SOMALIA REGIONAL CORRIDORS INFRASTRUCTURE PROGRAMME

PHASE -1 ROAD REHABILITATION COMPONENTS

ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

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March, 2019

ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

PHASE-1 ROAD COMPONENTS

SUBMITTED TO

PRESENTED BY

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LIST OF ABBREVIATIONS

AfDB	African Development Bank
AMISOM	African Union Mission in Somalia
BCM	Billion Cubic Metres
CFW	Contributing Family Workers
EHSMP	Environment, Health and Safety Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture of United Nations
FGS	Federal Government of Somalia
GAP	Gender Action Plan
GDP	Gross Domestic Product
GIZ	German Development Agency
HDI	Human Development Index
IDP	Internally Displaced Persons
ILO	International Labour Organization
IUCN	International Union for Conservation of Nature
NOC	No Objection Certificate
PAP	Project Affected Persons
PIU	Project Implementation Unit
MPWRH	Ministry of Public Works Reconstruction and Housing
RAP	Resettlement Action Plan
ROW	Right of Way
SIF	Somalia Infrastructure Fund
SRCIP	Somalia Regional Corridors Infrastructure Programme
SWALIM	Somalia Water and Land Information Management
MPWRH	Ministry of Public Works Reconstruction and Housing
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

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EXECUTIVE SUMMARY

1) BACKGROUND AND CONTEXT

The Environmental and Social Impact Assessment (ESIA) has been prepared in accordance with Terms of Reference (TOR) for issue of certificate of non-objection from the designated authority (Federal State of Somalia) as a justification for the implementation of proposed road components (Phase 1, Somalia Regional Corridors Infrastructure Programme (SRCIP)); and ensuring that planned road project is environmentally sound and sustainable.

As a rule of thumb, ESIA should follow country specific guidelines but was found missing at both State and National level due to volatile political and security context in Somalia. Thus, the review predominantly used the international environmental assessment guidelines of the UNEP, the African Development Bank, World Bank, FAO complemented with some specific local indicators proposed by IUCN for harmonizing the environmental impact thresholds; while primarily focusing at the National Development Plan (2017-19) of the Federal States of Somalia.

2) METHODOLOGY

The data collection took a three stage approach. Firstly, an induction workshop was held in Mogadishu and Nairobi in 2018 in order to familiarize the consultant with information to guide the assessment process, drawing the work plan; and making necessary logistics needed for fieldwork data collection and reporting. Secondly, in collaboration with UNOPS in-country focal points, field work inform of consultative process was held in the proposed SRCIP locations to collect data from relevant line ministries, civil society organizations, international organizations, the community and quarry areas focusing on states of environment, scenarios without the project, socio-economic and environmental impacts of the project while supported by GIS satellite imaging and analysis, areas of public controversies, and suggested mitigation measures including assigning responsibilities for remedial actions in the anticipated road project. The study used Desk reviews of relevant literature (both national and states/regional records) as part of data collection. Finally, it involved convening a stakeholder workshop in to develop a comprehensive environmental plan on issues identified; followed by a validation workshop in Nairobi to present preliminary findings leading to the production of the draft and final reports.

The methodological approach used to assess the environmental impacts has two main phases; identification and analysis of potential impacts. The identification of potential impacts consists of identifying the environmental components (physical, natural and human environments) and production systems that are likely to be impacted by the project activities. The assessment of potential impacts involves defining the scope of the impacts associated with project execution. The significance of an impact on a component of the environment is based on three parameters; duration, scope and magnitude. However, the identification of potential impacts takes into account the following elements; i) project technical specifications and proposed working methods, ii) knowledge of the environment, iii) lessons learned

from similar projects and iv) environmental concerns and public controversies associated with the project.

3) KEY FINDINGS

a) State of Infrastructure

Regarding infrastructure, Somalia has about 21,933km long road network in poor to very poor condition. 90 % of the primary roads serving major regions including those under SRCIP have deteriorated and are well past their designed life-span of 30 years (National Development Plan, 2017-19). With many years of protracted armed conflicts and recently formed weak Central and State federal governments pose, a huge maintenance backlog to road infrastructures in the country. In such context, long term development of infrastructure sector largely depends on international community beside humanitarian support for recovery process and sustainable development of Somalia. A major part of the investment in the roads and transport program in major towns can deliver livelihoods, trade and cash transfer benefits to already impovertized/vulnerable population. Largely agreed, this could help create employment, link markets, and reduce the cost of doing business, making Somali enterprises more competitive.

By large, the road sector faces serious budgetary constraints due to country's inability to access international financing for large-scale infrastructure projects which also limited the possibilities of investment in the road sector besides lack of a centralized coordination and regulatory mechanism, haphazard sector development activities hamper the realization of the long term national vision, underpinned and delivered through systems based approach to long term national infrastructure planning. Furthermore, there are no significant budget allocations for the maintenance of infrastructure investments

b) State of Environment

In the sector, the collapse of the State and governance structures as well as the lack of security, with resulting chronic conflict, low rule of law and an environment has placed enormous obstacles to the consistent and sustainable management of environmental resources. This has led to rapid deforestation creating the conditions for desertification in semi-arid livelihood zones. This condition is felt very acutely where forests have been depleted due to uncontrolled or managed charcoal production for export, despite a ban, and a growing domestic as charcoal remains the primary domestic cooking fuel.

Equally, pastures and rivers are being unsustainably exploited, diminishing economic opportunities they could provide and diminishing essential resources required by the agricultural sector to manage times of crisis or stress. Rapid urbanization and growth in construction sector is another challenge, which in the absence of plans, legislation and enforcement of rule of laws on environment will create unsustainable utilization of natural resources in many parts of the country. Rebuilding the ministry of environment will entail vigorous efforts aimed at restoring the capacity of institution, communities' natural management and putting

in place effective and accountable governance structures, policy and achievable plans. Appropriate policies and practices for sustainable management of natural resources are required both at the national and state levels; through literature reviewed.

c) The proposed project Activities, Phase 1

The project will cover 4 locations during the Phase 1 of AfDB funding

1) Galkayo- Garowe Road (229.4 Km) – rehabilitation and Triple Surface Treatment of 85 kilometers long and 7.3 meters wide between Galkayo and Faratoyo;
2) Belet Wayne – Galkayo (395.2 Km) – the rehabilitation and the Triple Surface Treatment will focus on 90 Km long and 7.3 meters wide. Originally, it was proposed that the 90 Km rehabilitation will start from north of Dhusamareeb. However, a discussion between the Federal Ministry and the State Ministry of Hirshabelle has agreed that the proposed 90 Km rehabilitation should be divided between the Galmudug State and Hirshabelle State. About 30 Km of the road rehabilitation will focus in the Belet Wayne with possible reconstruction of 10 Km road link between Beletwayne and Feerfeer on the Somalia/Ethiopia boarder. The remaining 60 Km will rehabilitate the road section between Dhusamareeb and Adado
3) Galkayo-Hobyo (264 Km) – The construction of 100 Km long and 3.65 meters wide of compacted gravel road between Galkayo and Elgula.
4) Luuq, Ganane-Dolow (80 Km) – grading and compacting the entire existing 80 km, 7.3 m wide earth road.

d) Public involvement and disclosure

Project participants raised a number of expectations as detailed in section of the social benefits from the project. The majority of the regional authority and road site-affected and beneficiary communities are aware of the upcoming Project. Almost all respondents support the project, saying that currently infrastructure rehabilitation and employment opportunities for the vulnerable people especially IDPS in Somalia are urgent. They believe that upgrading the roads will help them join the country's mainstream socioeconomic development. With regard to the project impacts, almost all the respondents have no significant fear on the project impacts.

The consultation meetings led to the following suggestions: (i) work with government authority as much as possible; (ii) public awareness and notification to the community in the rock extraction areas and market street where the pilot road will be constructed so as to cope with the likely social costs/negative consequences that may arise from the project; (iv) construct bypasses at congested road, especially wherever there are frequent and/or prolonged traffic jams; (v) provide sufficient cross drainage "Irish crossings" to avoid flooding and ensure natural flow of fresh and wastewater; (vi) local authority helps in screening the laborers for security risks; and (vii) local authority allocates the waste dump sites; blocking, policing of the construction site and solving disputes that may arise.

The meetings also recommended the following as remedies to the environmental concerns (i) trees should be planted along the areas of extraction; (ii) excavation and blasting activities should be controlled, especially avoiding grazing areas; (iii)

Awareness, campaign to avoid areas with trees during extraction; (iv) the holes created should be refilled; (v) quarrying should be done alternatively to reduce over loading one area and causing significant vegetation/fodder losses; (vi) sensitizing people to boil water for drinking purposes; and (vii) leftover construction materials must be disposed off before leaving. Details of commitment and responsibility including monitoring.

Also, the stakeholders agreed that for the smooth implementation of SRCIP and ensuring the Project's objectives are met and sustainable, attention should be taken to account for the followings:

1) The choice of road sections to rehabilitated has to be done in a transparent manner that considers social-political and technical aspects;
2) Damaged culverts and bridges along the roads have to be repaired especially in areas where the bridges are completely damaged and the road is impassable;
3) During the design of the Galkayo-Hobyo road the current plans to build the port of Hobyo has to be taken into account given the likely increase of traffic particularly heavy trucks.

e) Project negative impacts to the physical environment

In this project, a number of areas likely to be negatively impacted on the natural and physical environment; ranges from: The loss of tree cover from sites where rock extraction for SRCIPS would be taken. Participants consulted agreed that a considerable quantities of vegetation and woodland are being lost by the ongoing stone quarrying and would be further affected during the construction phase by the following actions; i) rock excavation and earthworks, ii) transportation of materials, construction of temporary facilities at sites, iii) and land clearance. Construction work will cause loss of vegetation mainly from quarry sites where there are uncultivated grassland and shrub lands.

Increased incidences of water borne diseases like malaria, diarrhoea and Cholera. During stone excavation, deep holes are created and left uncovered. These are prone to water logging during rainy seasons and become mosquito breeding grounds thus increasing incidence of malaria in the community. The water itself can be used for drinking in households and if not boiled may risk spreading Acute Water Borne Diseases (AWDs) like cholera, Diarrhoea and Typhoid.

Pastures/fodder for livestock is lost: Similarly, in the process of stone excavation, trees/shrubs which are used as fodders for livestock feeding are destroyed. We observed that livestock (camel, goats and sheep) were not grazing in areas where stone extraction was taking place and/ or in the old and abundant quarry sites due to lost vegetation cover. The elders interviewed also agreed that in 30-40 years ago, the land in Somalia used to be very green and livestock would not track long distances to get the fodders unlike recently due to the destruction going in the environment.

Other noticeable changes to the environment included, the loss of fuel wood in the community as a results of extraction activities; disturbance to the natural habitat for wild animals increasing the cases of snakes and scorpion bites. Also in a long run,

the land is left bare prone to erosion and deep gullies are created leading to siltation of streams and water bodies during operation phase of the project.

f) Positive Impacts on Physical Environment

New water sources emerging (livestock and domestic purposes). Stakeholder agreed that the holes created can harbor water during rainy season which are used for both livestock and domestic used including drinking purposes. This is particularly important in a region which on record experience recurrent drought causing catastrophic humanitarian emergencies as observed in IDPs.

g) Project social costs and negative impacts

During the construction phase, the followings may create some inconvenience to the community as revealed in the survey;

1) Involuntary displacement of about 500 households during implementation faces;
2) Dusts and noise along the streets/community where extraction activities is taking place. This was perceived as minimal in magnitude;
3) Traffic jam from trucks carrying the stones from the quarry sites especially in urban centers (minimal);
4) Injuries to people involves in stone extraction and chiseling related activities (very high in magnitude). Through Focus Group Discussions held, more than 50% of participants were observed to have injuries in one form or another e.g. on nails, fingers, eyes and other body parts associated to stone extraction and/ or chiseling activities. Cases of injuries are associated with use of rudimentary/ traditional tools and improper skills among workers;
5) Accumulation of solid wastes/muddy water during the construction phase;
6) Workers, littering of streets with wastes from workers;
7) Increased child labor in households especially in the IDPs. The magnitude was high through observation of the quarry activities. Majority of children in IDPs are engaged in carrying rocks or involved in chiseling to support their families through additional income;
8) Chronic & respiratory complication which may result into death due to drudgery to people involved in extraction activities (magnitude very high)

The proposed cost for environmental mitigation is estimated at USD 500,000 but can be reduced greatly with engineering design by the contractor.

h) Project social benefits and positive impacts

1) Result showed that the project has more benefits to the communities and the country at large compared to the perceived costs/ negative impacts to the environment and social welfare. Among which will include:
2) Reduction of travel time during transportation;
3) Reduction of greenhouse gas emissions due to less travel time and consumption of fossil fuel for vehicles; besides improved trade/Small Scale Medium Sized Enterprises which will substitute forest extraction for firewood as alternative livelihoods;
4) Improved access to community services like hospitals, schools and markets

5) Increased income & employment to workers and input suppliers (extractors, chiselers, construction companies, and IDPs, food suppliers for causal workers);
6) Reduction in Vehicle Repair costs;
7) Improved trade to will improved revenue collection to the government from taxes;
8) New water sources/points are emerging for livestock and domestic purposes as a result of water collecting in the holes created from excavation activities;
9) The truck activities itself in the process of picking stones, is creating new road networks in the community. This is important especially for a region where government is weak and unable to construct new roads and maintain;
10) Creating good public image of the Federal Government as becoming capable to deliver public goods and services to the community; this will all consolidation of power for lasting peace and recovery of the country;
11) Improved road safety due to reduce accident rates.
12) Finally, the ESIA and RAP process will address the current capacity gap within the Ministry through the followings: ensure that the MPWRH has a functional Environmental Safeguards Unit that will undertake ESIAs and RAPs and monitor outcomes of related recommendations. In this regard, the MPWRH will ensure that the required resources (office space and facilities, appropriate personnel, and a conducive environment to deliver results. The ESIA and RAP work will undertake measures to enhance the capabilities of MPWRH staff to undertake ESIAs and RAPs and monitor the implementation of outcomes of such assessments. Capacity development sessions were conducted guided by AfDB and the consultant towards the SRCIP activities.

i) Major causes of environmental degradation in Somalia

Somalia at large frequently experiences many shocks and its economic stability is constantly at risk. Poorer groups /vulnerable people find themselves most threatened by disruptions to their economy, as they just barely meet minimum food requirements during a normal year and have fewer options for coping with shocks thus leading to unsustainable utilization of natural resources. In this evaluation, the major causes of environmental degradation by order of importance identified were:

1) Tree cutting for charcoal fuelwood. This is the main source of livelihoods in the rural communities. Lack of alternative energy for cooking and has also contributed to over relying on charcoal and fuelwood;
2) The community are too poor to afford factory made cement in construction work. Thus cobblestone and mixed with sand and firewood and heated to form local limestone/cement commonly known as “Nuriya” in Somali;
3) Rock /stone excavation is third major cause of loss of tree and vegetation cover;
4) Lastly, the inability of the local administration to implement bye laws and ordinances to protect the environment. There area has many clan militias who may oppose any environmental conservation and protection activities during enforcement. The ministry of environment is also under staffed with limited funding. Most of the staff at the ministry are working on voluntary basis and thus ineffective to implement any meaningful environmental programme

j) Major risks and impacts from the project

The implementation of the project is associated with the following risks, as discovered in the survey.

1) Poor security and working relationship between States Administration and the politicians with the Federal Government may affect SRCIP implementations
2) Used of traditional tools associated with injuries on eye, nails and other body parts;
3) Delayed shaping of stones associated with hardening and very difficult to forge into recommended shapes;
4) Drudgery to women as they carry gravels on their backs using jerry cans;
5) Far distance to access the quarry sites poses risks of exposure to clan militias and other groups opposed to constituted government;
6) Clan militias if workers not screened well they may also join as causal laborers posing security threat.
7) Explosives from War remnant's causing injuries and casualties

4) CONCLUSIONS

Almost the entire projects predicted no adverse and insignificant environmental impacts both during construction and operational phases. This is because, the sites of project activities are state owned former road reserves and located far from human settlements. Where the impacts are predicted, they are short term and reversible at reasonably very low costs with simple engineering solutions. These impacts are manageable; most of them can be minimized through engineering solutions easily incorporated into project design. However, it is necessary to ensure that the EMP and monitoring plan are well implemented.

In the absence of the projects, the impacts to both the social and environment will substantially be very high than with the projects; as infrastructure is highly linked to the people's livelihoods and environmental degradation. Without the project, the community will continue to degrade the environments e.g. charcoal burning as alternative livelihoods but will reduce as trade gets rejuvenated through improved access roads. Worst still failure to implement the projects will likely raises serious concerns on the legitimacy/governance of the Federal Government to effectively deliver public goods and services and more importantly threatening livelihoods situation to already impoverished population in Somalia.. With SRCIP, the public image of Federal government will improved for the lasting peace and recovery process of the country.

Since the projects locations have yet to be assessed by the engineering design, continued monitoring needs to be carried out to examine whether remedial actions are required to deal with unforeseen impacts, if any. In addition, the ESIA and EMP need to be updated if the final engineering design leads to major changes in the existing project plan. In this context and view of above findings, the consultant recommends that the ESIA and EMP need to be submitted to responsible line Government Ministry of Federal Government of Somalia, region State Administration and the African Development Bank for concurrence and issue of no-objection certificate.

1.0 BACKGROUND AND CONTEXT

The summary environmental and social impact assessment of the proposed Somalia Regional Corridors Infrastructure Programme (SRCIP) is based on the stakeholder consultative process conducted among key informants, focus group discussions and review of relevant literature on the state of road infrastructure, environment, and labour and employment in line with the National Development plan 2017-2019 of the Federal Government of Somalia.

Somalia has about 21,933km long road network in poor to very poor condition. 90 % of the primary roads have deteriorated and are well past their designed life-span of 30 years (National Development Plan, 2017-19). With many years of protracted armed conflicts and recently formed weak Central and States governments pose, a huge maintenance backlog to road infrastructures in the country. In such context, long term development of infrastructure sector is being been done on adhoc basis through international community beside humanitarian support for recovery process and sustainable development of Somalia. With peace and security returning recently, long term development partners including African Development Bank (AfDB) have recently picked interest for the rehabilitation of infrastructures in the country.

There is a significant need for reconstructing or resurfacing these existing paved roads throughout all of Somalia. On record, only 2,860 km (13%) of a total 21,830 km of roads are paved. The rest of the network is earthen or gravel. A major part of the investment in the roads and transport program can deliver livelihoods and cash transfer benefits. Majority of the population, approximately 80% of the population and trade take place in major towns and cities spread across the country. Thus priority also needs to be given to roads serving main cities, towns and settlements. This will help create employment, link markets, and reduce the cost of doing business, making Somali enterprises more competitive.

With continual conflicts and threats from groups opposed to the recently formed governments has made Somalia not well connected to its neighbours. This limits economic activities such as trade within the region. In addition, an independent Roads Agency on the federal level does not exist but could significantly contribute to coordination of rehabilitation and maintenance efforts in the country. Competences for road construction, rehabilitation and maintenance are so far sourced from international community and agencies and distributed between several ministries decreasing the efficiency of all ongoing and intended interventions.

By large, the sector faces serious budgetary constraints due to country's inability to access international financing for large-scale infrastructure projects which also limited the possibilities of investment in the road sector besides lack of a centralized coordination and regulatory mechanism, haphazard sector development activities

hamper the realization of the long term national vision, underpinned and delivered through systems based approach to long term national infrastructure planning. Furthermore, there are no significant budget allocations for the maintenance of infrastructure investments. In labor market sector, the ILO puts on estimate employment to population ratios for Somalia at 41%. The labour force participation rate is estimated at 65.9% and 37.6% among males and females, respectively. In overall terms, Somalia suffers from high unemployment and under-employment. The country has relatively high vulnerable unemployment estimated at 59%, and a considerable unemployment rates for persons with upper primary level of education at 20.9% and those with secondary level of education an unemployment rate of 34.6%. Also, 41% of the employed in Somalia are in elementary occupations. The largest proportion of employed persons are elementary occupations (41%) followed by professional (15%), Skilled agricultural, forestry and fishery workers (10%) and craft and related trades workers (9%).

The level of vulnerable employment is high in Somalia given that own account workers (OAW) and contributing family workers (CFW) account for 40 per cent of total employment (35.6 per cent among male, and 53.3 per cent among females). The high levels of unemployment in Somalia continue to be a top priority of many development partners operational in the country. The lack of employment and income generating opportunities for the population especially the youth unless attended to; may itself pose future threats/ continued conflicts and reverse the relative peace and stability achieved recently in some parts of the country.

In environmental sector, the collapse of the State and governance structures as well as the lack of security, with resulting chronic conflict, low rule of law and an environment has placed enormous obstacles to the consistent and sustainable management of environmental resources. This has led to rapid deforestation creating the conditions for desertification in semi-arid livelihood zones. This condition is felt very acutely where forests have been depleted due to uncontrolled or managed charcoal production for export, despite a ban, and a growing domestic as charcoal remains the primary domestic cooking fuel. Equally, pastures and rivers are being unsustainably exploited, diminishing economic opportunities they could provide and diminishing essential resources required by the agricultural sector to manage times of crisis or stress.

