	nil	Design Engineer / Client	Supervision Engineer / Client	The allocation of paid labor and construction contracts will be confirmed after consultation with all PAPS, with special emphasis on local communities and potential beneficiaries.

MONITORING PLAN

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	Why ***is the parameter to be monitored? (optional)***	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
<u>Design</u>	site selection criteria	at all potential sand dam locations	by applying environmental and engineering judgment	during the design / site identification phase	to optimize E&S performance of the selected locations	nil	nil	Design Engineer / Client	NA
<u>Construction</u>									
• **Site access and preparation**	sensitive routing of roads, minimization of disturbances to people, livestock, vegetation and wildlife	access route corridors	by applying environmental, social and engineering judgment	during the design / site identification and preparation phases	to optimize E&S performance of the selected locations	nil	minimal	Design Engineer / Client	Supervision Engineer / Client
• **Material supply**									
Stone quarry	ESMP and community approval in place	at stone quarry	document inspection, consultation	before exploitation / works begin	E&S and H&S compliance	minimal	NA	Supervision Engineer / Contractor	Supervision Engineer / Contractor

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	Why ***is the parameter to be monitored? (optional)***	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Sand and gravel borrow pit	ESMP and community approval in place	sand and gravel borrow pits	document inspection, consultation	before exploitation / works begin	E&S and H&S (health and safety) compliance	minimal	NA	Supervision Engineer / Contractor	Supervision Engineer / Contractor
• **Material transport**									
Cement	truck load covered	job site	visual inspections	unannounced inspections during work	E&S and H&S compliance; traffic and community health and safety requirements; avoid traffic disruptions	NA	nil	NA	Supervision Consultant
Stone	truck load covered or wetted	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
Sand and gravel	truck load covered or wetted	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
Traffic management	hours and routes selected	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
• **Construction works**									
Noise disturbance to human and animal population and workers	noise levels; equivalent noise level, equipment	job site; nearest homes or temporary pastoralist camps	noise meter and analyzer, inspection	once for each machine and equipment when works start, and on any complaint received	E&S and H&S compliance;	NA	minimal	Supervision Consultant	Supervision Consultant

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	Why ***is the parameter to be monitored? (optional)***	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Air pollution	dust (solid particles) and smoke / fumes	at and near job site	visual inspections	during material delivery and construction	E&S and H&S compliance;	NA	minimal	Contractor	Supervision Consultant
Vibrations resulting from equipment work	limited time of activities	job site	supervision (instrument - FFT data collector)	inspections during work and on complain	E&S and H&S compliance;	NA	minimal	NA	Supervision Consultant
Traffic disruption during works	signposting and road markings	turnoff from main road, access road corridor	visual inspection	at start of works, monthly follow up	E&S and H&S compliance;	NA	minimal	Contractor	Supervision Consultant
Water and soil pollution from material storage, management and usage	water and soil quality (suspended solids, oil and grease)	runoff from site, material storage areas; wash down areas of equipment	visual observation; gravity; basic mobile	during material delivery and construction, especially during rain, events	E&S and H&S compliance; pollution prevention; community H&S	NA	minimal	Contractor	Supervision Consultant
Water and soil pollution from improper disposal of waste materials	water and soil quality (suspended solids, oil and grease)	waste collection / depository site	laboratory equipment (water analyzer);	in case of provisional disposal of waste at construction site and on complaint	E&S and H&S compliance; pollution prevention; community H&S	NA	minimal	Contractor	Supervision Consultant