A state of the environment study conducted by United Nations Environment Programme (UNEP, 2005) indicates that Somalia lacks up-to-date information on the state of the environment, including lack of accurate data on the impact of climate change, deforestation, desertification, land degradation, overgrazing, and shortage of reliable source on the country's population. The report also points lack of awareness and political support on environmental governance in Somalia. Nonetheless, the following highlights key environment issues in the proposed road's area:

1) Climate change – Somalia suffer both natural and man-made environmental problems. Natural problems include frequent droughts, which lead lack of

grazing, water scarcity and starvation in rural communities. There is also frequent devastating floods, in particularly in the riverine areas. Human-induced environmental problems include deforestation for charcoal export in Luuq and Dolow region, over-grazing mainly in Mudug Region (Dhusamareeb, Adado and Galkayo areas). Climate change predictions indicate that the country will become drier in the near future.

2) Land degradation is another key environmental issue in country and closely linked to drought, desertification and unsustainable livestock rearing and agriculture production.
3) Water Scarcity – has been one of the historical problems is Somalia. Lack of reliable water sources for human and animal is major cause of food shortage, poverty and starvation.
4) Biodiversity and Wetland – historically Somalia had abundance of biodiversity and wildlife. Due to climate change, land clearing and lack of protection policies, many of the wildlife species had immigrated to neighbouring countries. The ecosystem of the biodiversity (fauna and flora) has been destroyed. The few remaining wildlife and biodiversity are facing high risk of extinction.
5) Land security – is another is also major social and environmental issues. The more powerful groups tend to evacuate minorities and vulnerable groups from the land.

Rapid urbanization and growth in construction sector, which in the absence of plans, legislation and enforcement of rule of laws on environment will create unsustainable utilization of natural resources in many parts of the country. Rebuilding the ministry of environment will entail vigorous efforts aimed at restoring the capacity of institution, communities' natural management and putting in place effective and accountable governance structures, policy and achievable plans. Appropriate policies and practices for sustainable management of natural resources are required both at the national and state levels.

With gains in the social and political stability, to respond to the growing need to address infrastructure challenges, and unemployment in the country, the Federal Governments is implementing various programmes across the country aimed at enhancing the country's reconstruction process and building its resilience. One such programme is the Somalia Regional Corridors Infrastructure Programme (SRCIP) being executed by the country's Ministry of Public Works Reconstruction and Housing (MPWRH). SRCIP is under the auspices of the African Development Bank's (AfDB) administered Multi-Partner 'Somalia Infrastructure Fund' (SIF) being implemented over a 65-month period, from 2018 to 2023 in Galmudug, Hirshabelle, Jubaland and Puntland states of Somalia.

Part of the initiative, involves the construction of the secondary, feeder and coastal roads in Somalia, including roads connecting to border crossings, are nearly all earthen. The main roads that are paved are mostly in poor to very poor conditions. The maintenance backlog is of large scale, and the reconstruction or resurfacing of existing paved roads in all of Somalia is a monumental task in terms of both

resources and institutional capacity. The overall objective of SRCIP is to support and improve Somalia's economic growth by providing enhanced transport facilities that are reliable and cost effective, with a view to improving accessibility to services and transportation of persons and goods which will support economic and social development, as well as improving the stability of the country. Specific project development objectives are:

1) To improve transport connectivity for road users in targeted road corridors in Galmudug, Hirshabelle, Jubaland and Puntland regions of Somalia: and
2) To Improve management of the road sector through technical assistance and capacity building at the national Level and in the states of Jubaland, Hirshabelle, Galmudug, and Puntland.

The Proposed Project Components with target four main areas:

1) Component ≠1: the rehabilitation and the Triple Surface Treatment will focus on 90 Km long and 7.3 meters wide. Originally, it was proposed that the 90 Km rehabilitation will start from north of Dhusamareeb. However, a discussion between the Federal Ministry and the State Ministry of Hirshabelle has agreed that the proposed 90 Km rehabilitation should be divided between the Galmudug State and Hirshabelle State. About 30 Km of the road rehabilitation will focus in the Belet Wayne with possible reconstruction of 10 Km road link between Beletwayne and Feerfeer on the Somalia/Ethiopia boarder. The remaining 60 Km will rehabilitate the road section between Dhusamareeb and Adado. This section is selected from the 395.2 km long paved road between Beledweyne and Galkayo road;

2) Component ≠2: – Rehabilitation and Triple Surface Treatment of 85 kilometres long and 7.3 meters wide between Galkayo and Faratoyo .Thus is a section of the 229.4 km long and 7.3 m wide paved road between Galkayo and Garowe;

3) Component ≠3: The construction of 100 Km long and 3.65 meters wide of compacted gravel road between Galkayo and Elgula; selected section from the 264 km long gravel feeder road between Galkayo and Hobyo; and

Component ≠4: grading and compacting the entire existing 80 km, 7.3 m wide earth road; between Luuq and Dolow.

1.1. Rationale for Selecting Priority Sections

The Federal Ministry of Public Works, Reconstruction and Housing, in consultation with counterpart State Miniseries, has selected the priority road rehabilitation sections. A combination of priority need, equity between States and use were used to select specific sections, including:

1) The road between Galkayo and Garowe is an important road connecting between the main urban centers in Puntland. An 80 Km road rehabilitation initiative, funded by European Union and Germany, was initiated started between Jalam and Harfo villages near Garowe. It has been agreed that the

85Km of SRCIP program will focus on the road section between Galkayo and Faratoyo

2) Government official extensively uses the road section between Dhusmareeb and Adado. Dhusamareeb is the capital city of Galmudug state, while Adado is hosting city of the parliament.
3) The road between Feefeer and Belet Wayne connects between Somalia and Ethiopia and is widely used to exchange of economic goods between the two countries. . Hirshabelle State has recommended rehabilitating this section of the road.
4) The other two roads are gravel roads and will full rehabilitated. The local community initiated the road between Galkayo and Hobyo and 164 km of road gravel road has been rehabilitated. The SRCIP program will complete the remaining 100Km. The road corridor between Luuq and Dolow was a major agriculture production area and was used to call the breadbasket of Somalia. Priority was given to this road to encourage the agriculture production and marketing in the region

As general procedure, to ensure compliance with regulatory national/state laws and procedures, an Environmental and Social Impact Assessment (ESIA) is always important for sustainability of development programmes. In Somalia, these guidelines were found missing at the time of assessment, given the fragile /political situation currently in the country. Thus, in absence of the Environmental Assessment Guidelines at both State and national level in such a context, the environmental and Social Impact Assessment report of the anticipated Somalia Regional Corridors Infrastructure Programme was prepared in line with the National Development Plan of Somalia, in particular focusing on the visions, plans and initiatives of the Federal States of Somalia (2017-19) while taking provisions from African Development Bank Environmental Safeguard Guidelines for Infrastructure funded projects, Country Environmental Profile of Somalia for development partners to integrate environment assessment in the project cycle where specific legislations on environment are sparse and non-existence. Thus, the review predominantly used the international environmental assessment guidelines of the AfDB, UNEP, the World Bank and FAO complemented with some specific local indicators for harmonizing the environmental impact thresholds.

1.2 ASSESSMENT OBJECTIVES

Despite the socio-economic benefits road construction projects bring to stakeholders, it is associated with a number of adverse environmental impacts on the natural and human environments. In light with the growing need to ensure sustainability of infrastructure projects, the AfDB, Federal Government of Somalia among other development partners plans to conduct an evidenced based, environmental and social impact assessment of the proposed Somalia Regional Corridors Infrastructure Programmes; with the primary objective to assess, and identify potential environmental and social impacts of the proposed SRCIP project in the area to ensure that the project does not create negative perceptions on the development and the organization in the area i.e. to improve decision making to ensure that the planned road project is environmentally sound and sustainable. In

addition, the ESIA is hypothesized to develop mechanisms to mitigate against potential adverse impacts and enhance potential project impacts; besides evaluating alternatives scenarios and proposes management and monitoring measures.

Specific objectives

Specifically, the assessment will address the followings:

1) Identify and assess the potential environmental and social impacts for the following roads: Belet Weyne-Galkayo road; Galkayo-Garowe road; Luuq, Ganane-Dolow road; and Galkayo-Hobyo road.
2) Recommend enhancement measures for positive environmental and social impacts and mitigation measures for the negative environmental and social impacts.
3) Prepare appropriate Resettlement Action Plans (RAPs) for the assigned projects for approval by the Minister, MPWRH.
4) Develop Environmental and Social Impact Assessment (ESIA) Guidelines as well as specific ESIA Reports, Environmental and Social Management and Monitoring Plans (ESMMP) among others for review by the MPWRH, clearance by the AfDB, and final approval by the Minister, MPWRH.
5) Oversee implementation of the outcomes of the RAPs, ESIAs and ESMMPs by the MPWRH.
6) Reinforce the capabilities of MPWRH staff to undertake ESIAs and RAPs and monitor the implementation of outcomes of such assessments, including setting up of an Environmental Safeguards Unit within the MPWRH.
7) Design and implement capacity building of MPWRH staff on environmental and social safeguards practices.

Primarily, the ESIA is aimed to investigate in details the positive and negative impacts associated with and resulting from the proposed cobblestone road project, and develop appropriate measures for ensuring mitigation while enhancing positive impacts where possible to the natural and human environments.

2. METHODOLOGY AND IMPLEMENTATION PROCESS

2.1 Methodological / Evaluation Framework

The project was executed in Somalia; and we used both quantitative and qualitative methodologies from primary and secondary data sources agreed on during the inception meeting. It was assumed that UNOPS, AfDB and implementing partners are committed to both Rights Based Approaches to development and Humanitarian Accountability. Therefore, the consultant employed a wide range of participatory methods for data collection, analysis and interpretation. Key informant interviews, FGD in key communities, field visits and observation, review of project documents and stakeholder consultative meeting formed part of the assessment methods. A selected number of key project beneficiaries and community leadership representatives, including project management committee were consulted during the assessment. The community leaderships were used as mobilizers and language interpreters in the exercise.

2.2. Methodology

The consultant(s) used diverse methods in obtaining required qualitative and quantitative data to address the objectives and output(s) as stipulated in the ToR. These methods were participatory as possible and feasible within the time frame and could include as agreed during the inception meeting with UNOPS/AfDB assessment steering committee:

2.2.1. Literature Review

Publicly available literature was used to inform this study. Most of the key information was retrieved from documents disclosed by the AfDB and other institutions such as the World Bank and UN agencies. No official government documents from Government of Somalia could be accessed to enrich the study, given to insecurity which distorted government reporting and statistical department for over 3 decades.

2.2.2. Stakeholder Consultations

Stakeholder consultations were carried out at the Federal level and across the four States which the corridors pass through. During the various consultations information on the Project, ESIA, and resettlement action plan (RAP) was provided. The consultations were carried out to provide stakeholders with an opportunity to raise any concerns or provide suggestions related to the proposed project. Individuals consulted include members of the State legislative assembly, federal, state and municipal government officials, clan elders, religious leaders, community organization members and project affected persons (PAPs).

2.2.3. Household Questionnaire Survey

Surveys were carried out along different sections of the corridor. A census and asset registration of the PAPs was undertaken in places where it was possible; in some of the area's presence on the ground for more than ten minutes would attract attention and lead to possible attacks by armed militias. Due to insecurity in the area, along

the corridor limited time exposure to reduce incidences of attack from the Non State Actors. Thus the information focused only on affected household's assets profiling, less information on social-economic and demographic profiling. This would have enriched the data if security had permited.

2.2.4. Focus Group Discussions

Focus group discussions (FGDs) with different stakeholders guided by the consultant were carried out in the main urban centres along the corridors to generate a vibrant and open discussion of the proposed project.

2.2.5. Transect Walks

Transect walks were undertaken along several sections of the corridors, in the company of local community members, to identify the condition of the road and observe the surrounding environment.

2.2.6. Examination of Satellite Imagery

Satellite images from different institutions such as the British Geological Survey (BGS) and Google Earth were examined to identify areas of sensitivity and produce maps with different imageries considered relevant to the preparation of this ESIA.

2.3. Environmental Impact Assessment Methodology

The identification, analysis and valuation of environmental impacts take into account Project information and scopes. Such assessments are carried out by identifying the project activities or actions that are likely to cause environmental impacts and the environmental components and elements in each medium that may be impacted by those actions or activities. The potential positive effects that the project may have on its environment are also considered.

The valuation of impacts makes it possible to determine their magnitude and significance, which enables the preparation of an environmental management plan oriented to eliminating, mitigating or compensating for negative effects and leveraging the project's positive effects. It also facilitates the design of environmental monitoring and follow up plans to verify the fulfillment and effectiveness of the proposed management measures.

2.3.1. Description Of The Methodology

In methodology for assessing impacts, the project and its environmental context were analyzed in several stages:

- Definition of Checklists
- Preparation of Impact Matrices
- Valuation of the Impacts
- Determination of Significant Impacts

Checklists

In conducting the impact assessment, the first step was to develop checklists for the project's activities and actions that were likely to cause an environmental impact at one or more stage of the Project, and checklists of environmental components and elements that could be affected by those impacts.

- Checklist of Environmental Factors: identifies different environmental components and elements that could be affected by project activities.
- Checklist of Project Activities: identifies the activities or actions likely to produce environmental impacts, based on a detailed analysis of the project engineering (Chapter 1 of the Environmental Impact Study, EIS).

2.3.2. Preparation of Impact Identification Matrices

Matrices were prepared for each component and project stage using the following format:

Table 1: Format of impact valuation matrix

MEDIUM		**COMPONENT**					
ACTIVITY AND/ OR ACTION	**IMPACT**	**LOCATION**	**VALUATION**				
			Ca	**Re**	**Te**	**Ti**	**Mg**
Project activity/action generating the impact	Net change caused by the activity/action on the component analyzed	Geographic location of the impact (segment, sector, locality	Value of the impact as per predefined criteria (*)				

* VALUATION CRITERIA: Ca= Character [+, -]; Re= Reversibility [Reversible (Rev), Recoverable (Rec), Unrecoverable (Irr)]; Te= Timeframe [Temporary (Te), Permanent (Per)]; Ti=Type [Direct (Dir), Indirect (Ind), Synergistic (Sin), Cumulative (Acu)]; Mg= Magnitude [High (Al), Medium (Me), Low (Ba)].1

Table 2 displays the classification scheme for all impacts with a code for each, which allows them to be easily identified in the document.

Table 2 Impact identification codes for each environmental component

Medium	**Environmental Component**	**Code**
Physical environment	Air Quality	ICA
	Noise	IR
	Geology and Geomorphology	IGG
	Land Use and Soil Quality	IHH
	Hydrology and Hydrogeology	IS
Biotic environment	Flora and Vegetation	IFV

	Vertebrate Fauna	IF
Human environment	Social Environment	IMS
	Cultural and Archeological Heritage	IPAC
	Landscape	IP
	Tourism	IT
Built environment	Energy Infrastructure	IE
	Roads	IV

2.3.3. Valuation of impacts

The impacts identified will be valued on the impact matrix itself. This valuation allows the identification of positive and negative impacts and the assignation of criteria for subsequent ranking.

The criteria used to value the impacts are displayed in the following table and corresponding to those defined in the Environmental Impact Assessment Methodology for Ministry of Public Works projects, enhanced with aspects of methodologies used in Spain, Canada and the USA.

Table 3 Criteria for the Valuation of Environmental Impacts

CRITERIA		**DESCRIPTION**	**CLASSIFICATION**	
Ca	Character	Define whether the action is beneficial / positive, or detrimental / negative	Negative	-
			Positive	+
Re	Reversibility	Possibility, difficulty or impossibility of returning to the state prior to the intervention and recovery measures This criterion is not applicable to positive impacts	Reversible: Returns naturally to its original state	Rev
			Recoverable: Requires human intervention to return to its original state	Rec
			Irrecoverable: Cannot be returned to its original state, naturally or	Irr

			artificially	
Te	Timeframe	Define the duration of the change to the original state associated with different project phases	Temporary: Change remains only during construction	Tem
			Permanent: Change remains for the project's useful life	Per
Ti	Type	Way in which the environmental change is produced	Direct: Change affects the environment directly	Dir
			Indirect: Change affects the environment indirectly	Ind
			Synergistic: Change is compounded by other effects	Sin
			Cumulative: Effects increase over time	Acu
Mg	Magnitude	Rates the dimension of the environmental change produced relative to the total value of the resource affected	High	Al
			Medium	Me
			Low	Ba

2.3.3. Impact ratings

To rate the impacts the following criteria affecting an environmental element are considered in combination. First, the positive and negative impacts are defined individually and then they are categorized as major, minor or mitigable. The abovementioned criteria are defined in the table below:

Table 4 Criteria used for rating impacts

IMPACT RATINGS	DESCRIPTION
Major Positive	Positive impacts of high or medium magnitude
Minor Positive	Positive impacts of low magnitude
Major Negative	Negative impacts with high impact, or negative impacts of medium magnitude that are Permanent, Irrecoverable and/or Cumulative
Mitigatable Negative	Negative impacts that do not meet the above conditions and are subject to an environmental management measure
Minor Negative	Negative impacts of low magnitude

Through the Management Plan and the Compliance Plan for Applicable Environmental Provisions, each major negative impact and mitigable negative impact identified was assigned one or more management measures as required and, where applicable, the way in which compliance with the environmental provision would be assured was defined. This combined information provides a general idea of the project's intervention in the environmental system in which it will be implemented, the magnitude of its overall effect, and the relation of these to potential environmental benefits.

3. MAIN FINDINGS

3.1. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORKS

I. African Development Banks Environmental and Social Safeguards Policies

The AfDB Environmental and Social Safeguards Policies recommends five key operational safeguards (OS) Policies designed to ensure projects financed by the Bank are both environmentally and socially sustainable and their positive impacts outweigh their adverse effects. The SRCIP has identified four out of five of these OS policies i.e.

1) Operational Safeguard 1: Environmental and Social Assessments; where SRCIP falls is classified as a category one infrastructure development project which require mandatory ESIA therefore OS1 is triggered.
2) Operational Safeguard 2: Involuntary Resettlement; under which SRCIP is considered to lead to involuntary displacement of more than 200 project affected persons (PAPs) thus OS 2 is triggered.
3) Operational Safeguard 3: Biodiversity and Ecosystem Services; under this category, OS3 is not triggered since SRCIP will not cause biodiversity and ecosystem disruptions.
4) Operational Safeguard 4: Pollution Prevention and Control, Hazardous Materials and Resource efficiency; and the implementation of SRCIP is likely to cause different types of pollution hence triggering OS4.
5) Operational Safeguard 5: Labour Conditions, Health and Safety; Workers involved in this Project will face health and safety risks and as such OS 5 is triggered.

II. Somali National and State Laws

Somalia's current constitution addresses the management of the environment. Particularly articles recognizes the followings:

1) Article 24 guarantees fair labour relation and provides protection against abuse of environment;
2) Article 25 states that "[every Somali] has the right to an environment that is not harmful to their health and well-being, and to be protected from pollution and harmful materials." Further indicating "[every Somali] has the right to have a share of the natural resources of the country, whilst being protected from excessive and damaging exploitation of these natural resources."
3) The right to own property and the right to compensation is addressed in Sections 1 and 2 of Article 26 which state:
    - Every person has the right to own, use, enjoy, sell, and transfer property;
    - The state may compulsorily acquire property only if doing so is in the public interest;
    - Any person whose property has been acquired in the name of public interest has the right to just compensation from the State as agreed by the parties or decided by a court

4) Article 43 provides guidelines for policy development designed to ensure "land is utilised without causing harm to the land"
5) Article 45 highlights the government's responsibility in prioritizing "… the protection, conservation, and preservation of the environment against anything that may cause harm to natural biodiversity and the ecosystem." This article also mentions the duty of the people "… to safeguard and enhance the environment and participate in the development, execution, management, conservation and protection of the natural resources and environment."

The specific laws that contain aspects which provide social and environmental protection include:

a. Law No. 65 of 18 October 1972 to promulgate the Labour Code.
b. Somali Fisheries Law (Law No. 23 of November 30, 1985)
c. Somali national Water Law of 11 November 2017

Among the Federal Member States which the corridors pass through, Puntland has enacted several laws related to the environment. Article 96 of the State's constitution addresses environmental protection capturing key elements such as deforestation, soil erosion and pollution and the prohibition on the urbanization of unsuitable lands. The Puntland government has enacted the following environmental regulations, polices and strategies:

a. Environmental Policy (2014)t;
b. Environmental Management Act (2016);
c. EIA Act and Regulation (2016); and
d. Puntland Climate Change Strategy (2016)

III. International Treaties and Conventions

At the international level Somalia has ratified both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto protocol. Other important international conventions to which the country is signatory include:

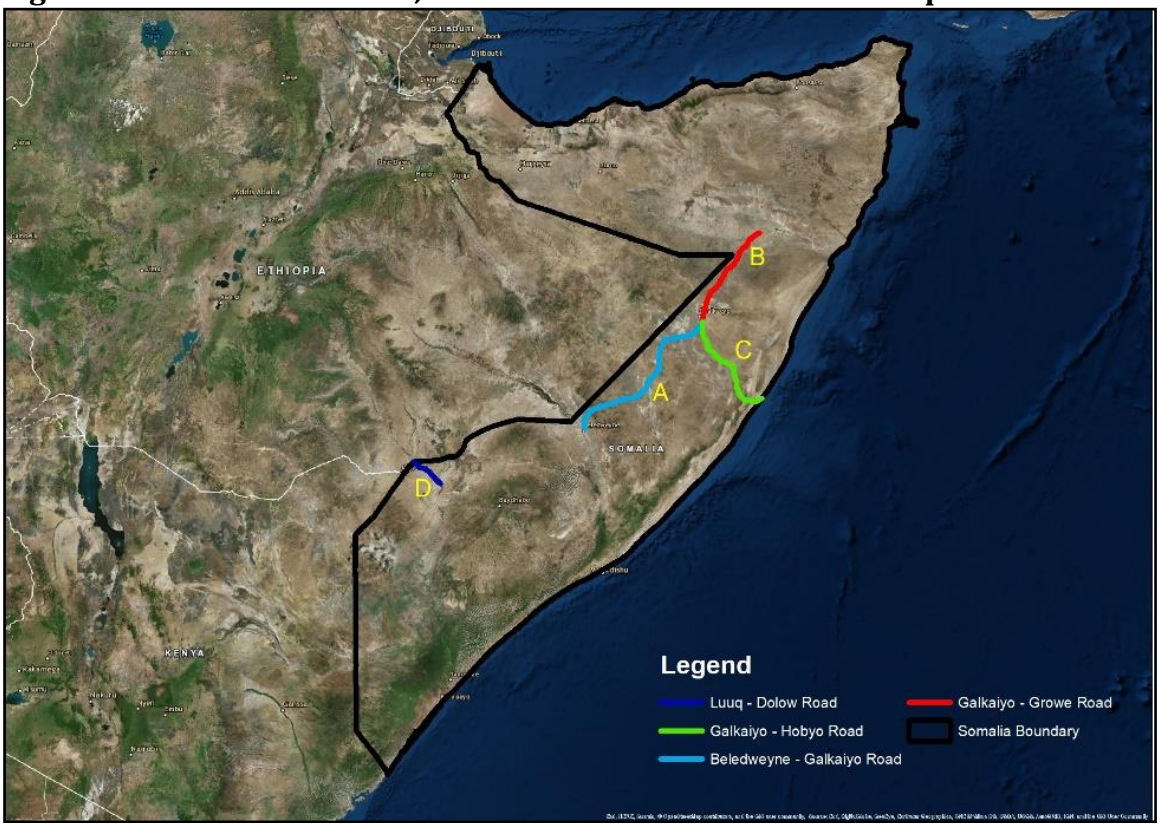
a. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
b. Convention for the protection, Management and Development of the Marine and Coastal; Environment of the Eastern Africa Region (Nairobi Convention);
c. UN Convention on the Law of the Sea;
d. Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment; and
e. Convention on the Conservation of Migratory Species of Wild Animals

4. PROJECT DESCRIPTION AND JUSTIFICATION

Through multi-year interventions, the SRCIP will involve the rehabilitation of several sections of Somalia's road corridors in Hirshabelle, Galmudug, Puntland, and Jubaland States of Somalia (Figure1). It is proposed that during the first phase of the project the whole length of each road would not be covered and only certain allocated lengths would be rehabilitated (Table 1). At the moment African Development Bank the will support the rehiabilitation of four sections of SRCIP i.e. 1) Galkayo- Garowe Road (229.4 Km) – rehabilitation and Triple Surface Treatment of 85 kilometers long and 7.3 meters wide between Galkayo and Faratoyo. 2) Belet Wayne – Galkayo (395.2 Km) – the rehabilitation and the Triple Surface Treatment will focus on 90 Km long and 7.3 meters wide. Originally, it was proposed that the 90 Km rehabilitation will start from north of Dhusamareeb.

However, a discussion between the Federal Ministry and the State Ministry of Hirshabelle has agreed that the proposed 90 Km rehabilitation should be divided between the Galmudug State and Hirshabelle State. About 30 Km of the road rehabilitation will focus in the Belet Wayne with possible reconstruction of 10 Km road link between Beletwayne and Feerfeer on the Somalia/Ethiopia boarder. The remaining 60 Km will rehabilitate the road section between Dhusamareeb and Adado 3) Galkayo-Hobyo (264 Km) – The construction of 100 Km long and 3.65 meters wide of compacted gravel road between Galkayo and Elgula 4) Luuq, Ganane-Dolow (80 Km) – grading and compacting the entire existing 80 km, 7.3 m wide earth road.

Figure 1: Locations of Roads, with Phase-1 selections will be implemented



4.2.1. Beledweyne-Galkayo (Phase 1, Beleweyne-Feerfeer Road, Beleweyne and Dhusamareeb-Adado road)

For the Beledweyne-Galkayo section, road A in figure 1, out of its 395.2 km length, 90 km has been marked for construction (Table 4). Similar information for the other roads is presented in Table 1. The choice of phase 1 selection for AfDB implementation i.e. 10 Km along Beleweyne-Feerfeer Road was made through consultations with stakeholders with reference to the Somali National Development Plan 2017-2019. The criteria for choosing these roads section were: 1) connectivity between the different regions of Somalia and 2) contribution to economic growth and development.

Works on Beledweyne –Galkayo road will involve the rehabilitation and the Triple Surface Treatment on 90 Km long and 7.3 meters wide. Originally, it was proposed that the 90 Km rehabilitation will start from north of Dhusamareeb. However, a discussion between the Federal Ministry and the State Ministry of Hirshabelle has agreed that the proposed 90 Km rehabilitation should be divided between the Galmudug State and Hirshabelle State. About 30 Km of the road rehabilitation will focus in the Beledweyne with possible reconstruction of 10 Km road link between Beledweyne and Feerfeer on the Somalia/Ethiopia boarder. The remaining 60 Km will rehabilitate the road section between Dhusamareeb and Adado.

Table 5: Estimated road length selected for rehabilitation, AfDB pilot (Km)

Road Name	Road Length	Coverage Pilot Phase (AfDB funding)	AfDB Pilot coverage	Pavement Type	Other Activities
Beledweyne-Galkayo	395.2	90	Belewyne Road (30 Km) Beledweyne-Feerfeer (10 Km) Dhusamareeb-Adado road (60 Km)	Tarmac	1) Road surface (paved or graded). 2) Road reserve ("hard shoulder"). 3) Crossings (e.g. bridges, culverts). 4) Drainage and erosion control structures. Safety and security measures (e.g. barriers and fencing) 5) Other elements (e.g. signage).
Galkayo-Garowe	229.4	85	Rehabilitation and Triple Surface Treatment of 85 kilometres long and 7.3 meters wide	Tarmac	1) Road surface (paved or graded). 2) Road reserve ("hard shoulder"). 3) Crossings (e.g. bridges, culverts).

			between Galkayo and Faratoyo.		4) Drainage and erosion control structures. Safety and security measures (e.g. barriers and fencing) 5) Other elements (e.g. signage).
Galkayo-Hobyo	264	100	The construction of 100 Km long and 3.65 meters wide of compacted gravel road between Galkayo and Elgula	Gravel	1) Road surface (paved or graded). 2) Road reserve ("hard shoulder"). 3) Crossings (e.g. bridges, culverts). 4) Drainage and erosion control structures. Safety and security measures (e.g. barriers and fencing) 5) Other elements (e.g. signage).
Luuq-Dolow	80	80	The grading and compacting the entire existing 80 km, 7.3 m wide earth road along Luuq-Dolow.	Gravel[1]	1) Road surface (paved or graded). 2) Road reserve ("hard shoulder"). 3) Crossings (e.g. bridges, culverts). 4) Drainage and erosion control structures. Safety and security measures (e.g. barriers and fencing) 5) Other elements (e.g. signage).

Also include ancillary facilities will include the construction: 1) lay-bys or service areas; 2) temporary construction facilities (e.g. workshops, laydown areas, working corridors outside the road reserve, workers' accommodation, and borrow pits); 3)

[1] Described as earthen road in existing documents, actual surface was asphalt built by the Italians during the colonial period. Locals say this section was built around 1936-1940.

security posts and toll stations; 4) access roads within and between temporary facilities and the road being developed; and 5) landscaping features among others.

The construction activities also include: 1) Establishing temporary access to work and ancillary areas, demarcating clearance zones, establishing access control. 2) For road upgrading, erection of temporary diversions where needed to manage existing traffic. 3) Clearance and levelling of the corridor, and major earthworks where required (e.g. cuttings, embankments). 4) Location and development of borrow pits (and possibly quarries), import of materials, e.g. gravel, clay, bitumen. 5) Sourcing and establishing of a water supply from surface and/or groundwater. 6) Improvement of existing drainage and introduction of new road drainage, including culverts if required. 7) Surfacing and sealing of the carriageway, including use of bitumen mixing plants where the road is to be sealed. 8) Water crossings, e.g. construction or upgrading of bridges and culverts, including concrete batching for structures. 9) Establishment or improvement of safety arrangements e.g. modification of camber, barriers, improving sight lines; and 10) Landscaping, as required.

The vicinities of these corridors and the general area are very sparsely occupied[2] and have recognized but sometimes disputed boundaries demarcating ownership or areas of influence by different nomadic Somali clans. Scattered along the corridors are small to medium sized settlements including towns and villages which also have small populations. A RAP is being developed to address compensatory measures including income restoration for the small number of PAPs, less than 1% of the population, paying particular attention to vulnerable groups. Along the corridors there are abundant raw materials required for the rehabilitation of the roads and labourers can be recruited from the nearby settlements which high unemployment rates. Since these are existing roads minimal negative environmental and social impacts are foreseen and their renovations will have to positively contribute to the social and economic development of the areas around the corridor and the whole of Somalia in general. The current state of disrepair resulting from more than 30 years of rehabilitation backlog has hampered the movement of both people and goods along the corridors. Insecurity in some parts of the corridor might hinder or slow down the implementation of the project. Detailed descriptions of the project in the different corridors are provided in following sections.

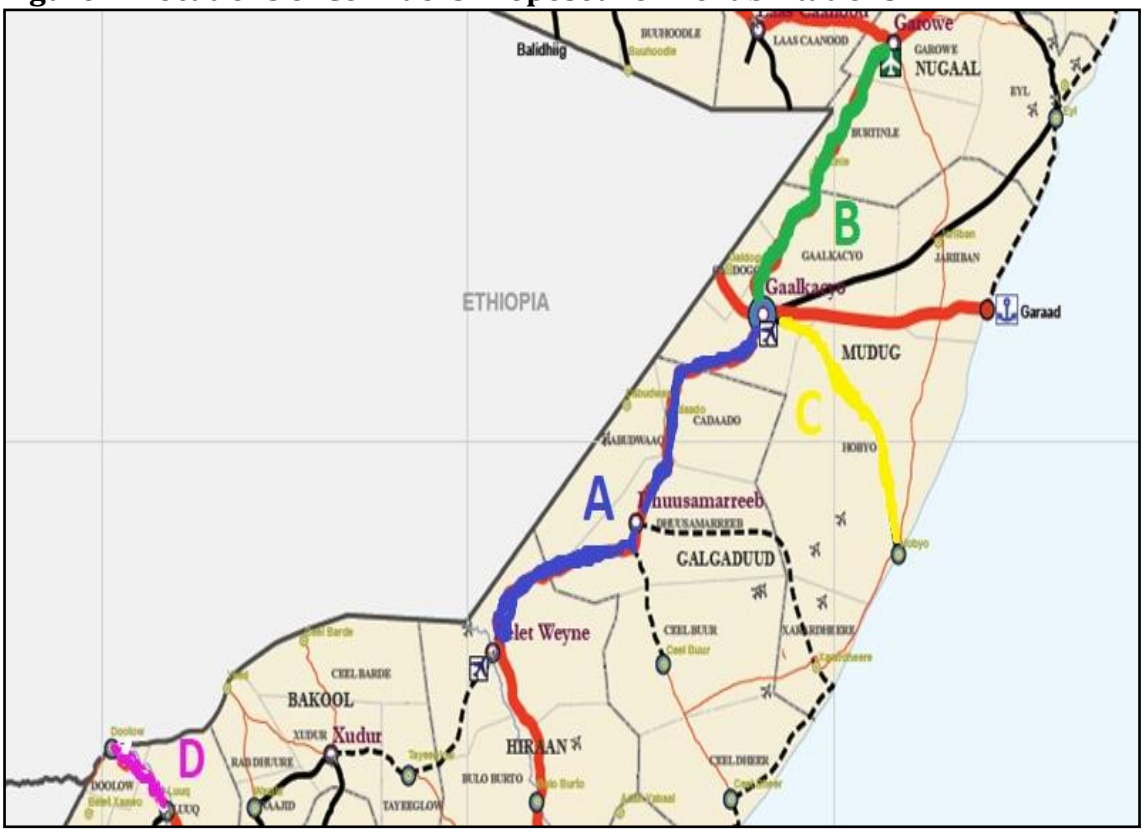
The Beledweyne-Galkayo road is an important section of Somalia's North-South (NS) Corridor covering Mogadishu-Jowhar-Beledweyne-Galkayo and is a key link in the trunk road system towards Ethiopia and the Northern areas of the Somali peninsula. It links Southern Somalia and Ethiopia (via Beledweyne and Feerfeer). Under the pilot, the initial phase will cover the section from Beledweyne to Feerfeer estimated at 30Km; and the RAP and ESIA reporting was done to cover this section. South of Beledweyne-Galkayo, the road provides access to the Shabele region and

[2] The last official census in Somalia was carried out in 1975.

Benadir region where the country's capital city and main business centre, Mogadishu, is located.

This road provides great trade opportunities for goods coming from the interior. The Shabelle Valley is an area of high potential for intensive agriculture and improving access to this area will further elevate its food basket status and strengthen the country's food security. The road would also stabilise the area by making the preservation of security easier and more effective. This asphalt paved road traverses a total distance of 395.2 KM connecting Beledweyne town in Hirshabelle State and Galkayo town in Galmudug State (Road A, Figure 2). One part of this road (Beledweyne-Matabaan) is in Hirshabele State and the remainder of the road is located in Galmudug State. In this analysis only the 30Km will be piloted between Beledweyne –Feerfeer and will be the primary focus of the ESIA and RAP reporting.

Figure 2: Locations of Corridors Proposed for Rehabilitations

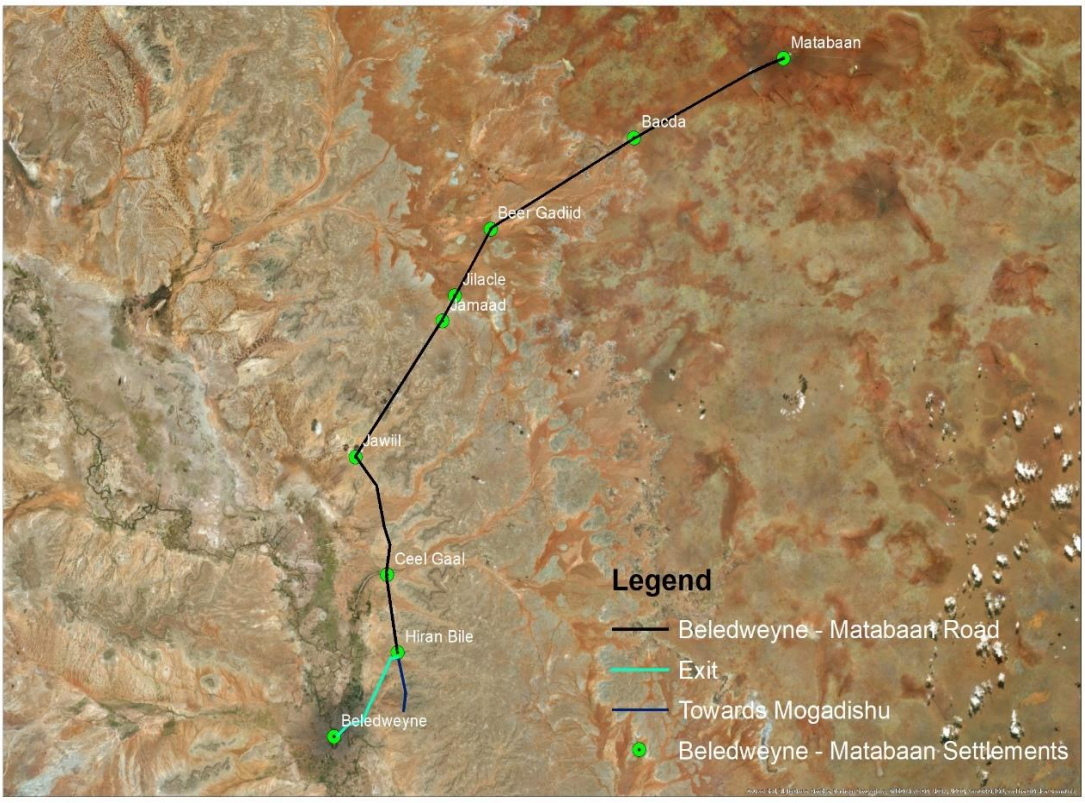


4.2.2. Beledweyne-Matabaan Road

The historical and culturally acclaimed town of Beledweyne is situated in the Shabelle valley where River Shabele divides it into its Eastern and Western parts. Though not covered during the first phase of AfDB multiyear funding, the road has strong economic ties with Belewyne and Feerfeer which will be covered during this phase. Beledweyne town is vibrant economic hub for the Hiiran Region and beyond. Trade through this town is from different areas including Mogadishu where general goods come from and Ethiopia where fuel, potatoes, and fizzy drinks come

through the border town of Feerfeer. Road A does not go through Beledweyne, it circumvents the town and currently the main intersection into Beledweyne cannot be accessed due to the presence of military forces provided by other African countries through the African Union Mission to Somalia (AMISOM), a peace keeping mission operated by the AU in Somalia with approval by the United Nations. This road section is accessed through a 6 km long gravel diversion built by the local community and covers a distance of 70 km. This road also has 2 severely damaged bridges which present high risks to drivers especially those not familiar with the road. The most damaged of these bridges is *Saalax Jeele* bridge near the junction town of Jawiil shown in figure 3, along with the other settlements on the road.

Figure 3: Settlements between Beledweyne and Matabaan.



This bridge is completely impassable and the only option available is driving through a diversion in the dry bed of the stream. During the rainy season, there is no movement of traffic till the water levels reside. There are some parts of the road where the asphalt surface is intact with a few potholes. In most of the settlements along this corridor the right of way (RoW) is unoccupied except for a few PAPs with temporary or portable structures. The Junction town of Jawiil locally referred to as *kalabeyr* is where the roads heading to Mataban town, Beledweyne town, and the Somalia-Ethiopia border town of Feerfeer intersect. There are some sections before this Junction where drivers exit the main road onto informal and unmarked mud roads diversions to avoid the corrugation on the worn-out asphalt. Some of the nomadic communities along this corridor fetch water from shallow wells dug on dry

stream beds for both the livestock herds and domestic use during the dry season. The quality of this water has not been determined.

Figure 4: A young boy fetching water from a shallow well on dry stream bed

Unlike Beledweyne-Matabaan Road, the border town of Dolow on the Luq-Dolow corridor (described in subsequent sections of the report), people freely walk and across the Somalia-Ethiopia boundary with minimal interruption. Due to apparent insecurity, the Feerfeer crossing requires pre-approval before approaching the border.

4.2.3. Matabaan-Galkayo Road (Initial Phase; Dhusamreeb to Adado, 60Km)

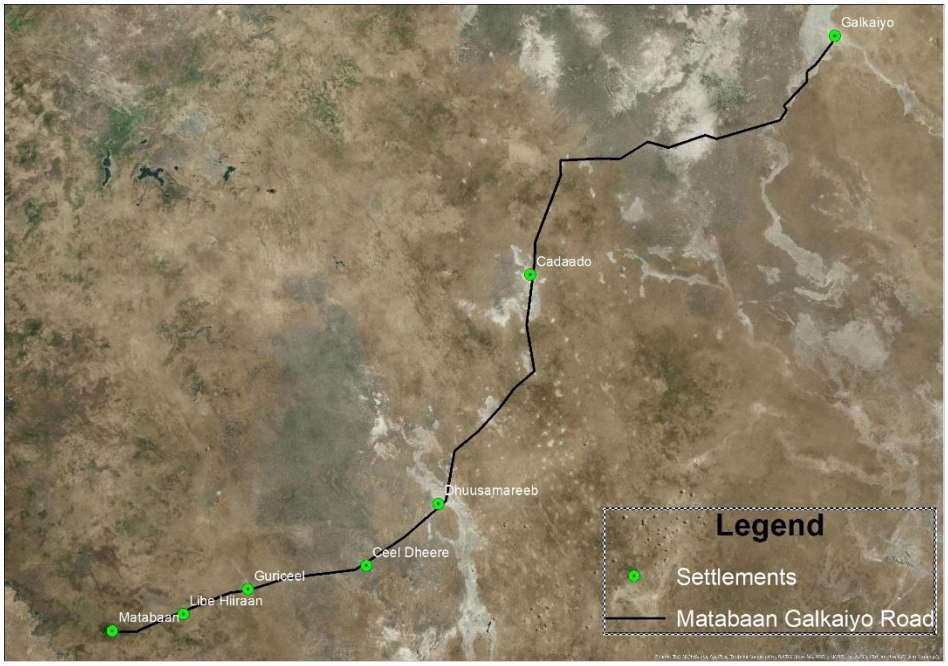
The village of Bacda near Matabaan is where Hirshabelle and Galmudug States share a border. Beginning from the entry point of Matabaan town, from Beledweyne town, the asphalt is of fair condition (Figure 5).