Phase	**What** *parameter is to be monitored?*	**Where** *is the parameter to be monitored?*	**How** *is the parameter to be monitored?/ type of monitoring equipment*	**When** *is the parameter to be monitored? (frequency of measurement or continuous)*	Why ***is the parameter to be monitored? (optional)***	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
Potential contamination of soil and water from maintenance and fueling of equipment	water and soil quality (suspended solids, oil and grease); procedures of work	job site; equipment maintenance facilities	visual observation; gravity; basic mobile laboratory equipment (water analyzer);	in case of fueling of equipment at construction site and on complaint	E&S and H&S compliance; pollution prev.; community H&S	NA	NA	Contractor	Supervision Consultant
Destruction of crops, trees, meadows, etc.	land use / encroachment by works	job site, access road	visual inspections, consultations	during material delivery and construction	social impact mitigation	NA	minimal	NA	Supervision Consultant
Workers safety	protective equipment (glasses, masks, helmets, boots, etc); organization of bypassing traffic	job site	visual inspections	unannounced inspections during work, at least weekly	compliance with EHS (environment, health and safety) standards	NA	minimal	Design Engineer (to be incl. in specifications, TOR, contract conditions)	Supervision Consultant
<u>Operation</u>									
Erosion of dam foundations or abutments, resulting in damage and/or failure	signs of erosion, subrosion, washout, bypass, clogging by large stones or trees	dam site, abutments, dam toe and d/s river bank protection, spillway	visual inspection by qualifies hydraulic engineer	twice annually during 1st 2 years of operation, the annually	to enter into maintenance and repair routing, for sustainability of works	NA	inspections will bear minimal cost, budget for maint. & repairs to be created	NA	Client

9) Roles and Responsibilities

The project will be implemented by the relevant ministries which were fully involved during the project's design and will establish project teams that will support all stages of the project cycle. The key aim of this particular project will be to assess both the delivery mechanism and the efficacy of under-utilized water supply technologies such as sand dams and infiltration galleries as appropriate technologies for Somaliland and Puntland.

There are several given weaknesses and resulting risks, that will not be mitigatable in the context of the project and will have to be accepted and dealt with by introducing and enforcing project level due diligence and compliance measures. The key challenges and risks are perceived to be the following:

1) There is very little available in terms of national environmental legislation mandating the processes and standards for environmental screening, scoping, assessment, and oversight of projects with physical footprints.
2) There are no functioning departments that would be responsible for E&S oversight of investment projects. Thus there is extremely limited environmental / social input into the review and licensing of projects.
3) There is unclear regulatory responsibility, and virtually no enforcement of construction / operational oversight.

Given the above risks the project will place much emphasis on "soft" components and activities complementing the engineering / technological approach, and which will include on-go ing WB fiduciary and safeguards assessments of the relevant ministry systems, their continuous strengthening in an "on the job training" modus, as well as community mobilization, hygiene promotion and behavior change, water quality testing and training , awareness raising and capacity building in natural resource management.

Due to the limited institutional capacity and requisite legislative framework to handle financial management and robust public procurement the project risk is rated high. Recognizing this, in combination with the bank's strategy to support the use of country systems without creating parallel systems and capacity substitution, financial management functions will be centralized within the Ministry of Finance. External Fiduciary Assistance (EAFS) units made up of national staff are being established under the bank's PFM project, these units will be supported by targeted TA provided within the government structure aimed at capacity building and transfer of knowledge to local staff. The EAFS will work closely with the project team and project financial transactions will be recognized, recorded, accounted, analyzed, summarized and reported using the bespoke government financial management information system supported by the PFM project. The offices of the auditor general will have the constitutional responsibility to carry out independent audits of the project. Procurement will be carried out in accordance with the latest revision of the World Banks Guidelines and because the project is being implement in a fragile state procurement under the project will be processed under special procurement arrangements referred to in paragraph 20 of OP11.00

The following table gives a brief overview on roles and responsibilities.