Figure 5: Entry point into Mataban from Beledweyne

In the town of Mataban the RoW is clear but the asphalt is worn out from the sides. In many parts of the road the shoulder has not been cleared of bushes and there is no room for urgent vehicle repairs in case of a breakdown. There are several small towns and villages along this road most significant of which are Dhusamareeb, Guriceel, and Adaado (Figure 6). The first phase of the rehiabilitation is expected to cover 60Km along Dhusamreeb to Gradhi and the ESIA and RAP reporting covered this section.

Between Mataban and Dhusamareeb the main trade centre is the vibrant town Guriceel acclaimed for selling one of the best goat meats in the country. This part of the corridor is controlled by a split government in Galmudug State. There are ongoing consultations to unify the two rival authorities respectively based in Dhusamareb and Adaado towns. Within Guriceel town the asphalt surface is of good condition but the RoW has a few encroachments mostly temporary structures and vendors operating near the road. This road is also straight with a few bends presenting blind spots to the drivers. The danger of the blind spots is compounded by camels feeding on the shrubs nearby the road. The condition of the road drastically changes at the section between Guriceel and Dhusamareeb. Shortly after leaving Guriceel drivers use an informal and unmarked mud side road to avoid the worn-out sections which include exposed bases and sub-base. This diversion at times gets close to the main road and runs parallel to the road shoulder.

Figure 6: Settlements along the Matabaan-Galkayo Road



As in the section between Dhusamareeb and Guriceel, drivers have resorted to using the informal mud side roads to avoid the corrugation on the main road. Within Adaado town the RoW is clear and there is ample room that has been left for the shoulders (Figure 7). However, there is one strip near the town centre where there is some encroachment on the road shoulders.

Figure 7: Sample Street observed in Adaado Town

On road from Adaado to Galkayo the asphalt pavement is in mixed conditions ranging from completely worn out to fair condition. Again, informal mud side roads

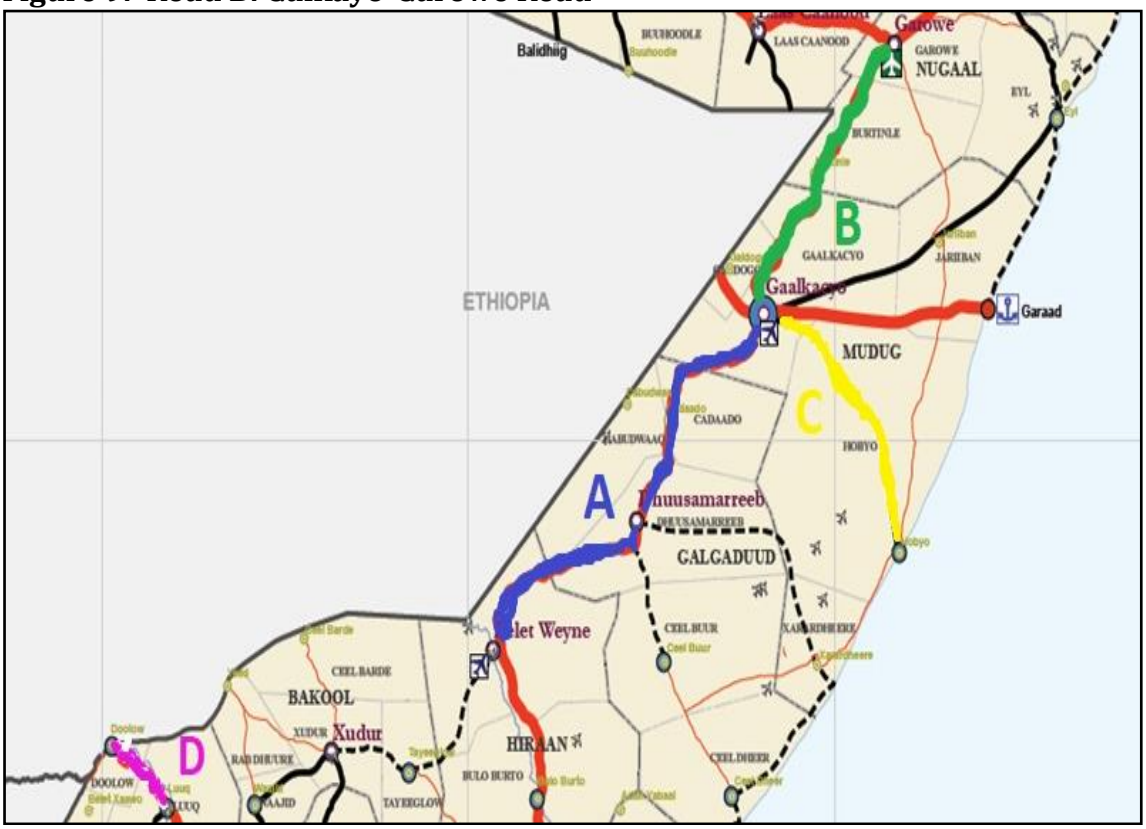
to avoid the corrugation can be seen. The RoW is clear along the road and through the small towns and villages such as Galinsoor and Bandiradley. Observed during the fieldwork was underground laying of internet cable by a private telecommunication company near the village of Bandiradley (Figure 8)). The company plans to extend installation throughout the whole region.

Figure 8: Hormuud telecommunications near Bandiradley laying internet cables

4.2.4. Galkayo-Garowe Road (Galkayo-Faratoyo Road covered in initial phase)

The Galkayo- Garowe road is asphalt paved covering a distance of 229.4 km between Galkayo and Garowe town (Road B, Figure 9 in Galmudug and Puntland States. This road is a continuation of the North-South Corridor. The sections of this road to be covered during the initial phase will be Galkayo-Faratoyo, estimated at 85Km length.

Figure 9: Road B: Galkayo-Garowe Road



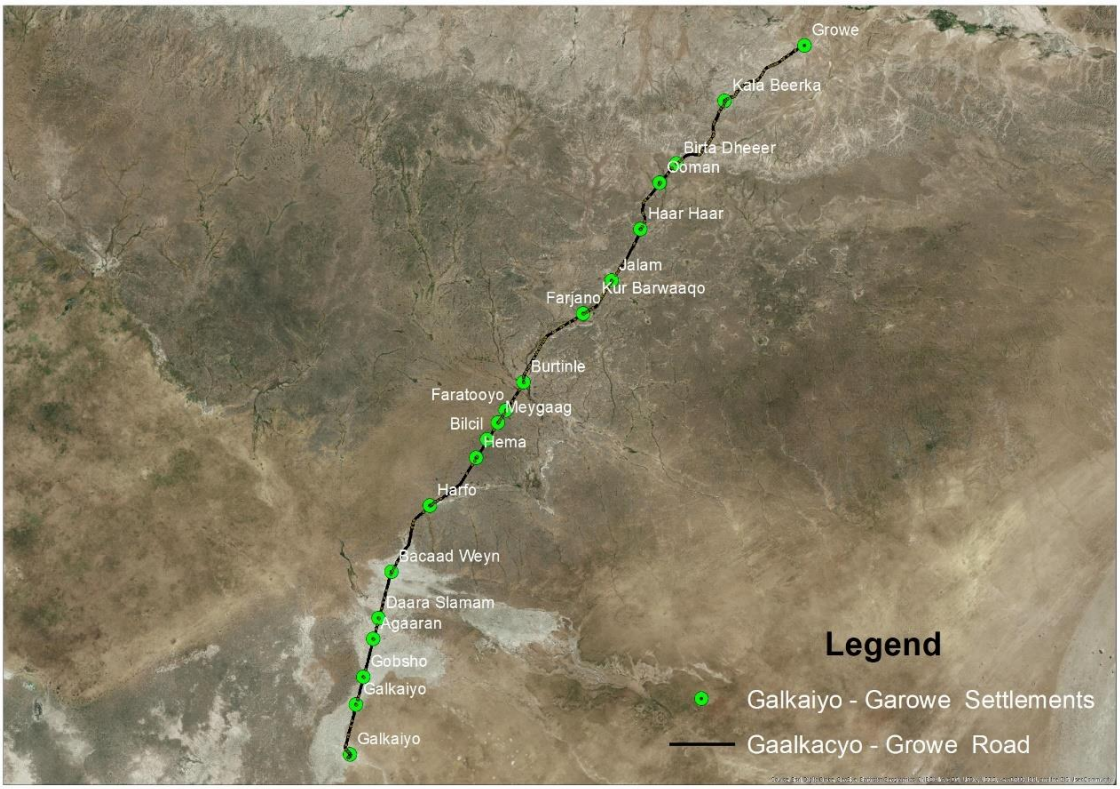
Galkayo is located in the Mudug region of North Central Somalia. And the town is divided into two administrative areas located in Galmudug and Puntland States. The Puntland controlled area comprises of Garsoor, Horumar and Israac sub-districts while Wadajir sub-district is administered by Galmudug State. Garowe, the capital of Puntland State, is located in the Nugaal Valley and is bounded by gradually ascending high plateaus whose western part is crossed by several valleys and dry watercourses. In Galkayo there are no permanent structures on the RoW but there are some women vendors selling khat on the RoW (Figure 10). On the way to Garowe from Galkayo the community has taken the initiative to rehabilitate 1 km of the asphalt pavement.

Figure 9:Women Khat Vendors on the RoW in Galkayo Town

Figure 10: Cagaaran Village

After the 1 km rehabilitated by the community the deterioration of the asphalt becomes noticeable and the earlier desribed pattern of road use by drivers whereby they drive on the shoulder or create diversions to avoid corrugations again becomes visible. The RoW is mostly clear at the small settlements on the way to Garowe. (Figure 12).

Figure 11: Settlements along Galkayo-Garowe Road



This is true even for places like Cagaaran (Figure 11) established in 1996 by native Puntland clans re-migrating from Ethiopia. Within this area, around the village Buur

Salax, there is a junction to a road heading towards Ethiopia with the potential of becoming a cross-border corridor. In this section, up to the town of Bacaad Weyne, the asphalt is of mixed condition ranging from fair to completely damage. Not far from this section of the road there is an IDP settlement with permanent homes built of concrete. Upon reaching Harfo village the road is officially diverted due to 80 KMs rehabilitation works from Harfo village to Jalam village covering 80 KMs funded by the German development agency GIZ. The rehabilitation project was cancelled in September 2018 following several months of disputes over delays in project delivery linked to procurement and late start. The approach taken in the rehabilitation of the asphalt in this section is mixed and ranges from mill and overlay to full reconstruction. Along the way to Burtinle town and within the town itself the asphalt is severely worn out and the edges are no longer identifiable.

Figure 12: Observed section of the road in Burtinle town during assessment

Generally, from Jalam to Garowe the condition of the asphalt ranges from fair to poor. Entrance into Garowe from Galkayo is through two bridges. The first bridge crossing a water channel as the road ascends has worn-out asphalt on the pavement and the second bridge used for crossing Togga Garowe is in good condition (Figure 14)

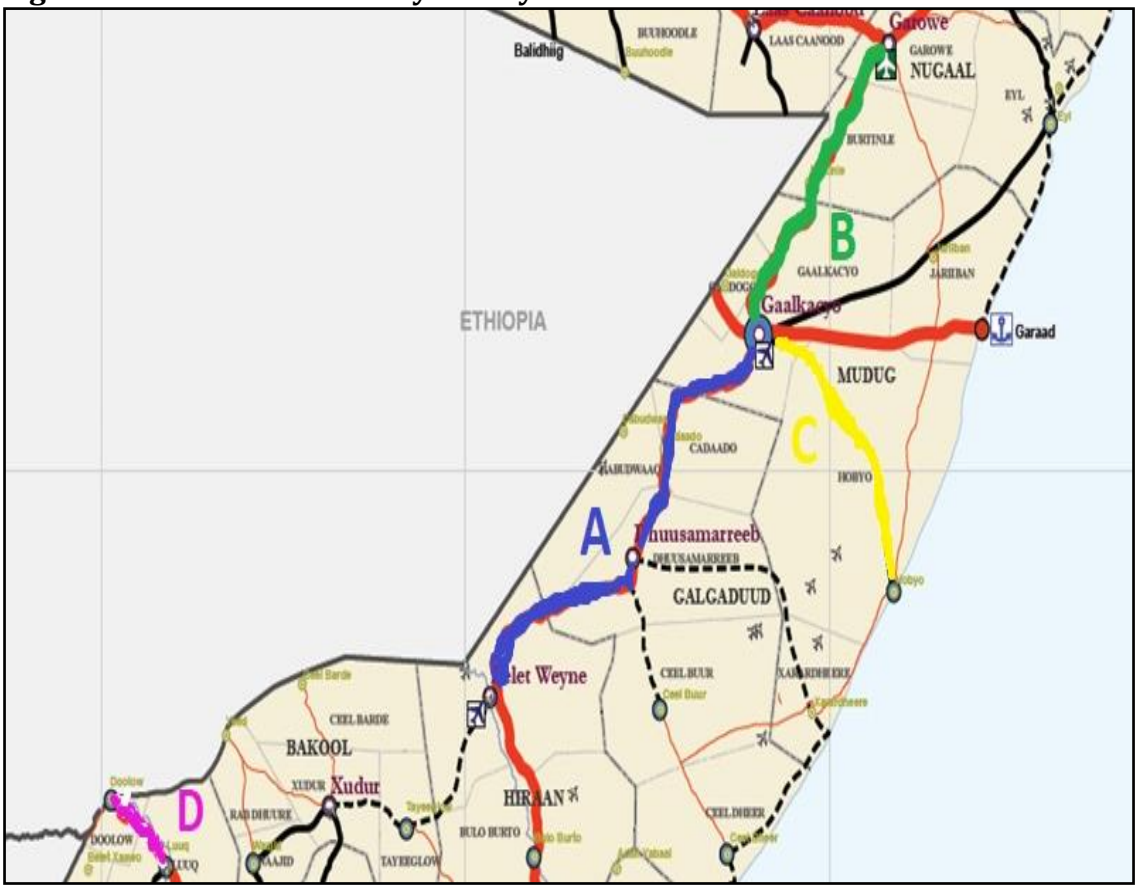
Figure 13: Observed second bridge crossing Togga Garowe

4.2.5. Galkayo-Hobyo Road

The Phase 1-the construction of 100 Km long and 3.65 meters wide of compacted gravel road between Galkayo and Elgula. This gravel feeder road (Galkayo-Hobyo) is 264 km road and connects Galkayo to the port town of Hobyo, road C in (Figure 15) which is under consideration to have its port built and funding commitments have been made by the government of Qatar. As such this feeder road will soon become an important corridor linking the port to Ethiopia. SRCIP involves the construction of a new feeder road that would link Galkayo to the port of Hobyo. The road corridor from the seaport of Hobyo via Galkayo (to Goldogob in Ethiopia), complements the seaport of Hobyo as gateway link to the hinterlands of the Horn of Africa and even, Eastern Africa. Linking the Somali trunk road system at Galkayo with the proposed port at Hobyo, and Galdogob on the Ethiopian border is immensely advantageous for the trade needs of the Ogaden Region in Ethiopia. This intervention will complement the ongoing efforts that aim to build the port of Hobyo. It is envisaged that the feeder road would provide an essential route for

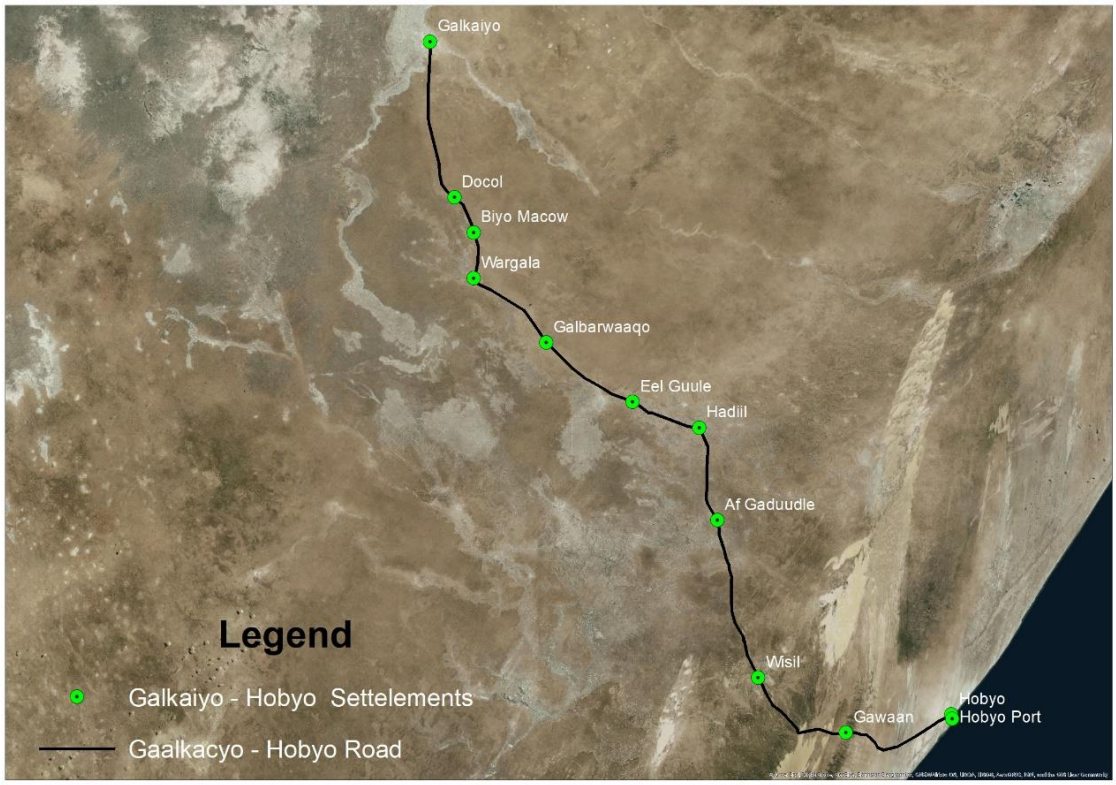
livestock exports from the hinterland and improve the supply of fish to the interior providing sustainable livelihood to the local fishing communities.

Figure 14: Location of Galkayo-Hobyo Road C



This road ascends towards the town of Wasiil passing through ravines and descend towards the Indian Ocean passing through flat grazing land. The beginning point of the road from Galkayo is not clear as there seems to be no proper clearly defined RoW but the surrounding areas are not occupied. This area is very sparsely populated and has a few villages on the road (Figure 16)

Figure 15: Observed settlements along Galkayo-Hobyo Road



From Galkayo, the beginning point of this road is not clear (Figure 17), there is ongoing community effort in building a gravel road from Hobyo to Galkayo. So far 60 km of gravel road has been built through community initiative. The local community organization, GOB, managing the construction project is funded through contributions from both the locals and Diaspora. The activities of this community organization are not limited to road construction, but also include the provision of technical and vocational training for the youth.