Table 1: *Institutional Arrangements in Environmental Decision Making*

Institution	Mandate
Somali Federal Government	• Signs International Conventions
Council of Ministers	Approves National Strategic Climate Strategy
Parliament	Approval of Environment Acts and Laws
A. Central Level MoERD (SL) MoEWT (PL)	• Prepares Strategic Climate, Environment and Social Strategy • Environmental Policies / Plans • Guidelines - Approves EAs • Liaison with Regional level Institutions • Monitoring and Evaluation
B. Regional Level: Regional Environmental Watch Councils (SL) Environmental committees and pastoral associations (PL)	Implement Regional Policies Implement Sectoral Laws (National or State Laws) - Approval of all development activities
C. Local Level: District Environmental Watch Council and Villages/ Pastoralist Community Environmental Watch Councils (DEWC/ PEWC)	• Implement local orders on Public Health, District natural resources • Implement Regional Laws • Approval of projects at District Level • Mobilize local communities • Submit requests for development activities to REWC

10) Capacity Analysis and Improvement

During the Bank's engagement in SL and PL a continuous process of capacity analysis of institutions and entities responsible for, and involved in environmental and social management has been pursued, and a sizeable amount of experience accumulated. Some projects have integrated components aimed at improving and consolidating capacity and skills required for project implementation, and beyond the project for general due diligence management. In the context of this project, and especially due to its small financial volume, this fairly large scale approach will not be feasible.

Thus the project plans to mainstream continuous strengthening via an "on the job training" approach, as well as through joint field visits, stakeholder engagement and technical discussions. In this context WB staff and counterparts will jointly address community mobilization, hygiene promotion and behavior change, as well as work on water quality testing and training, awareness raising and capacity building in natural resource management.

11) Disclosure and Consultation Activities

This ESMF will be disclosed in the WBG's Infoshop, in Somaliland and in Puntland. As the project is classified as E&S category B, OP4.01 requires only one stage of consultations on an advanced

draft of this ESMF. Consultation meetings, where the project outline and the ESMF were presented and explained, and stakeholders could raise questions and express their opinions, were organized in the following manner:

- On March 25, 2015 at Garowe
- On March 25, 2015 at Hargeisa

The announcements of the consultations, the materials presented, the list of invitees and participants (as far as stakeholders were willing to disclose their details), and the minutes of the consultations are attached to this ESMF as Annex 1. The comments and observations received have been duly considered, and the ESMF - where deemed necessary - modified accordingly.

12) Annex 1 ESMF CONSULTATION MEETING MINUTES

Date: 25/March/2015

Location: Garowe, Ministry of Environment Wildlife and Tourism Conference room.

Agenda of the Meeting

Time	Activity	Responsible Person
8:15-8:45	Welcome remarks	Director General
8:45-10:30	Brief Introduction of the Walp project and the Environmental & Social Management Framework (ESMF)	Director General
10:-30-11: 30	Discussions on the WALP project and ESMF	Director General
11:30- 11:45	Closing Remarks	Director General

Project Overview

Prior the start of the Meeting a comprehensive agenda on the meeting was shared with the participant. The Director General of the Ministry of Environment Wildlife and Tourism has opened and facilitated the meeting. He has explained the objectives and the components of the project and the importance of having Environmental and Social management Framework.

Objectives of the Meeting

- To discuss with the Community the potential benefits and risks that can result from this project.
- To explain and provide overview the project components and strategies.
- To gather the community idea towards the implementation of the project, mitigation of environmental and social risks

Participant's feedback

Generally the participants have welcomed the project and they mentioned that this project can bring positive change if it's implemented appropriately since huge amount of water is wasted every year. One of the Key issues in which the participants has highlighted is the need to have a comprehensive awareness and community sensitization in the selected project areas prior the implementation of the project so that communities will be aware of the contents and the components of the project. Participants has also emphasized the need to have project sustainability plan which clearly outlines who is responsible what whether it is the Community or the Government so that each one will have clear role and responsibility when it comes to the sustainability of the project. They have also clarified that there is no any evident potential social risks that can result from this project

Participants Comments

1) **Xuseen Guled (Gosol community leader)**

The elder has strongly emphasized "the need to have consistent community awareness and dialogue. He has also stressed the Ministry to play key role in the community engagement". In response to this the D.G has said" Community engagement and dialogue is collective responsibility

2) **Said Xaji Cabdile (Kulmiye Development Organization)**

The elder has welcomed the project and request the Ministry to conduct community awareness and information sharing. He believes that this project will support subsistence farming activities.