Figure 16: Suggested starting along Galkayo-Hobyo Corridor

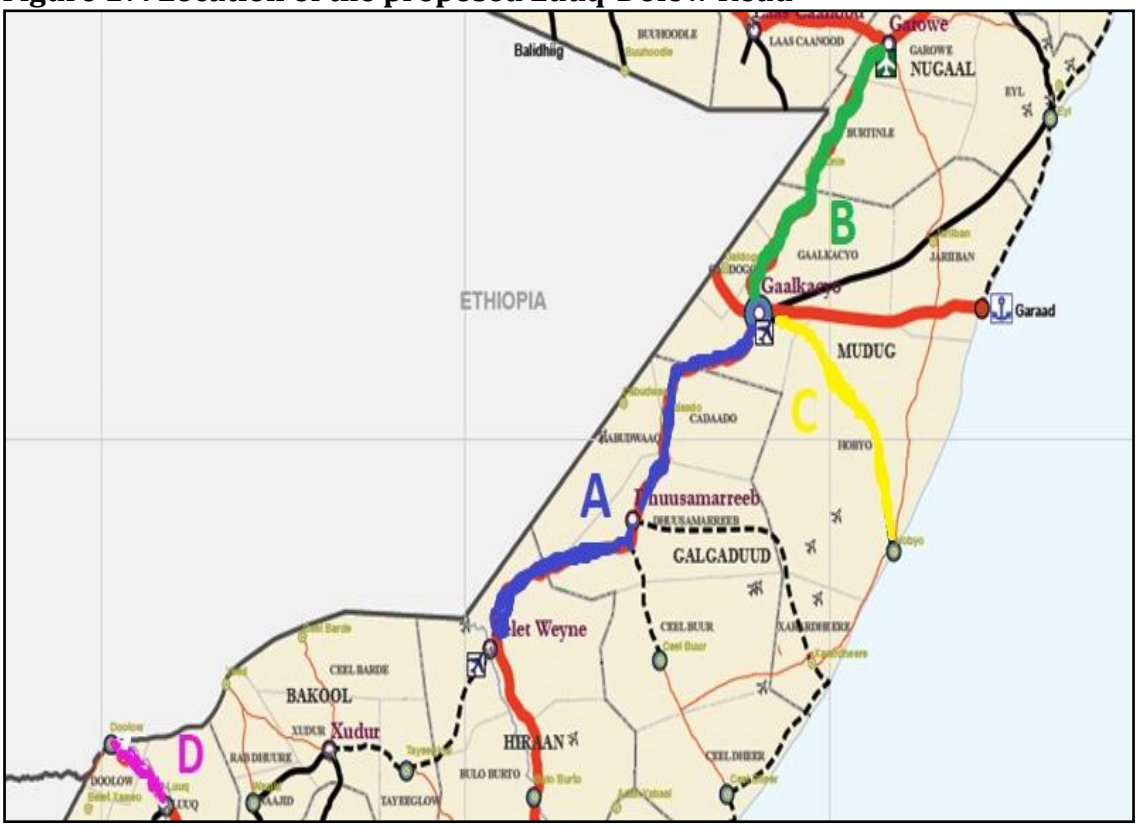
4.2.6. Luuq -Dolow Road (80 Km of entire road to be covered)

This road connects Luuq and Dolow towns located in the Gedo region of Jubaland States. The construction of the Luuq-Dolow road contributes to the larger Mogadishu-Baidoa-Afgoye-Dolow road corridor rehabilitation. Luuq town is located on a wide meander of the Juba River nearly 70 km to the Southeast of Dolow town which is situated on the riverbank of the perennial Dawa River that merges with Ganaale Dorya River to form the Juba River. The border between Somalia and Ethiopia lies in the middle of the Dawa River, and the marker is on the bridge. This intervention will complement ongoing efforts for the rehabilitation of Mogadishu to Afgoye road. Afgoye is a town in the South Western Somalia in the lower Shebelle region, a highly productive agricultural area. On the other hand, Baidoa, is the capital city of the South West State and is within the Bay Region, also an agriculturally important and productive region. Thus, an eventual link from Dolow to Baidoa and eventually, Afgoye will cut down transport costs on this section of a major road corridor in Somalia for food shipments northwards.

The Mogadishu-Baidoa-Afgoye-Dolow road eventually links up with the main road in Mandera and Elwak towns in Kenya (and also Dolow town in Ethiopia) which serves the export of farming produce such as sesame seeds. This road will contribute to the stabilization of the South-West and Jubaland States creating a favourable environment for the preservation of security in Somalia. There are two roads connecting Dolow to Luuq. A worn-out asphalt road built during the Italian colonial period and an informal earthen road. The old asphalt road (traces of asphalt are still

visible) is 71.9 km long. Lack of maintenance ruined the asphalt pavement and exposed both the base and sub-base in some areas. Due to the condition of the road the locals use an informal earthen road which is mostly parallel to the old asphalt road but a little bit longer (90km). The seasonal road runs parallel to the old asphalt road on either the left or the right side depending on obstacles on the road. The earthen road is used during the dry season to avoid the roughness of the ruined asphalt road. However, as it becomes impassable during the wet season drivers resort to using the worn-out asphalt road. Road D shown in (Figure 18) is the worn-out asphalt road[3] connecting the town of Luuq to the border town of Dolow. This road has become unpaved following more than three decades of no maintenance.

Figure 17: Location of the proposed Luuq-Dolow Road



In addition to mitigation, potential negative impacts arising from the road's proximity to the river another significant potential adverse impact will be involuntary displacement particularly in Dolow where the road cuts through the town. Among all the four roads marked for rehabilitation this road has the highest number of PAPs identified during the RAP census.

[3] Described as earthen road in some documents

Figure 18: Observed settlements between Luuq and Dolow

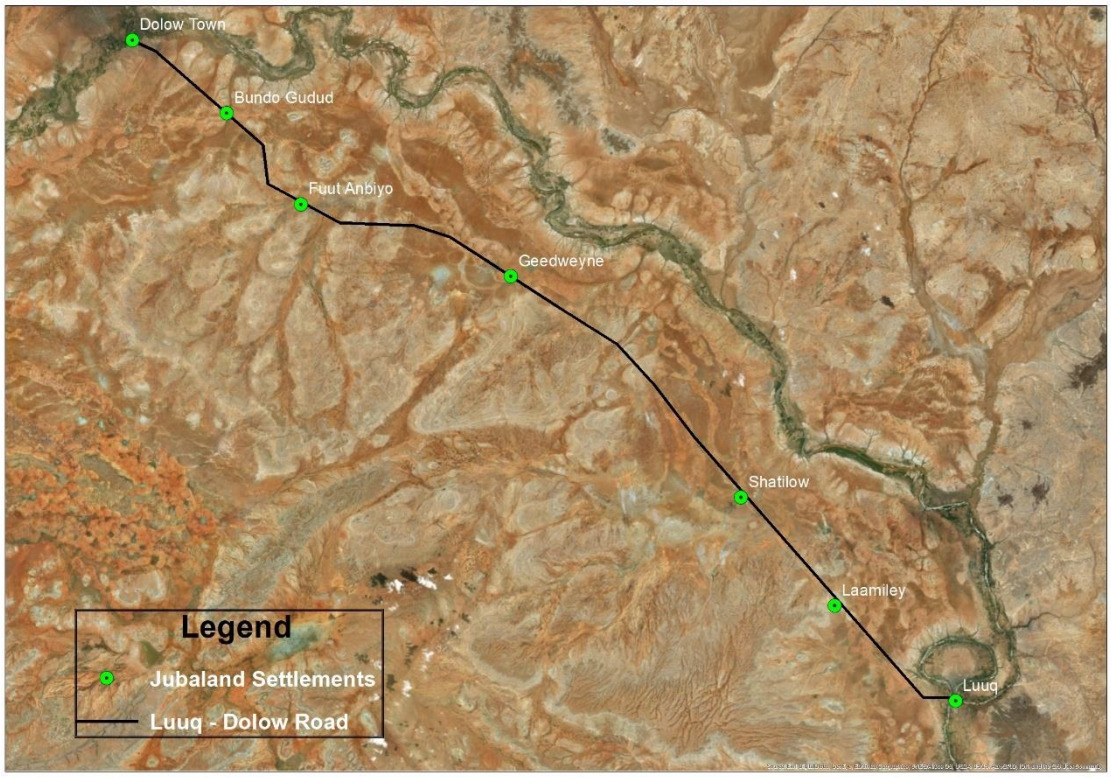


Figure 19, shows the settlements between Luuq and Dolow. As can be seen in the image the area has a few small villages, and will minimise compensation of affected individuals.

5.0. DESCRIPTION OF THE BASELINE CONDITIONS

5.1.1. Physical Environment

Somalia is located in the Horn of Africa where it lies between latitudes 2°S and 12°N, and longitudes 41° and 52°E. The country is bordered by Djibouti to the northwest, Kenya to the southwest, the Gulf of Aden to the north, Indian Ocean to the east, and Ethiopia to the west. Somalia has an area of 637,655 km^2.

5.1.2. Climate

The lives of Somalis is for the most part shaped by the country's climate which is influenced by the Inter Tropical Convergence Zone (ITCZ). Somalia's climate varies from arid to semi-arid and from tropical to sub-tropical depending on the spatial location.

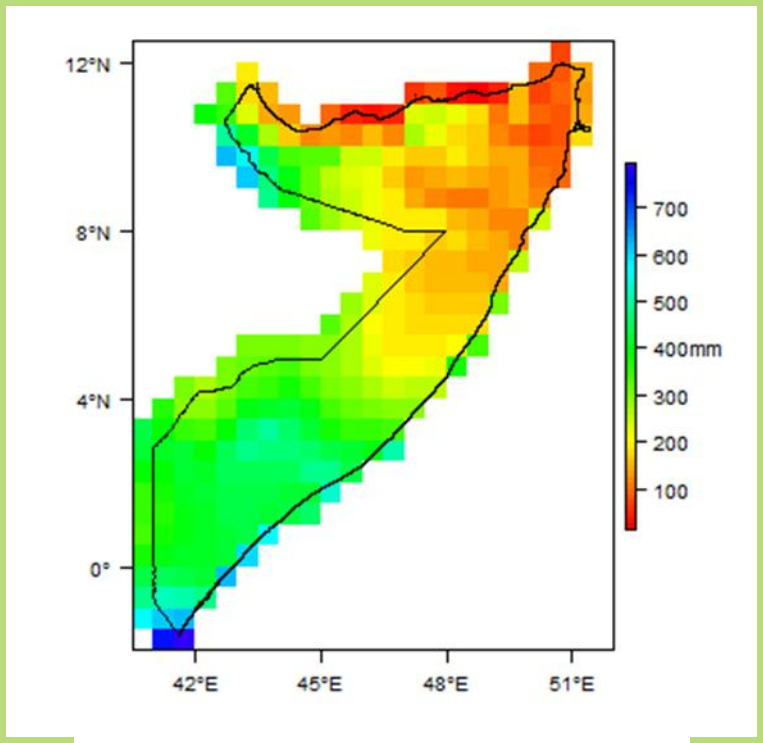


Figure 19: Average annual Precipitation (BGS,2018)

The country has two rainy seasons (*gu* and *deyr*) and two dry (*jiilaal* and *hagaa*). The amount of rainfall in Somalia is usually no more than 500 millimetres annually ranging from 50 to 150 milometers in the North and 330 mm to 500 mm in South West. The average annual precipitation is shown in (Figure 20). The *gu* rains starts around April lasting until June, and is followed by the dry *hagaa* occurring till September. The country experiences droughts every 2 to 3 years mostly followed by devastating floods. The dry *hagaa* season is followed by the *deyr* rains from

October to November. *Jilaal*, the driest season dreaded by the pastoralists, occurs from December until March. The country's maximum mean daily temperatures range from 30° C to 40° C except along the Indian Ocean coast and the mountainous areas where the mean daily maximum temperatures range from 20° C to 30° C. Relative humidity in the coastal zones is about 70%.[4]

5.1.3. Topography

Somalia's terrain is mostly flat. The Guban plains that parallel the Gulf of Aden coast rise inward towards the rugged Karkaar mountain ranges whose elevation is between 1,800 meters and 2,407 metres above sea at Shimber Berris, the country's highest point5. Southward the mountains descend to the Ogo, an elevated plateau of broken mountain terrain and shallow plateau valleys. The Ogo gradually slopes toward the Indian Ocean and in central Somalia constitutes the Mudug Plain. At the eastern part of the plateau lies the Nugaal valley which has extensive network of intermittent seasonal watercourses. The western part of the Ogo slopes gently southward and gradually merges into the Haud region. The Beledweyne Galkayo Road Begins at about 600 ft above sea level ending at nearly 950 ft above sea level. As seen in Figure 21 maximum elevation on this road is 1531 ft above sea level and the average elevation is 995 ft above sea level.

Figure 20: Elevation Profile Beledweyne-Galkayo Road

The road between Galkayo and Garowe begins at an elevation of 939 ft above sea level in Galkayo ending at an elevation of 1642 ft in Garowe (Figure 22). The road gently rises towards reaching a maximum elevation of 2612 ft near Gori Rit 50 km away from Garowe after which it gradually descends towards Garowe. The average slope on this road is 04% - 0.6%.

[4] http://countrystudies.us/somalia/34.htm , *U.S. Library of Congress*

[5] Helen Chapin Metz, ed. Somalia: A Country Study. Washington: GPO for the Library of Congress, 1992.

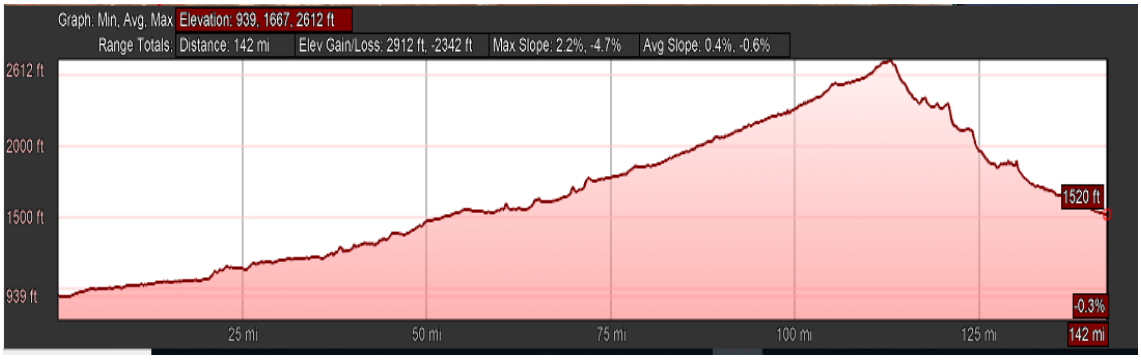


Figure 21: Elevation Profile Galkayo-Garowe Road

The road between Luuq and Dolow begins at an elevation of 480 ft above sea level near the Luuq bridge ending in Dolow bridge at an elevation of almost 600 ft (Figure 23).

Figure 22: Elevation Profile Luuq-Dolow Road

This road gently slopes upwards for 8 miles reaching an elevation of 573 ft. After one mile the road drives through a small basin that is 9 miles long before ascending to 666 ft above sea level, the highest point on the road. This is followed by a gentle descent towards the Dolow bridge. The maximum slope on this road is 4.5%-3.9%. Galkayo-Hobyo road starts at an elevation of 960 ft above sea level and gently descends to 127 ft above sea level at 96 miles away from Galkayo (Figure 24).

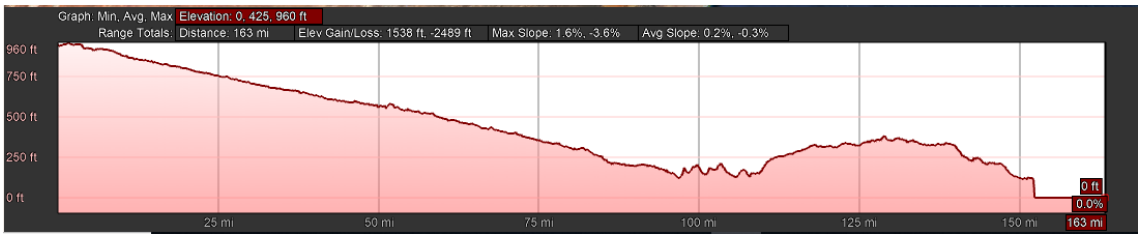


Figure 23: Elevation Profile Galkayo-Hobyo Road

Thereafter the road goes through almost half a dozen contours at Wisil before it briefly rises to a small plateau at Gawaan and finally descends to the port town of Hobyo.

5.1.4. Geology and Soils

Key formations in Somalia include alluvium from the Pleistocene to Holocene period whose general characteristic show Older Pleistocene alluvial sediments and recent alluvium including sandy clay with lenses of sand and fine gravel to coarse gravels and boulders.

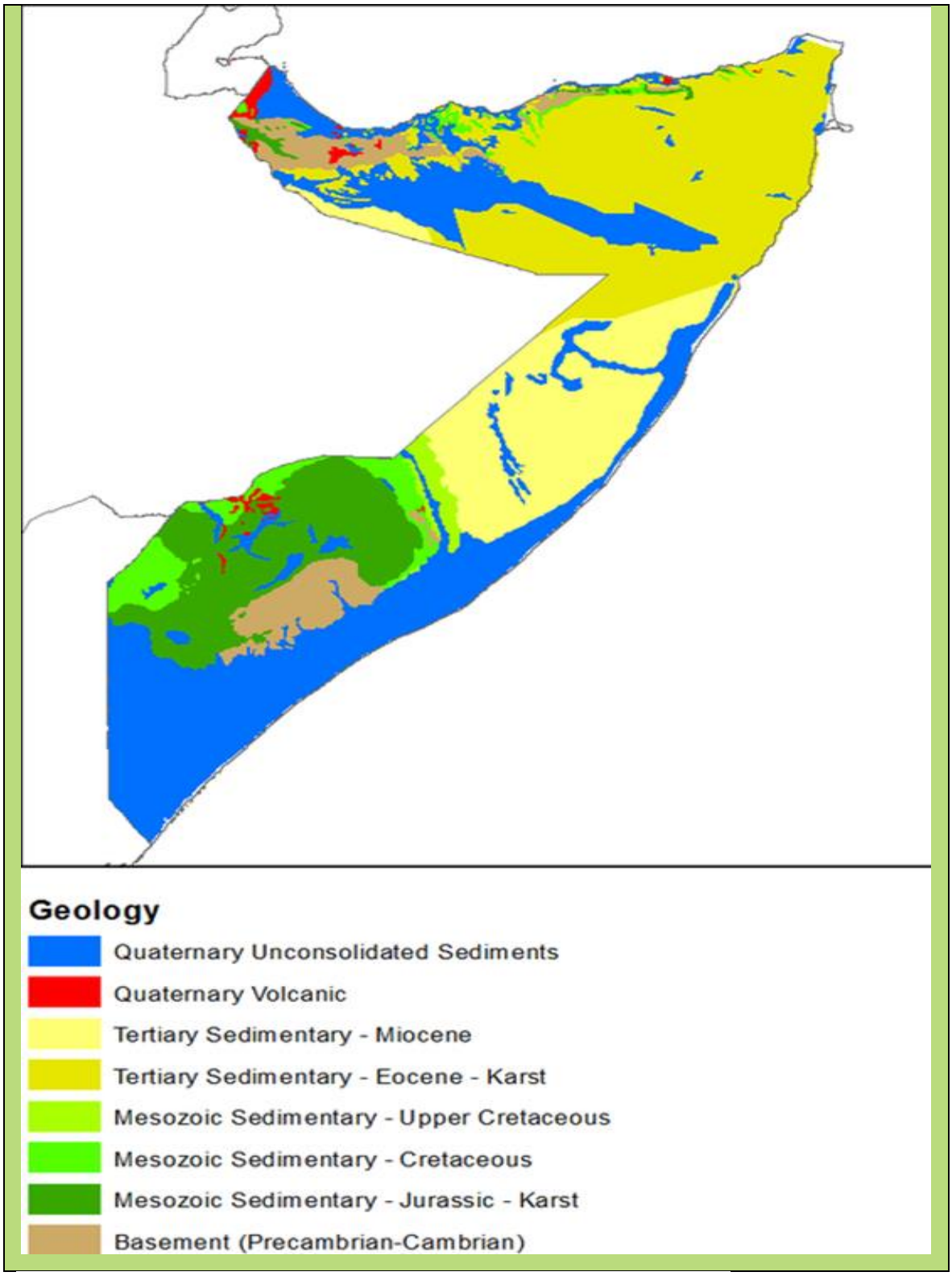


Figure 24: Geology and Soils of Somalia (BGS, 2018)

In some parts are fine sands forming dunes and red soils and calcerites. Quaternary unconsolidated sediments are mostly found in the southern coast and the riverine areas of Southern Somalia. The North Eastern part of the country is dominated by terciary sedimentary from the Eocene period. Mudug Formation in which the middle part of the Beledweyne-Galkayo Corridor is found comprises of marly and biogenic limestones, calcarenites and sandstones (Figure 25). On the Western side of this corridor is the Beledweyne formations consisting of gypsum, marls and dolomites. On the Beledweyne to Galkayo Corridor the soils are Fluviol around the riverine area of Beledweyne and then briefly changing into arenosols. The remainder of the corridor is made up Gypsisols. From Galkayo to Garowe the soil types are mixed consisting of Leptosols, Calsisols, and Gypsisols. The Luq-Dolow Corridor has a mixture of Fluvisols, Calcisols, Arenosols and Leptosols. The Galkayo to Hobyo Corridor lies on top of Gypsisols, Solonchaks and Regosols (Figure 26).

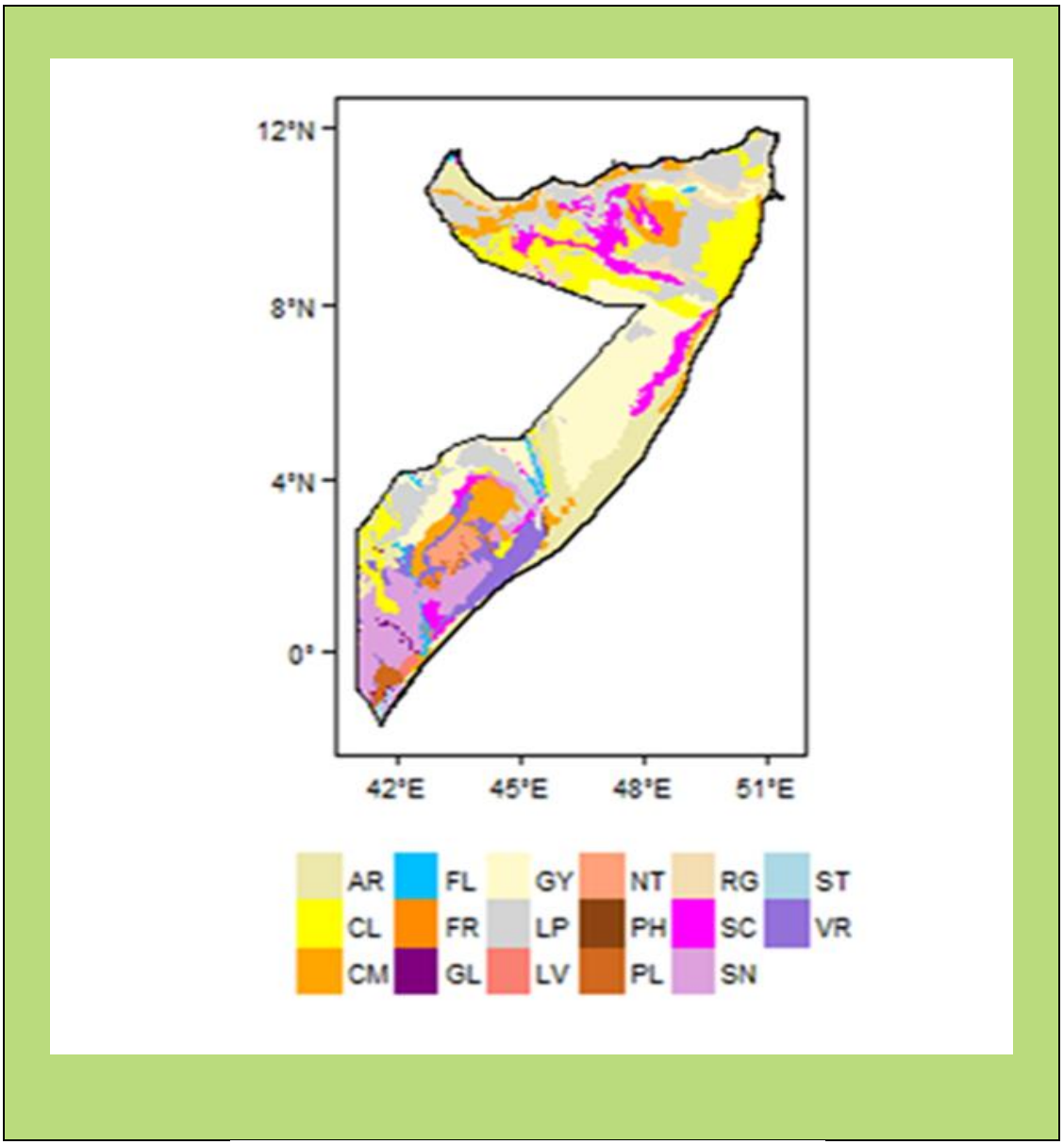


Figure 25: Soils of Somalia (BGS, 2018)

5.1.5. Water Resources and Hydrology

Rivers Juba and Shabele are the main sources of surface water in Somalia. These two perennial rivers originate from the Ethiopian highlands in the north and flow southwards towards the Indian Ocean. The Juba-Shabelle basin, has a total area of 810 427 billion square meters, of which one third each is in Ethiopia, Kenya, and Somalia.

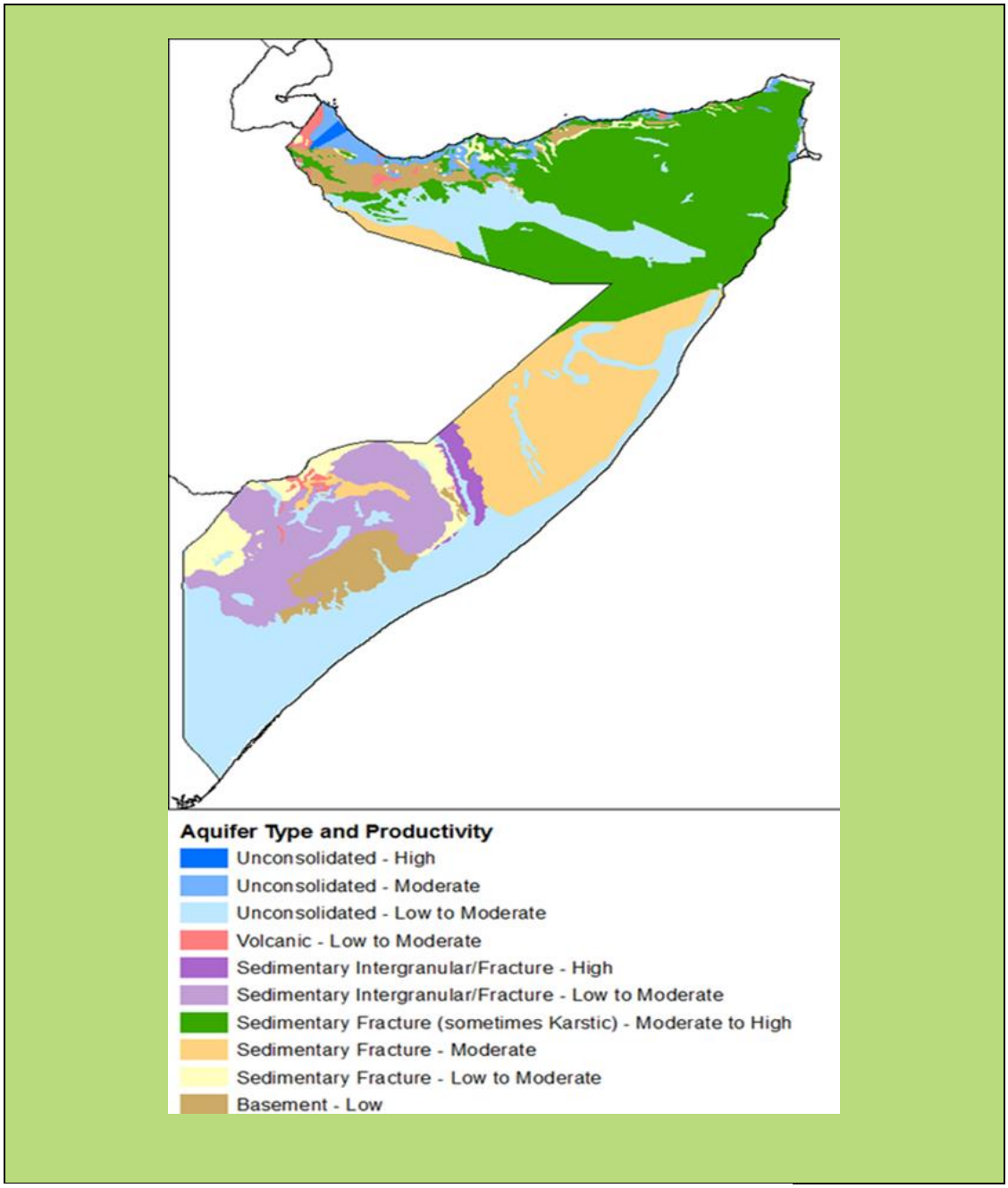


Figure 26: Somalia's Main Aquifers (BGS, 2018)

The mean annual runoff at the border between Ethiopia and Somalia is 5.9 BCM for the Juba River at Luuq and 2.3 BCM for the Shabelle River at Beledweyne (AfDB, 2010 & FAO, 2005). The Beledweyne to Galkayo Corridor goes through different

aquifers with high to low to high productivity (Figure 27). At Beledweyne the sedimentary intergranular aquifer has high productivity. The corridor then passes through a large swath of basement aquifer which has low productivity. On this part of the road you also have unconsolidated aquifers with low to moderate productivity as is the case on the Galkayo to Hobyo corridor. From Galkayo to Garowe the road passes through different aquifers including basement and unconsolidated aquifers. At Garowe the sedimentary fracture has moderate to high productivity.

The Luq-Dolow Corridor is dominated by the Sedimentary Intergranular Fracture Aquifer which has low to moderate productivity (Faillace and Faillace 1986, FAO/SWALIM 2012, Water Supply Survey Team PRC 1983, Petrucci, 2008 and German Agro-Action, 2005). Apart from the areas along the Shabelle and Jubba Rivers the rest of Somalia relies on groundwater for domestic use, livestock and small-scale farming. Boreholes are generally between 90 m ad 250 m deep and in some areas can be 400 m deep. The shallow wells are usually less than 20 m deep. While yields vary from one aquifer to another most shallow wells yield between 2.5 and 10 m^3/hr and boreholes yields are mostly between 5 to 20 m^3/hr (FAO/SWALIM 2012). When it comes to ground water quality the challenge is high salinity levels which can be up to 2,000 μS/cm (FAO/SWALIM 2012). In addition to the two perennial rivers other sources of surface water in Somalia include seasonal streams that only flow during rainy season and dry up shortly thereafter. The stream beds of these *toggas* or *Waadi's* also provide access to water through shallow wells which are dug in the dry season. Rain water captured in natural depressions known as *balley*, artificial dams or *Waaro*, and man-made cisterns locally known as *berkad* also provide water during the dry season.

The Luuq-Dolow road begins at the banks of the Jubba River in Luuq town and ends at the bank of River Dawa in Dolow Town. River Dawa forms part of the Somalia-Ethiopia boarder where the Luuq-Dolow Road ends at the bridge crossing the river. The Dawa joins Ganaale Dorya another perennial river from the Ethiopian highlands to form the Juba River on the outskirts of Dolow Town. This road runs parallel to the Juba River where the closest point to the river is about 5 km and the furthest nearly 14 km away. Along the Luuq-Dolow road significant streams include Togga Fuud Ambiyo. Drainage on this road is provided by more than 50 structures mostly in the form of culverts of which nearly a dozen are severely damaged. The Beledweyne-Galkayo Road begins from about 6 km northeast of the Shabelle River. There are several significant seasonal streams through which the road crosses such as Togga Saalax Jeele. These toggas are also found along the Galkayo-Garowe Road where the most significant stream is Togga Garowe.

5.1.6. Land Use

In Somalia, rangelands are estimated to be about 80 per cent of the nation's land area (AfDB, 2010). On the Dolow-Luq Corridor land is used for grazing and for farming around the river. The same is the case for the first part of the Beledweyne-Galkayo Corridor. The rest of the land where the corridors cross is used for grazing. Between the main towns where trade occurs there are several villages and small towns that serve the nomadic communities and travellers along the corridors.

5.2. Biological Environment

5.2.1. Land Cover and Vegetation

About 2% of Somalia's total land cover is considered as arable land, and of this 18.7% is appropriate for irrigated agriculture (IUCN 1997). Figure 28 shows the land cover in Somalia. In Southern Somalia particularly, the riverine areas of Kismayo there are some mangrove and acacias which are dwindling at a high rate due to over exploitation from charcoal trade. On the Galkayo to Garowe Corridor the land is mostly covered by various local shrubs and some areas that can be described as grassland. The Luuq-Dolow road is dominated by acacia with broad canopy. From Galkayo to Hobyo the land cover is dominated by shrubs.

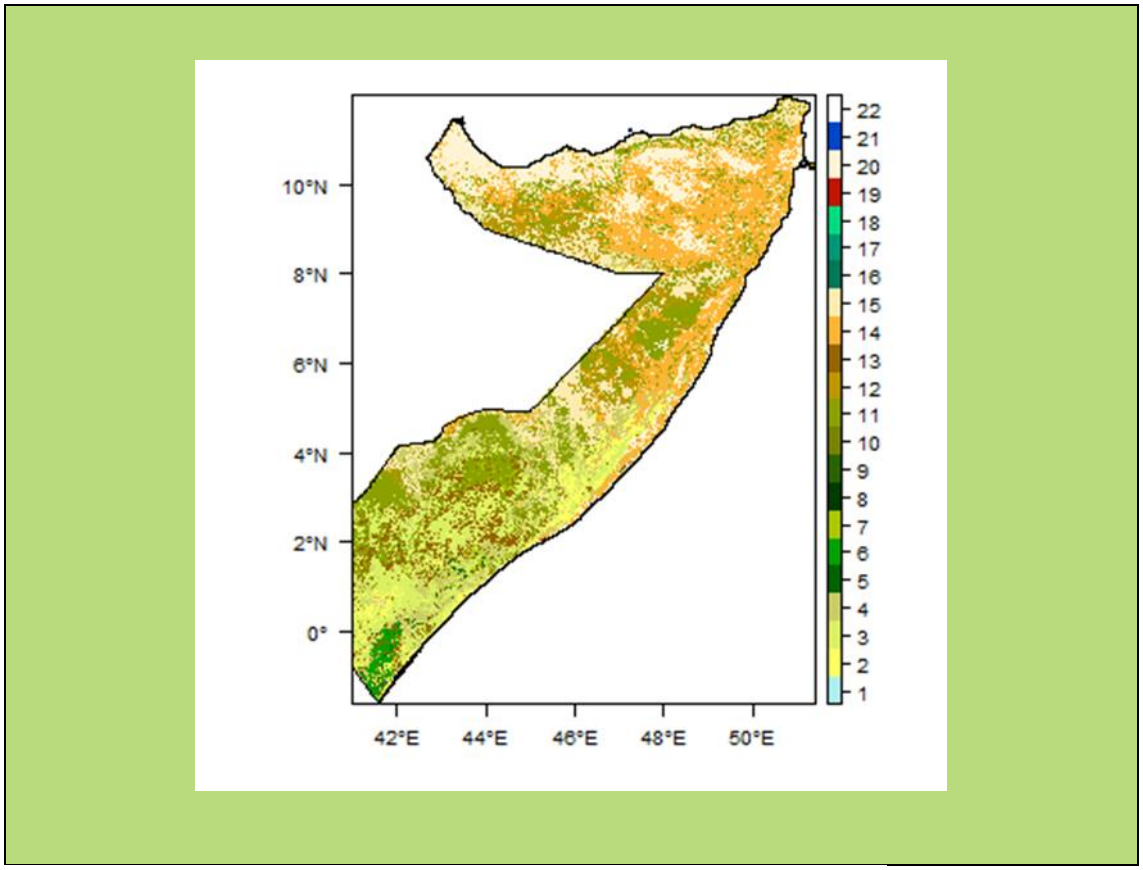


Figure 27: Somalia land Cover from satellite images

Hobyo Grassland and Shrubland ecoregion consists of white and orange sand dunes dominated by perennial dune grasslands and sedges[6] . This region also supports six endemic species of birds, mammals and reptiles. This ecoregion is a long, narrow coastal strip from just south of Mogadishu to some 250 km north of Hobyo. It is a low-lying area of coastal plain with dunes of white and orange sand and associated dune grassland. The dunes reach a maximum height of 60 m, and the dune field is about 10 to 15 km wide along its entire length. Inland, the habitat changes to dry savanna and semi-desert vegetation.

[6] https://www.worldwildlife.org/ecoregions/at1307

5.2.2. Fauna

Somalis are mostly pastoralists and the country is home to several livestock species including the Somali goat, Somali Sheep, and dromedary camels. Commonly found along the four roads to be rehabilitated are goats, sheep and camels. The goats and camels are bred mainly in the central and South of the country and cows become more visible along the Luuq-Dolow road. The country has lost many of its wild mammals such as elephants to poaching. The main wild mammals found in Somalia include giraffe, zebra, and hyena. One of the most famous endemic mammals in the country is the long naked garanuug (*Litocranius walleri*). Other endemic mammal includes the silver dik-dik (Madoqua piacentinii), one of the world's smallest antelopes, and the Somali golden mole (Calcochloris tytonis). The country has several reptile species of which one of the most renowned is the *Bitis arietans Somalica* commonly referred to as puff ader snake. Many Gecko species are also found in Somalia including the endemic *Hemidactylus taylori.* The country is estimated to have several hundred bird species including the ostrich and several dove species.

5.2.3. Socio-Economic Environment

5.2.4. Population

The last official census of Somalia was in 1975, when the population was estimated at 3.2 million people. 2015 populations estimate by FAO show a total population of 10, 787, 000 comprised of 6,388,000 (59%) rural and 4,399,000 (41%) urban[7]. Current estimates from the World Bank shows a total population of 14, 742, 523[8] . At least 70 per cent of Somalia's population is under the age of 30.[9]

Economy and Poverty

The United Nations had classified Somalia as a least developed country. Agriculture is the most important sector, which accounts for 65% of GDP and employs 65% of the workforce. The economy is based mainly on livestock and remittances/money transfers from abroad, and telecommunications. Livestock contributes about 40% to GDP and more than 50% of export earnings. Similarly, Somalia is the world's fourth-most remittance dependent country, which makes up about 20-50% of local economy.7 Remittances alone was estimated at USD $1.3 billion for the country as a whole, not only provide a buffer to the economy but also are a lifeline to large segments of the population cushioning household economies and creating a buffer against shocks. Telecommunications on the other-hand had been developed in the country primarily by private entrepreneurs with their foreign investors from China, Korea and Europe. These facilities not only transmit electronic messages and data, these also are used to do money transfers. The telephone density in the country is much denser than its neighbouring countries.

[7] http://www.fao.org/nr/water/aquastat/data/query/index.html?lang=en
[8] https://data.worldbank.org/country/somalia
[9] https://www.unicef.org/somalia/education.html

In 2015, less than a third of the donor commitments were actualised due to lower oil prices and bureaucratic hurdles. Domestic revenue is still insufficient to allow the government to deliver services to citizens. The administrative and security sectors account for more than 85% of total spending while economic and social services sectors account for about 10% of total expenditure. Poor collection capacity, narrow tax base, absence of the necessary legal and regulatory frameworks, and lack of territorial control hinder full revenue mobilisation (World Bank 2016).

Poverty levels in the country is very alarming. UNDP in its 2014 report mentioned that the country has a poverty rate of 73%, a life expectancy of 55 years, adult literacy of 31.8%, about 70% of the population is below the age of 30, and a youth unemployment rate of 67%. In its 2012 report, UNDP Somalia mentioned that the country had one of the lowest Human Development Index (HDI) in the world with a value of 0.285. Inequality is high driven by the difference in poverty incidence in urban settings (close to 60% in Mogadishu) and rural settings (52.3%) with IDP settlements (71.0%).

The food security situation has been worsened by the civil war and statelessness, and recurrent droughts, as farmers have lost access to agricultural inputs and services formerly provided by the state. The private sector has responded to a degree, but the lack of regulation might have led to misuse, and poor quality control. While industry can provide an increasingly important contribution to economic growth, it will be, for the foreseeable future, second to pastoralism and agriculture.

The Project can have a positive effect in alleviating poverty in the both rural and urban centers. While temporary disruptions of local resident's lives in terms of construction related impacts, these are only temporary can be mitigated using standard engineering practices

5.2.5. Governance and Security

Somalia has recovered from a long period of conflict and lawlessness and the country is now in the process of building public institutions. Many policies and laws being developed are geared towards the betterment of the socio-economic environment. Somalia has adopted federalism and currently comprises of five active Member States which are also building their government institutions. The country's security situation is poor with insurgents having control of many areas in the South of the country. These insurgents continue to spread insecurity, especially in Mogadishu, through suicide bombers. The country is developing its military capacity and aims to take over the provision of security in some parts of the country from AMISOM.

5.2.6. Gender

Somalia has one of the highest gender inequality in the world at 0.776 which ranks 4th in the world. The country has an extremely high maternal mortality (723 deaths per 100, 000 live births while the adolescent birth rate for teenagers aged between

15 and 19 is 100.1 per 1,000 births[10]. Rape, female genital mutilation and child marriage rates, and violence against women and girls is common. The participation and roles of women in politics and decision making is minimal which perpetuates limited female roles and inequality. Women make up 56.6% of the workforce in agriculture/pastoralism which constitutes 60% of the local economy. The number of women working in government had significant numbers at 1,912 (19%). Much is to be desired in the education sector, where only 36.1% of pupils in the upper primary education are composed of girls. Gender disparity is higher in upper grades due to economic constraints and early marriage.

Culturally the role of women has been limited to domestic affairs, however as a result of legislative changes their participation in the country's governance and politics continues to grow. Currently there is a 30% quoata declared for women representatives in both the lower and upper houses of the parliament. According to recent data from the UNDP[11] the 2017 share of women seats in parliament was 24.3%. Traditionally the Somali women have been the "engineers" building the traditional homes, *aqal somali,* and "food processors" making preserved meat referred to as *oodkaq/muqmad*. They are also the fetchers of water for domestic use while it is the men who work at the well to provide water for the herds. Somali women are actively involved in business mainly trading in household goods, gold, and khat. Nearly all the khat vendors and tea stall owners along the corridors are women.

The Project should make a positive impact for women in terms of providing safe and convenient access facilities to basic social services (education, health, government offices, etc.), and reducing travel time which women can use the saved time for productive purposes (i.e. second livelihood, school tutorial services for their children, etc.).Temporary inconvenience due to vehicular traffic and limited emissions during construction work should easily be managed by the contractors using mitigation measures to be defined in the environmental management plan.

5.2.7. Waste Management

Waste management remains a big challenge in Somalia. The are no functional solid and liquid waste management systems in nearly all of the country. Along the corridors waste dumping near the road on the outskirts of settlements is a common practice. This is also the case in riverine areas such as Dolow where waste is also dumped on the river banks. The SRCIP pilot could incorporate waste management plan to divert away from the project corridor apparently used as a dump site. This may need a separate ESIA as it's a standalone project.