3) **Cali Geele Maxamed (Gosol Traditional Elder)**

The elder who was not familiar with subsurface and Sand dam technologies has asked the DG to Explain more on the construction of this type of sand dams. The DG has given brief description of how the sand dams are constructed and used. He has told them that qualified Water civil engineer will develop proper designs and that will clarify the capacity and the construction models.

4) **Axmed Saleeban (Xam xamaa Community Leader)**

The elder has said there are already excessive land degradation and water reservoirs (Cemented Berkeds).

There for he has indicated his worries about that the construction of the proposed sand dams will only exacerbate the rampant soil erosion and land degradation.

5) **Cali Maxamuud Siciid (Xam xamaa Community Leader)**

The elder has welcomed the initiative but he warned about the resistance that might come from the Cemented Berked owners who might not appreciate the proposition of Public owned water point near their housing and settlements. In other words the owners of the cemented berkeds are reluctant to accept free water sources that might compete with their water business. In response, the DG has informed the participants there will be study tours for selected community elders in neighbouring countries who has benefited similar interventions.

<u>Observations and Conclusions</u>

After the conclusion of the meeting the technical team of the Ministry has analyzed the views and perception of the participants with the following conclusions.

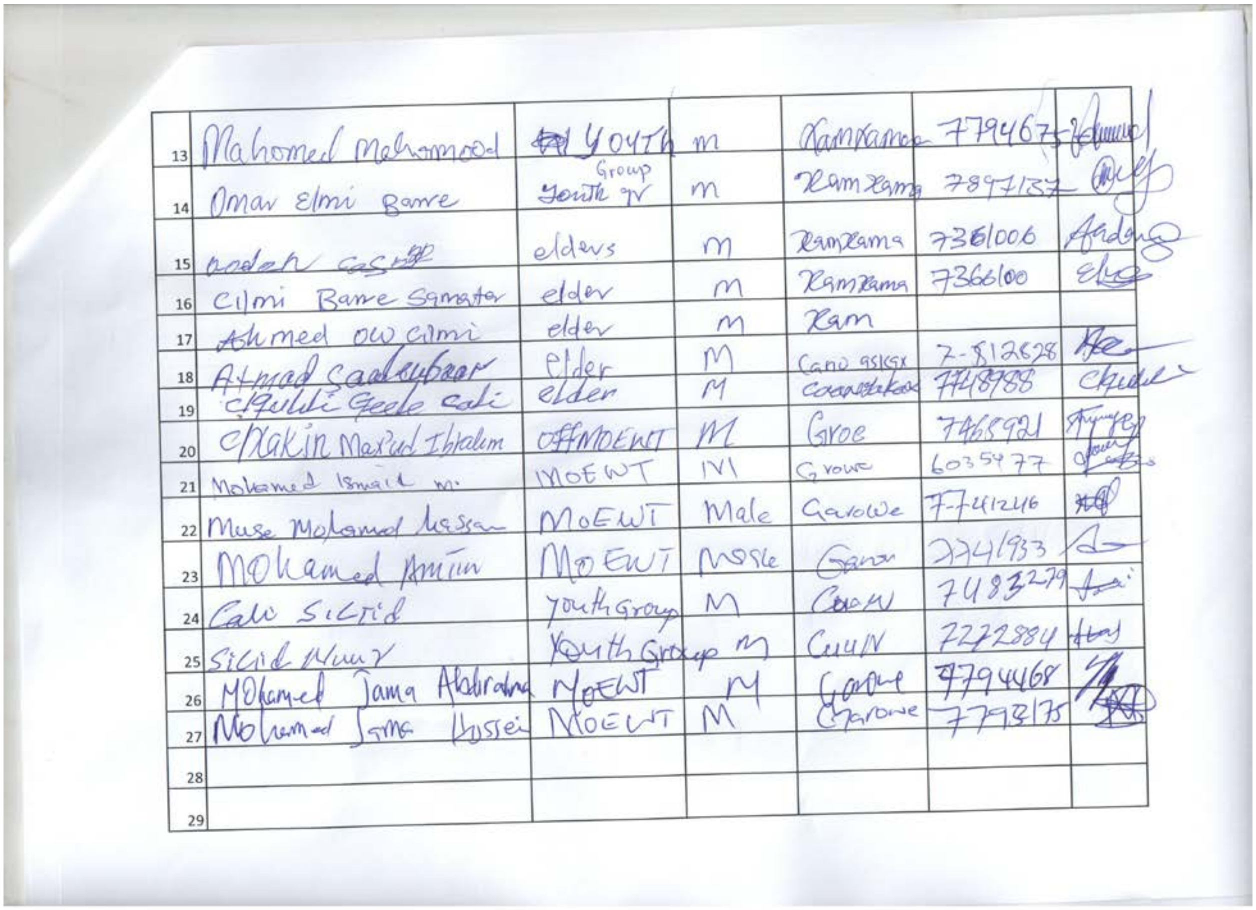
- There is lack of clear understanding on how sand dams are constructed, managed and operated.
- There was fear and anxiety on how the dam will affect the lower part of the stream and rangelands. Some participants believe that the water will be siphoned off which might disturb the entire water flow system.