5.2.8. Access to Education and Health Facilities

Prior to the civil war Somalis enjoyed free public education, however, since the collapse of the state only 30% of the children are in school and fewer than 50 %

[10] http://hdr.undp.org/en/composite/GII
[11] http://hdr.undp.org/en/composite/GII

of girls attend primary school[12]. Madrasas play a key role in providing education for young children. These Islamic schools which are abundant and easily accessible in nearly all parts of the country offer young children the opportunity to be literate. Somalia's healthcare provision is dominated by the private sector save for mother and child health centres funded by donors. Along the corridors nearly all the small settlements lack health care facilities and people are forced to travel to nearby urban areas to seek medical treatment.

5.2.9. Land Use and Settlement Patterns

Land ownership is normally on a clan basis or *degaan*. Between 1969, after the coup of the civilian government, the military government took control of most of the collectively owned community lands. In the current constitution land is owned by the government, but again the central government does not have the ability to enforce this ownership and land remains community property owned by the different clans living in a particular area.

The settlement patterns across the country is uniform comprising large towns such as Galkayo and Garowe on the corridor. Between these urban centres are scattered villages and small town that serve as trade centres for the pastoralist communities. On the riverine parts of the corridor, Beledweyne and Dolow areas, the communities can be described as agro-pastoralists.

5.2.10. Economic Activities

Somalia's economy is built on pastoralism in which nearly 50% of the community participates (World Banks, 2006). Historical data from the 1980's shows agriculture generating 66% of the GDP and Livestock and livestock products accounting for 51% of the GDP (World Bank, 2006). The manufacturing sector generating less than 5% of the economy. Current figures from the World Bank[13] shows the country's 2017 GDP as 7.369 billion USD. The country's economy is projected to grow at a rate of 3%-4%14.

[12] https://www.unicef.org/somalia/education.html

[13] https://data.worldbank.org/indicator/NY.GDP.MKTP.CD

[14] https://www.worldbank.org/en/news/press-release/2018/09/13/somalia-economic-update-rapid-growth-in-mobile-money

Figure 28: Cargo trucks from Ethiopia Transporting Coffee and Potatoes towards Beledweyne and Oil tanker also transporting fuel from Ethiopia

The telecommunication sector currently plays a major role in the country's economy. Despite its long coastline the fishing industry generates less than 5% of the economy (World bank, 2006). Between Beledweyne and Garowe is where most of the country's livestock are based. The Galkayo-Hobyo road provides access to the Hobyo port which has the potential of serving Ethiopia's mainland. The Luuq-Dolow Corridor directly links Somalia to Ethiopia also presenting opportunities in economic growth resulting from cross border trade between Ethiopia and Somalia (Figure 29). At the moment cross boarder trading between Ethiopia and Somalia shows import of agricultural product and fuel from Ethiopia to the Beledweyne area of the corridor.

6. Description of Alternatives Scenarios Considered

Currently available information of proposed project activities is limited to the length of the road to be rehabilitated and the type of pavement as shown in table below.

Alternative considered include: 1) Do nothing, 2) Pavement type and 3) Road sections for rehabilitation.

6.1. Do Nothing Scenario

The corridors facilitate the movement of goods and people within and between the different states of Somalia and enhance cross border movement of the same between Ethiopia and Somalia. These are not new roads, they are pre-existing roads that have contributed to the economic growth of the country and social integration between the different clans that live along these corridors. The current state of disrepair has led to increased travel cost/time and slowed the movement of goods and people. The rough condition of the road leads to vehicular damages significantly

decreasing the life expectancy of the vehicles and presenting an economic burden to the owners and the community in general. More than often the prices of goods and services increase as the transport costs go up. The reduction of travel time will be one of the main benefits.

For instance, community led rehabilitation of 60 KM of the Galkayo-Hobyo road has seen reduction of travel time from four hours to 60 minutes leading to sharp decrease in the coast of milk in the port town of Hobyo. The do-nothing approach will lead to missing an opportunity to enhance community lives along the corridor and the whole country in general. Since the roads are pre-existing minimum adverse impacts are accepted both environmentally and socially. The probable displacement of less than 1% of the people is most likely to present the main adverse negative social impact. There will be clearly defined and practical measures designed to mitigate against adverse social and environmental impacts and enhance the positive impacts. A resettlement action plan (RAP) and an environmental and an environmental and social management plan (ESMP) will clearly show activities to be undertaken and the parties responsible for these activities designed to ensure the communities are not worse off compared to pre-rehabilitation of these corridors.

6.2. Pavement Type for Proposed Roads Sections

1) Beledweyne to Feerfeer section along Beledweyne-Galkayo Road

The pavement type being considered for this road is asphalt. This road is an existing asphalt road and repaving it with asphalt is considered the right choice.

2) Galkayo-Faraloy Pilot section along Galkayo-Garowe Road

The road between Galkayo and Garowe is asphalt paved and the proposed rehabilitation is resurfacing with asphalt. This choice is endorsed.

3) Dhusamreeb-Adado Pilot section along Galkayo-Hobyo Road

The intended intervention for this road is construction of a 60 km gravel road from Dhuramreeb to Adado. This fits well with ongoing community funded construction of the road. However, future plan should be to upgrade this section into Asphalt to match the expected traffic from increased heavy trucks movement when the planned construction of Hobyo Port is undertaken.

4) Luuq-Dolow Road

Luuq-Dolow Road was originally an asphalt road that has become completely unpaved following a prolonged period of no maintenance. Although asphalt paving would have been the optimal choice budget limitations would not allow this option. The planned grading and compaction of the entire road should suffice provided additional measures to address drainage are incorporated.

Note that besides, the major actions required during construction phases of the proposed road sections, other activities will include: 1) Road surface (paved or graded); 2) Road reserve ("hard shoulder") 3) Crossings (e.g. bridges, culverts) 4)

Drainage and erosion control structures; 5) Safety and security measures (e.g. barriers and fencing); and 6) other elements (e.g. signage).

6.3. Criteria used in selection of the pilot road sections under SRCIP

In the choice of sections to be rehabilitated, two main considerations were taken into account: 1) levels of pavement distress, 2) scale of potential displacement, and 3) the Federal State in which the road is located.

1) Beledweyne-Galkayo Road for pilot sections

Beledweyne-Galkayo Road is 395.2 km long and rehabilitation is planned for only 30Km. This road drives through Hirshabelle and Galmudug States and nearly 70 km is located in Hirshabelle State: from Beledweyne to the Hirshabelle-Galmudug Border village of Bacda. In n considering the sections to be paved this has to be taken into account given the sensitivities that currently exist in Somalia when it comes to the distribution of development projects. Observations made during the field work shows the most damaged sections are Beledweyne-Jawiil in Hirshabelle State and Guriceel to Dhusamareeb in Galmudug State. However, stakeholder consultations agreed that the initial phase of the project will be from Beledweyne to Feerfeer.

2) Galkayo-Garowe Road for pilot sections

This entire road is located in Puntland State and consultation on sections to be paved are were agreed to cover from Galkayo to Faraloy during the first phase of SRCIP activities.

3) Galkayo-Hobyo Road for pilot sections

Between Galkayo and Hobyo a gravel road has been constructed through community funding from Hobyo to Wisil covering 60 km and construction is still ongoing towards Galkayo covering nearly 20 km per month. Constructing a 60Km road from Dhusamreeb to Gradhi of gravel road linking to this road was agreed by stakeholder for the first phase of SRCIP activities.

4) Luuq-Dolow Road

The entire Luuq-Dolow Road will be paved as per the planned project activities estimated at 80 Km.

6.4. Public Involvement and Disclosure

An extensive public consultation exercise was carried out during 2018 in both Mogadishu and project sites as part of project preparation and developing an ESIA and RAP report. The process included both semi structured interviews with small groups, key informants and more formal consultation meetings for designing project environmental management plan. The public consultation was also be undertaken as part of the process of obtaining a No Objection Certificate (NOC) from the designated government authority and the African Development Bank.

With regard to the project, participants in the small groups and the consultation meeting raised a number of expectations as detailed in section of the social benefits from the project. The sites allocated to the proposed projects are State owned former road reserves and far from human settlements. Majority of the regional authority and beneficiary communities are aware of the upcoming Projects. All the respondents consulted, support the projects, saying that currently infrastructure rehabilitations and employment opportunities for the vulnerable in Somalia are urgent. They believe that providing road infrastructures will rejuvenate the region into mainstream socioeconomic development far from reached after years of protracted armed/clan conflicts in the country. The rehabilitation of the corridors is the first major infrastructure project at national scale in Somalia since the 1980's and it has been warmly welcomed by all stakeholders at the national and regional levels. Stakeholders see the Project as an indication of return to "real governance" in Somalia. The main potential impact appreciated by communities along the corridors is the reduction of travel time. The prospects of local employment and procurement opportunities are highly anticipated along the corridors.

With regard to the project impacts, almost all the respondents have no significant fear on the project impacts; as recurrent floods and poor road conditions have become number one development challenge to the communities; after after years of civil unrest in Somalia. Concerns of potential negative impact were mainly focused on involuntary displacement along the corridor. The RAP is expected to effectively address these concerns and provide clear information on mitigation and compensation measures that will be deemed fair and acceptable to the identified PAPs. The choice of road sections to be rehabilitated will be a sensitive issue that has to be handled carefully through stakeholder consultations along with a clear formula.

The formal consultation meetings provide the following suggestions: (i) work with government authority as much as possible; (ii) public awareness and notification to the community that might be affected especially businesses along the road reserves. This will allow them cope well with the likely social costs/negative consequences that may arise from the project; (iii) local authority especially security team to help in screening the workers during the recruitment process for workers and also solving disputes that may arise during project implementation.

With regard to the any environmental concerns, the consultation meetings recommend (i) Awareness and sensitization of the communities affected on the wider benefits of the projects vis-a-vie; and (ii) the soils removed from the dump sites away from settlements. For the smooth implementation of SRCIP and ensuring the Project's objectives are met and are sustainable also the following recommendations should be taken into account:

1) The choice of road sections to rehabilitated has to be done in a transparent manner that considers social-political and technical aspects;
2) Damaged culverts and bridges along the roads have to be repaired especially in areas where the bridges are completely damaged and the road is impassable;
3) During the design of the Galkayo-Hobyo road the current plans to build the port of Hobyo has to be taken into account given the likely increase of traffic particularly heavy trucks.

6.4.1. Institutional Capacities and Strengthening Plan

Various institutions will be involved in the rehabilitation of the roads at both the state and federal levels of the government. For the most part these are the public works ministries and in some areas such as Puntland and Galmudug highway authorities will be involved. These institutions have limited capacity to carry out preparation of ESIAs and RAP and carry out related implementations. Currently in Somalia ESIAs ad RAP preparation are only undertaken when the funding agency's policies require such measures. This lapse has led to significant setbacks in some recently completed or ongoing road building project in the country. It is of high importance and significance that units capable of preparing ESIAs and RAPs are established at the federal and state public works ministries especially given the projected increase in infrastructure development activities in Somalia.

7. Potential Environmental and Social Impacts

This Section contains a preliminary summary of the impacts that are likely to result from the Project activities as a result of the interaction between the Project components and the environmental and social receptors. It should be noted that the impacts identified here are preliminary in nature.

Environmental Screening Criteria: Environmental screening was carried out using a set of evaluation criteria. The screening criteria included the following:

Environmental Aspects

- Sensitive areas, natural habitats, declared forest reserves
- Felling of trees/clearance of non-agricultural vegetative cover
- Impacts on seasonal (non-perennial) streams/rivers

Social Aspects

- Loss of or access to lands including residential and commercial lands;
- Loss of livelihood
- Loss of cultural/historical resources;
- Damage or even loss of common property resources;
- Risk of conflict; and
- Social exclusion and even displacement especially for IDPs by major clans.

The screening of the potential sub-projects must be done prior to selection for funding by SRCIP pilot activities. Stakeholders' consultation revealed the followings which should guide the focus of environmental impact and mitigations; and preparing of RAP on the initial phase of SRCIP activities:

1) The is Road of Way (RoW) is estimated at 3 meters to 5 meters
2) The road between Galkayo and Garowe i.e. Galkayo-Faraloy Pilot section; some work has been done and there are no people occupying on the road.
3) There were no observable farming taking place in and around all roads marked under SRCIP.
4) There are few Internally Displaced Persons (IDPS) observed along in some towns/cities with no permanent structures.
5) The road between Dolow and Luuq; There are new permanent structures and see most of compensation under RAP will occur along this road. This will be based on the census data and valuation of these structures.

7.1 Potential Impacts

The Project is envisaged to have a range of positive and negative environmental and social impacts. Some of these are a direct result of subproject construction activities which can be mitigated or enhanced, while others are a consequence of Project designed which can be avoided or minimized if a possible suitable alternative design is developed.

7.1.1 Potential Negative / Adverse Impacts

1) Involuntary displacement: The main potential adverse impact of rehabilitating the corridors will be involuntary displacement of PAPs who have encroached on the RoW. This will lead to loss of assets and income. It is estimated less than 500 persons will be affected along all the corridors. These PAPs are mostly roadside vendors and owners of temporary structures and their number will be significantly reduced once the exact locations for rehabilitation are identified.

2) Generation of noise and vibration: During the construction phase vibrations and noise caused by construction machinery will disturb both humans and animals. Currently noise from vehicles driving on the corridor leads to frightening of animals grazing nearby the roads. In some cases, this results in the animals jumping into the roads and causing accidents. Death of livestock struck by vehicles has in some cases led to conflict between drivers and herdsmen.

3) Pollution of water resources: The corridors cut across many seasonal streams and this may result in pollution caused by construction materials such as concrete or even worse hazardous materials such as bitumen and oil. This type of pollution may also occur in places where the corridor is adjacent to rivers such as Dolow on the Ethiopian border. The risk of water pollution is exacerbated along the Galkayo to Hobyo road where villagers harvest water from the runoff.

4) Waste Generation: Activities undertaken during construction and the presence of campsites will lead to the generation of waste including plastic containers, metal parts, and sanitary waste and used motor oil. The disposal of this waste will present a great challenge given the lack of waste management facilities along the corridors including settled areas where waste is currently dumped on the outskirts.

5) Increased insecurity: In some parts of the corridor especially between Luuq and Dolow, and Beledweyne to Mataban areas where many insurgents are based. Campsites are likely to be susceptible to raids by the insurgents.

6) Loss of tree cover: In this project, a number of areas likely to be negatively impacted on the natural and physical environment; ranges from: The loss of tree cover from sites where rock extraction for SRCIPS would be taken. Participants consulted agreed that a considerable quantities of vegetation and woodland are being lost by the ongoing stone/cobblestone quarrying and would be further affected during the construction phase by the following actions; i) rock excavation and earthworks, ii) transportation of materials, construction of temporary facilities at sites, iii) and land clearance. Construction work will cause loss of vegetation mainly from quarry sites where there are uncultivated grassland and shrub lands.

7) Increased incidences of water borne diseases like malaria, diarrhoea and Cholera. During stone excavation, deep holes are created and left uncovered. These are prone to water logging during rainy seasons and become mosquito breeding grounds thus increasing incidence of malaria in the community. The water itself can be used for drinking in households and if not boiled may risk spreading Acute Water Borne Diseases (AWDs) like cholera, Diarrhoea and Typhoid.

8) Pastures/fodder for livestock is lost: Similarly, in the process of stone excavation, trees/shrubs which are used as fodders for livestock feeding are destroyed. We observed that livestock (camel, goats and sheep) were not grazing in areas where stone extraction was taking place and/ or in the old and abundant quarry sites due to lost vegetation cover. The elders interviewed also agreed that in 30-40 years ago, the land in Somalia used to be very green and livestock would not track long distances to get the fodders unlike recently due to the destruction going in the environment.

9) Other noticeable changes to the environment included, the loss of fuel wood in the community as a results of extraction activities; disturbance to the natural habitat for wild animals increasing the cases of snakes and scorpion bites. Also in a long run, the land is left bare prone to erosion and deep gullies are created leading to siltation of streams and water bodies during operation phase of the project.

7.1.2. Potential Positive Impacts

1) **Reduction in Travel Time:** Rehabilitation of the corridors will significantly reduce time travel time especially in areas with extensive damage of the asphalt and exposure of the base and sub-base. For instance, time taken to drive between the 65 km of stretch of road between Dhusamareeb and Guriceel is currently 2 hours. Rehabilitating on Dhusmreeb-Gradhi section will cut driving time by nearly one hour driving at a speed of 65 kilometres per hour. It takes cargo trucks three to four hours to travel across the 45 Km between Jawiil and Beergediid section of the Beledweyne to Galkayo Corridor. Rehabilitating will cut travel time by at least 3hours.

The Luuq-Dolow corridor is 71.9 km long and it takes two to three hours for vehicles to cover this distance during the dry season and four to six hours during the rainy season. Cargo trucks can take up to three days to travel from Luuq to Dolow during the rainy season. Resurfacing the pavement is likely to reduce travel time for non-cargo vehicles by nearly two hours during the dry season and almost three hours during the rainy season. On the Galkayo to Hobyo corridor community led rehabilitation of the road in a 60 km section has cut down travel time from nearly four hours to one hour. It takes cargo trucks three to four hours to travel across the 45 km between Jawiil and Beergediid section of the Beledweyne to Galkayo Corridor. Rehabilitating this section will cut travel time by at least 3 hours. Further rehabilitation will reduce this travel time significantly.

2) Reduction in Green House Gas Emissions: Various researchers[15] have shown that the fuel economy of a vehicle varies with its speed. At lowers speeds fuel consumptions are significantly higher speeds of between 50 and 90 km/hour. Rehabilitating the corridors will allow vehicles to drive at optimal speeds for lower CO2 emissions thus reducing impact of greenhouse gases on the climate.

3) Creation of Employment Opportunities: Estimates show the rehabilitation of the corridors will lead to the creation of nearly 700 new jobs of which almost 600 hundred will be unskilled labour. This presents a good opportunity for the unskilled youth in the different regions and minimize radicalization risks normally linked to unemployment.

4) Better Access to Social Services and Community Amenities: Most of the small villages on the corridors do not have basic services such as health care and these services are sought at nearby urban centres. Many severely ill patients are currently discouraged to seek medical help from the nearby urban centres because of the poor road conditions. Rehabilitation of the corridors will increase the willingness of the sick, especially the elderly, to seek medical assistance.

5) Reduction in Vehicle Repair Costs: Reduced Vehicular Maintenance Cost due to improved road conditions, that translates to lower transport cost for goods, services and passengers. Evidence showed that Owners of vehicles operating in the corridor areas face significantly high costs in carrying out repair work as a result of damages due to road condition. This is particularly true for commercial vehicles that regularly travel on the corridors. A public passenger vehicle driver who works on the road section between Dhusamareeb and Guriceel indicated he changed his tyres every two weeks. Rehabilitating the corridor will lead to significant savings on vehicle repairs.

6) Improved Road Safety: Currently many accidents occur in areas where road damage are extreme. In many cases drivers swerving around worn out asphalt and exposed base or sub-base end up causing accidents that sometimes lead to loss of

[15] http://www.transportation.alberta.ca/Content/docType57/Production/SpeedLimitsBrief.pdf

life. In addition to this the lack of road signs to warn drivers of dangers ahead has also led to many accidents on the corridors. Rehabilitating these roads will improve road safety and cut down accident rates.

7) Positive Impacts on Physical Environment will include: New water sources emerging (livestock and domestic purposes). Stakeholder agreed that the holes created can harbor water during rainy season which are used for both livestock and domestic used including drinking purposes. This is particularly important in a region which on record experience recurrent drought causing catastrophic humanitarian emergencies as observed in IDPs.

8) **Increased household incomes due to reduced transport cost**: and Local people can have a more convenient means of accessing basic social services (i.e. schools, hospitals/health centres, etc.)

7.2. ESMF Implementation and Management

7.2.1. Introduction

The successful implementation of the ESMF as a guide in the preparation of appropriate ESMP depends on the commitment of the concerned institutions in carrying out their respective roles, as well as the capacity of these units to do the job effectively. An institutional arrangement had been proposed that clearly states the roles of these stakeholders though out the Project cycle. Also, the capacity building activities have been devised to ensure that the units/ organization assigned to perform the relevant tasks are capable of doing so.

7.2.2. Institutional Arrangements

One of the tasks prescribed in the ESMF is to identify the appropriate individuals/entities to be involved in the Project activities, and define their respective roles and responsibility. Details of the institutional arrangements are found in Table 6.