- Some cemented berked owners mistakenly feel that their water business will be jeopardized. This problem and illusion can be addressed through systematic through systematic community education and awareness.
- There was a majority consensus about the benefits of this project for the long term sustainability of the agro-pastoral livelihoods.
- The participants have unanimously indicated the absolute need of strong community awareness, dialogue and engagement.

MINISTRY OF ENVIRONMENT WILDLIFE AND TOURISM, PUNTLAND

ESMF Consultation meeting

s/n	Name of participants	Organization	Gender	Location	contact	Signature
1	Said Haji Cille	KDO	male	Garowe	7794571	[illegible]
2	Axmed Maxed Axmed	elder	M.	Afdugulaaye	7743840	[illegible]
3	Cali Maxud Sicid	Council	m	Gubato	7721322	[illegible]
4	[illegible]		M	Burtinle	7786203	[illegible]
5		Elder				
6	Xassan Guled Xirsi	ASE	m	Burtinle	768410	[illegible]
7	Cali Geelle	ASE	m	Burtinle	7754600	[illegible]
8	Farhia mohamed Hussein	ASE	F	Burtinle	775928	[illegible]
9	Hibo Cali Xusen	ASE	F	burtinle	7788304	
10	Abdiqadir Xusen	Elder	M	Cuun	7359984	[illegible]
11	C/qani Nuur Cali	Elders	M	Eyl	7727188	[illegible]
12	Mohamud Salaad Jama	MoEW	M	Eyl	7744334	[illegible]



13	Mahomed Mahamood	Youth Group	m	Qamqama	779467	[signature]
14	Omar Elmi Barre	Youth gr	m	Qamqama	7897137	[signature]
15	[illegible]	elders	m	Qamqama	7361006	[signature]
16	Cilmi Barre Samatar	elder	m	Qamqama	7366100	[signature]
17	Ahmed Ow Cilmi	elder	m	Qam		
18	Axmad Caalwubaar	elder	M	Cano gsigx	7-812628	[signature]
19	Cqulidi Geele Cali	elder	M	[illegible]	7748988	[signature]
20	Cxakin Maxcud Ibrahim	OffMOEWT	M	Groe	7465921	[signature]
21	Mohamed Ismail M.	MOEWT	M	Growe	6035477	[signature]
22	Muse Mohamed hassan	MoEWT	Male	Garowe	7741246	[signature]
23	Mohamed Amiin	MoEWT	Male	Garow	7741933	[signature]
24	Cali Siciid	youth Group	M	Garow	7483279	[signature]
25	Siciid Nuur	Youth Group	M	Garow	7272884	[signature]
26	Mohamed Jama Abdirahman	MoEWT	M	Garowe	7794468	[signature]
27	Mohamed Jama Hussein	MoEWT	M	Garowe	7793175	[signature]
28						
29						

EVENT:	Disclosure and consultation of ESMF
VENUE:	Ministry of Environment and Rural Development, Hargeisa
DATE:	25th of March 2015
PARTICIPANTS	Please see attached list

Meeting Objectives:

1. The purpose of the meeting was to disclose and hold consultations around the ESMF for the responsible management of the Water for Agro-pastoralist livelihoods pilot project

Fig: Consultation meeting at the Meeting hall of the MoERD

Introduction

The water and sanitation program WSP of the World Bank is currently providing technical assistance in cooperate governance to Hargeisa water authority (HWA) and technical assistance to Ministry of Environment and rural development as the planning and development of water for agro- pastoral livelihood projects (WALp). To complete the preparation for the project documentation to put forward for a final funding decision by the Bank one important document that has been prepared by the World Bank is the Environmental and Social Management Framework (ESMF). A disclosure and consultation of the ESMF meeting was held at the Ministry of Environment and Rural Development. The meeting started at 11:30 am with welcome from the minister of MoERD. The Minister stated the objective of the meeting, the importance of wadi development and the process the project development has gone through thus far. The meeting ended at 1:00 pm.

The focal persons from the ministry of Environment and Rural Development (Ahmed Ibrahim Warsame and Ministry of Water (AbdiRahman) described the project interventions. The stakeholder comments and recommendation are as follows.

Comments and Recommendations

1. Potential Ecological Impact/Mitigation Measures is totally missing
2. The participants stated that the ESMF did not include the environmental baseline conditions of the specific sites that were chosen for development. Baseline condition for specific project sites should include

- Climate
- Geology
- Drainage
- Hydrogeology
- Water Availability
- Surface Water Quality
- Soils/Vegetation/Biodiversity
- Affected Settlements

3. Environmental upper and lower streams impact should be considered:

- Upper stream such as
  - ➢ Sedimentation in the reservoir
  - ➢ Risk of eutrophication / growth of non-native and/or invasive species
- Downstream such as
  - ➢ Changes in downstream ecology
  - ➢ Enhanced erosion/ changes in topography due to excavation
- Social
  - ➢ May cause Massive influx of people during and after dam construction
  - ➢ Reduced availability of river water, downstream (especially during dry season) to downstream users

4. The participants expressed a need for community mobilization before and during the project as there is a great risk of conflict on water use for both the pastoralist and the farmers after increase of water resources.

5. Detailed plans need to be made for the design of the dams that are appropriate for the location to avoid erosion of the surrounding areas and flooding. Building wings for the dam was

suggested to treat the problem of floods and overflow of the dam. The troughs should be built outside the dam area.

6. Designs need to include livestock corridors for drinking. Provisions need to be made for sanitation and safety.
7. Development of extension services for the sustainable use of the dams.

Annex.1

E & SMFW Meeting participants

The list, of email address, telephones and employers of the participants attending the meeting on E&SMF that was work conducted at the conferences hole of MOE&RD office in Hargaisa. These participants come from different institutions, including, UN, international and local NGOs and governmental, which are as listed below:

SN	Participant's names	Tittle	Org.	Email	Phone No.	Signature
1	Mahamed Muuse Awale	Commissioner	NERAD		0634424079	
2	Shukri H. ismacil	Minister	MOE&RD	MEO&RD		
3	Abdulahi Egeh Ismacil	Director	MOA	Cige@outlook.com	0634100324	
4	Ahmed Ibrahim Awale	Chairman	Candlelight	aiawaleh@gamil.com	0634426069	
5	Sulub is mael Ahmed	Chair person	HIRDA	Sulub60@gmail.com	0634426675	
6	Abdi Abokor Yousuf	NPO	UNDP	Abdi.yusu@undp.org	0634428251	
7	Dahir Mohamed Jama	NERAD	NERAD	mmxdhaqane@yahoo.com	0634482570	?
8	Mahamed Ahmed Awale	MA	MA	Awaale50@hotmail.com	0634000541	
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