Table 6: Safeguard Responsibilities

ENTITY	RESPONSIBILITIES
Project Implementation (PIU-Ministry of Public Works)	• Compliance with AfDB Safeguards Policies and other relevant country laws in line with this ESMF • Smooth and efficient implementation of the Project /RAP preparation; • Effective review, approval and implementation of the ESMPs based on the ESMF
Safeguards Specialist	• Assists PIU to fully comply with AfDB Safeguards Policies and other relevant country laws • Take the lead in ensuring adequate screening and scoping of Project for the appropriate safeguard instrument • Ensure adequate review of all safeguard reports (monthly and quarterly) before sending to AfDB

ENTITY	RESPONSIBILITIES
	• Supervision (and enforcement where necessary) of the contractors, supervisors, training of contractors and workers, monitoring of the implementation of the ESMF and other safeguard instruments
Ministry of Public Works Reconstruction and Housing	Various depending on which specific Ministry, Department or Agency: • Take the lead in screening, scoping, review of draft ESIA/ESMP for the government, receiving comments from stakeholders during public hearing of the Project proposals, and convening a technical decision-making panel (if required), ensuring conformity with applicable standards, conduct environmental and social liability investigations, and perform monitoring and evaluation work. • Provides overall leadership during public consultation meetings with critical Project stakeholders, in order to gain their support/cooperation/consensus in established policy direction; and • Ensures that Project implementers comply with all relevant environmental laws and policies
Engineering Supervision Agent	• Supervise Consultants hired to prepare the feasibility studies and basic engineering design of proposed subproject infrastructures; • Supervise the Consultants hired to prepare ESMP for each of the approved road and bridge subprojects, during the Detailed Design phase; • Assist in the preparation of tender documents including the inclusion of the ESMP as part of the scope of work of the bid documents; • Supervise the contractors hired to implement the road and bridge subprojects, including its ESMP. • Assist the MPWCH in the monitoring of Project performance including the environmental concerns (i.e. conduct of environmental assessment, procurement, and implementation of ESMP).
Independent Monitoring Agent	• Provide monitoring support of all projects in the Bank Somalia portfolio, including SRCIP
Consultants	• Prepare the ESMF following AfDB safeguards policy and Somalia environmental laws during the basic design phase; • Conduct Environmental Assessment for each road and bridge subproject following the approved ESMF during the Detailed Design phase;

ENTITY	RESPONSIBILITIES
Construction Contractors	• Implement the ESMP as contained in the bid documents, or propose a modified version based on the results of the contract negotiations; • Submit periodic progress report on the implementation of its approved ESMP. • Submit itself to periodic and special inspections by the Project Owner, Independent Monitoring Agent, and other oversight government agencies, and comply with instructions/ corrective measures for identified deficiencies in its ESMP implementation.
Local Government	• Appoints Local Government Desk Officers who visit communities and the project Implementers on a regular basis to facilitate stakeholder participation and compliance with local environmental laws • Support the PIU by participating in environmental and social screening and scoping process of sub-projects and public review of ESMPs
NGOs and CSOs	• Assists the Project implement effective response to relevant environmental and social issues • Conducts scientific researches alongside government groups to devise sustainable environmental strategies and rehabilitation techniques • Provides wide support helpful in management planning, institutional/governance issues and other livelihood related matter, Project impacts mitigation and monitoring

To expand upon the role of the Environmental and Social Safeguards Specialist as detailed in Table above, this Specialist is to ensure the effective management of environmental and social concerns throughout the Project cycle from the planning, detailed design, implementation, and monitoring and evaluation. Thus, a key function of Safeguards Specialist is to ensure compliance with the AfDB's environmental and social safeguards policies as contained in this ESMF.

During the implementation of the Project, the Safeguards Specialist, will work closely with relevant organizations. This is intended to have a coordinated response on operational issues that affects the environmental and social aspects of the sub-projects. The roles and responsibilities of the Safeguards Specialist are to:

- Review all ESMPs reports/documents prepared by environmental and social consultants to ensure compliance to the World Bank Safeguard policies;
- Ensure that the Project design, specifications and budget adequately reflect the recommendations of the ESMPs;
- Co-ordinate application, follow up processing and obtain requisite clearances/approvals from the WB for the ESMPs;

- Prepare regular monthly/quarterly/semi-annual progress reports with statutory requirements;
- Develop, organise and deliver appropriate environment and social safeguards related training courses for the PIU staff, the contractors, local government/community representatives and others involved in the Project implementation;
- Review and approve the Contractor's ESMP using the ESMF as guide;
- Liaise with the Contractors on implementation of the ESMPs;
- Liaise with various Government agencies on environmental, resettlement and other regulatory matters;
- Continuously interact with relevant NGOs and community groups;
- Establish dialogue with the affected communities and ensure that the environmental and social concerns and suggestions are incorporated and implemented in the Project;
- Review the performance of the Project in terms of environmental and social safeguards through an assessment of the periodic internal monthly and quarterly environmental and social monitoring reports; provide summaries of same and initiate necessary follow-up actions; and

Provide support and assistance to the Ministry of Public Works Construction and Housing and the AfDB during Project Review Missions

7.2.2. Capacity Building and Training

Based on the public consultation, the capacity assessment of implementing federal and state level as well as the PIU, was undertaken. The effective functioning of the Federal states and Regional Administration is hindered by limited technical skills and resource constraints.

Thus, institutional barriers include:

- Limited knowledge of the relationship between AfDB Safeguards policies and the existing country environmental and social laws;
- Lack of enforcement of development control regulations;
- Limited knowledge on EIAs and Environmental and Social Audits during construction/rehabilitation of drainages and culverts; and
- Limited technical capacity on solid and liquid waste management.

In order to achieve the goal of the ESMF, there is a need for capacity building and strengthening of relevant competencies on environmental and social management at both Federal and Regional States levels. It involves organisational development, the elaboration of management structures, processes and procedures, not only within organisations but also the management of relationships between the different organisations and other concerned sectors (public, private and community). The environmental and social management requirements and provisions outlined in this ESMF, competencies and capacity building will be required in the following areas:

- Environmental Impact Assessment process - screening, scoping, impact analysis, mitigation measures and monitoring, reviewing ESIA reports;
- Environmental Due Diligence - types of due diligence, screening projects for liabilities, scoping due diligence investigations and reviewing due diligence reports; and
- Monitoring and Evaluation - understanding the importance of monitoring and evaluation (M&E) in project implementation, M&E requirements for environmental and social sustainability of projects.

While the training needs of the Federal and Regional local government and its instrumentalities are important, however, the Project can only cover the capacity-building programs for those concerned government institutions that have direct participation in its activities as defined in the Institutional Arrangements.

7.2.3. Grievance Redress Mechanism

The Grievance Redress Mechanism (GRM) is part of the broader process of stakeholder participation that provides a stakeholder a means to have his /her concerns amicably resolve at the earliest possible time. The mechanism takes into consideration lessons learned in other development projects implemented in the country, as well as the existing traditional practices such as the "xeer" system which is the most cost-effective and most logical form of justice for the majority of Somalis. To help ensure that the process does not marginalize women and other vulnerable groups, representation for these groups (women and other vulnerable groups) will be required in the Grievance Redress Committee tasked to resolve grievances/complains. Additional details on the GRM are also provided in the Resettlement Policy Framework (RPF), and a sample Grievance Redress Registration Form is included in Annex 6.

The objectives of the grievance redress mechanism are:

- Provide an effective avenue* for aggrieved persons/entity to express their concerns and secure redress from issues/complaints caused by the Project; these grievances may arise from resettlement and compensation activities, or from impacts from construction activities.
- Promote a mutually constructive relationship among community members, project affected persons, government and funding institutions;
- Prevent and address community concerns;
- Assist larger processes that create positive social change; and
- Identify early and resolve issues that would lead to judicial proceedings.

**May need to consider separate mechanism for women and children (as a way to ensure their voices are heard)*

7.2.4. Grievance Management Process

Grievance resolution requires localised mechanisms that take account of the specific issues, cultural context, local customs and tradition, and Project conditions and scale. A representative Grievance Redress Flow process that could be followed:

- Receive, register and acknowledge complaint;

- Screen and establish the basis of the grievance;
- Nuisance complaints are rejected but the reason for the rejection should be clearly explained to the complainant;
- GRC to hear and resolve the complaint;
- Implement the case resolution or the unsatisfied complainant can seek redress at a formal court of justice;
- Elevation of the case to a formal court if complainant is not satisfied with the GRC resolution
- Document the experience for future reference.

Essentially, registration of complaints, acknowledgement, follow-ups, mediation and corrective actions is presented. This is further amplified in Table 9 which describes the steps in the grievance management process. Irrespective of the size and nature of the complaint, the GRM does not replace or circumvent existing traditional mechanisms for dispute resolution in the communities.

7.2.5. Grievance Redress Committee

A functional GRC will be constituted by the PIU in conjunction with the local community to monitor and review the progress of implementation of the Project. The specific composition of these committees will vary upon location and context. But generally speaking, the GRC will be comprised of Project Affected Persons (PAPs), municipal government officials, local civil society leaders and representatives of women and youth groups who will be will be formed to receive and handle any arising complaints

The main functions of the Committee are:

- Inform the affected persons about the grievance redress mechanism;
- Verify grievances and their merits;
- Recommend to the PIU solutions to such grievances;
- Communicate the decisions to the claimants;
- Ensure that all notices, forms, and other documentation required by claimants are made available in local language understood by people; and
- Ensure documentation of all received complaints and the progress of remediation.

Provide the Bank, PIU and other oversight agencies, through the internal and external monitors a listing of cases handled and their respective status.

7.2.6. Mediation Committee

The Independent Mediation Committee is a structure that is to be established by the PIU to independently and impartially resolve grievances through mediation and dispute resolution. Mediation by the Committee is only to take place in case the complainant is not satisfied with the initial resolution proposed by the GRC. The Committee uses mediation to resolve disputes or complaints submitted to it. It will be composed of elder/s or their representative from the dominant clan exercising control over the area, among others.

The Committee will be independent from the PIU but has access to any information that the PIU and or its implementation partners have, regarding the complaint. The determinations of the GRC are non-binding on either party. The Committee meets as needed, depending on registered complaints and disputes, and its members receive a stipend from the PIU to cover costs of attending meetings.

If a solution that is acceptable to all parties emerges out of the meeting with the Committee, the grievance may be considered resolved and closed out; all parties are then notified. If no acceptable solution is agreed upon, either party has the option of taking legal action. The composition of the Committee shall be established based on the specific Project location and will include three people of high reputation as impartial mediators in the region such as elders, retired judges and so on.

7.3. Environmental and Social Monitoring

Monitoring is an essential part of the ESMF during Project implementation. Monitoring verifies the effectiveness of impact mitigation measures, including the extent to which mitigation measures are successfully implemented.

Monitoring will be one of the principal activities of the PIU Safeguards Specialist once an environmental permit is secured for a sub-project, contract is awarded and the project implementation commences. The PIU Safeguard Unit will commence monitoring as an important feedback mechanism.

This ensures that the environmental and social mitigation measures in this ESMF are:

- Adhered to in implementation and are informed by emerging situations:
- Identified in the planning phase (contained in the EIA report), and incorporated in the project design and costs;
- Maintained throughout the construction and operation phases through to the decommissioning of sites, facilities and equipment; and
- Where inadequate, additional remedial actions are identified (including corrective measures or re-design of mitigation measures).

Methods for monitoring the implementation and performance of mitigation measures should be as simple as possible. The choice of performance indicators should be reflective of the ESMF objectives. These should be quantifiable, monitoring sites, methods of analysis and frequency of collection should be consistent with the sub-project ESMPs. The means by which these parameters are collected should be simple and not expensive to do so that the PIU and local governments may be able to carry out such monitoring work. Likewise, monitoring should also have its evaluation component so that the performance of contractors with regards to compliance to environmental and social mitigation would be determined, and appropriate recommendations/courses of action be provided to remedy shortfalls. For instance, they could just be regular observations of the sub-project activities or sites during construction and then when in use. Most observations of inappropriate behaviour or adverse impacts should lead to common sense solutions. In some cases, there may be need to require investigation by a

technically-qualified person. Of special concern are violations committed against women and vulnerable groups within the Project area that are perpetuated by construction workers and other persons connected in the Project. Such incidents shall be brought to the attention first of the Project Management for proper disciplinary action against the perpetuators. If the case involves parties external to the Project, then the case will be referred to the proper authorities for action.

The monitoring roles and responsibilities would be carried out by the following:

- PIU Safeguard Unit is the internal monitor of the Project, and it is tasked to check the performance of the contractors in the implementation of the approved ESMP which is contained in the Scope of Works, among others;
- Ministry provide an oversight role as it relates to safeguard issues, will carry out own compliance monitoring to ensure that the permit conditions and relevant standards and mitigation measures are being fulfilled by operators in the sub-projects;
- Local Government traditionally would participate in the monitoring to ensure and verify adequacy of implementation of various measures;
- Communities as well as the CBOs/NGOs will be useful agents in primary data collection vital in monitoring ESMP implementation, as well as corrective action plan prescribed for delinquent contractors;
- An engineering supervision agent will assist the Ministry in the monitoring of Project performance including the environmental concerns (i.e. conduct of environmental assessment, procurement, and implementation of ESMP);
- An independent monitoring agent will provide overall monitoring support to all Somalia projects, including SRCIP;
- World Bank will continually review the performance of the Project in meeting the provisions of the Loan Covenants, which include the conduct of environmental assessment using the appropriate instruments (ESIA, ESMP), securing approvals for these instruments prior to implementation, selection of qualified contractors to implement the ESMP among its Scope of Works, submission of regular environmental monitoring reports; and implementing corrective action plans prescribed by AfDB project review missions.

Note that the contractor will be required to develop as part of contractual requirements to develop site-specific ESMPs detailing how the management actions contained in this ESMP will be implemented. The contractors will also be required to develop environmental and social management programs as it relate to their construction and operational activities. Such management programs shall include the following:

- Waste Management Plan
- Spill Prevention and Emergency Response Plan
- Traffic Management Plan
- Erosion Control Plan
- Integrated Vegetation Management Plan
- Occupational Health and Safety Plan

- Security Plan
- Labour and Employment Plan

7.4. Budgets for the ESMF

This is tentative budget from the consultant but could be revised by the stakeholders. To effectively implement the environmental and social management measures suggested as part of the ESMF, necessary budget need to be provided by stakeholders. An indicative budget had been provided in Table 7 that will cover safeguards related expenses such as capacity-building programs, coordination and public consultation meetings; planning workshops, monitoring work, environmental consultancy services. This estimated budget does not include the cost for mitigation and enhancement measures, which will be integrated into the construction cost. Likewise, all administrative costs for the operation of the PIU Safeguard Unit are including in the overall Project cost.

Table 7: Estimated Annual Budget to Implement ESMF

ESMF REQUIREMENTS	BUDGET BASIS AND ASSUMPTIONS	TOTAL COST PER ANNUM (USD)
Capacity Building for PIU Personnel and Municipality	Training programmes held in-country (all in one year)	52 000
Meetings, Workshops and Stakeholder Engagement	For 30 persons/year x two workshops	4,000
Environmental Screening of transactions	No additional budget	No additional budget
Field visits to Project locations	Field visits estimated for two PIU personnel per year (to cover, transport, and daily allowances)	Already in PIU budget
Sub-Project Scoping Workshops	One-day ESIA Scoping workshop for bridges and quarries	Budget as part of ESMP preparation (8,000)
Typical ESMP Report for sub-projects	Assume average cost of each ESMP, 25 days	Budget as part of ESMP preparation (50,000)
Typical Stakeholder Engagement for sub-project	Assume average cost of each ESMP, 10 days	Budget as part of ESMP preparation (10,000)
Engagement of Environmental and Social Specialists	Allow for five specialists, 10 days each plus expense	Budget as part of ESMP

		preparation (75,000)
Monitoring Compliance with ESMP during pre-operations activities	Assume quarterly monitoring activities over five days, each quarter, per year (two persons plus logistics, per diem etc)	Budget as part of ESMP preparation (30,000)
Monitoring Compliance with ESMP and during operations	Assume quarterly monitoring activities over five days, each quarter, per year (one person plus logistics, per diem etc)	Budget as part of ESMP preparation (20,000)
	TOTAL Estimated Budget	56,000
	Contingency (15%)	8,400
	Grand Total	64,400

7.4.1. Update and Revision of ESMF

The ESMF will be used for screening of sub-projects, a guide for the preparation, review and approval of sub-project ESMPs. Since there may be new developments, guidelines or national legislations issued after the ESMF approval and disclosures, the ESMF may need to undergo updating from time to time.

7.4.2. Disclosure of Safeguard Instruments

The ESMF has been prepared in consultation with the relevant stakeholders. Copies of this ESMF and other safeguard instruments (RPF) that would be prepared for the sub-projects should be disclosed in compliance with relevant country regulations and the World Bank operational policy. The ESMF will be disclosed in-country at designated sites and translated as much as possible into main local language (s). It will also be disclosed in two daily newspapers for 21 days, or as required by country laws, while the World Bank will disclose the document at its Info Shop. The information to be disclosed is listed in Table 8.

Table 8: Types of information to be disclosed

TOPIC	DOCUMENTS TO BE DISCLOSED	FREQUENCY	MEDIA
Public Consultation	Minutes of Meetings	Within two weeks	
Environment Management	ESMF	Prior to commencement of any work	AfDB External Web Site
	ESIAs/ESMPs	Prior to awarding works that the ESIA or ESMP was prepared for	
All environmental documents	A non-technical executive summary	Applicable to the document being disclosed	

TABLE 9: ENVIRONMENT MANAGEMENT PLAN FOR PROPOSED PILOT ROAD SECTIONS UNDER SRCIP ACTIVITIES

POTENTIAL IMPACT / ISSUE	MITIGATION AND ENHANCEMENT MEASURES	MEANS OF VERIFICATION	RESPONSIBLE PARTY	MONITORING PROCEDURE
Ambient Air				
Dust emissions	Sprinkle water on the road Cover truck loads with canvas to minimize air blow	1) Water sprinkling conducted 2) Trucks covered 3) Absence of dust clouds 4) Complaints from community	Contractor	Random site inspection
Vehicle and equipment emissions	No excessive idling of vehicles and machinery, use of well-maintained vehicles and equipment that are in good condition	1) Technical specification sheet	Contractor	Random site inspection
Soil and Water Pollution				
Contamination/spills	Ensure appropriate and safe storage of contaminants such as lubricants and fuel	1) Contaminants safely stored 2) Protection and collection mechanism out into place	Contractor	Random site inspection
Noise and Vibrations				
Construction noise	Ensure hours of operation are limited to between 6 am and 5 pm	Complaints from local community	Contractor	Random site inspection
Solid Waste Management				
Improper waste disposal	1) Avoid waste generation by buying the right quantity of materials 2) Dispose construction waste at State approved sites	1) Waste disposal and recycling procedures developed	Contractor	Site visit, view of log sheet and site inspection

	3) Re-use excavated soil for backfilling and leveling 4) Use C&D waste for bedding if possible 5) Provide recycling and waste bins for plastic bottles and waste bins	2) Installation of appropriate sanitation facilities		
Traffic and Transport				
Accidents	1) Ensure safe driving by contractor and other project personnel 2) Information and awareness-raising 3) Road signs/markers	Complaints from local community	Contractor	Random site inspection
Road obstruction	Avoid storage of construction materials and equipment on the road	Storage location identified	Contractor	Random site inspection
Socio-Economic				
Physical displacement	Avoid the demolition of structures located on the road and compensate where unavoidable	Contractor	Federal and State ministries of public works & Contractor	RAP
Conflict	Location of camp sites selection should be done in consultation with local community and property owners	Contractor and State public works ministry	Federal and State ministries of public works & Contractor	RAP
Economic Displacement				

Local Employment & Procurement	Give preference to local community members particularly the youth and the poor and employ women to carry out soft work. Materials that can be procured locally should be used.	Employment and procurement records	Contactor	Review employees and procurement register
Stakeholder Engagement & Grievance Mechanism	Conduct community consultations and provide a grievance redress mechanism for PAPs and other stakeholders to voice their concerns on the project	RAP	Federal and State ministries of public works	RAP
Workers Health and Safety				
Attacks by insurgents	1. Fence camp sites 2. Hire armed security guards 3. Install lights around the perimeter 4. Staff awareness raising	Camp site security plan	Contractor Federal Level AMISOM	Camp site security plan
Accidents to workers	Develop an Internal Plan of Operations (IPO) Firefighting equipment Staff awareness-raising	Contractor records	Contractor	Daily registry for workers, health conditions
Increased incidences of water borne diseases like malaria, diarrhoea and Cholera	Awareness to the community Stock pile of essential drugs in medical facilities	Medical record	Ministry of health	Routine medical inspection during operational phase.
Pastures/fodder for livestock is lost:	Quarrying should not be in grazing areas Awareness campaigns to avoid extraction in grazing areas	Community Complaint reports	Contractor	RAP

***The total cost for implementing mitigation and enhancement measures along the four corridors is estimated USD 500,000

8.0. COMPLIMENTARY ACTIVITIES

In addition to the mitigation and enhancement measures it is proposed that complimentary measures be undertaken in some of the road sections to ensure the intended goals of SRCIP are achieved. General complimentary activities to be considered of high value include building health clinics and primary schools along parts of the corridors. Specifically, prioritised complimentary activities for each road section, based on community input and field observations, are presented in the following sections:

8.1. Beledweyne-Galkayo Road

The section of this road in Hirshabelle State (Beledweyne-Bacda) has a total of 55 water crossings which are mostly culverts. The conditions of these structures range from fair to very poor and will require repair before the roads become traversable. Paving the road without repairing the bridges will severely undermine some of the main potential project impacts. The completely damaged Saalax Jeele bridge crossing is of particular importance since it is not crossable and drivers have resorted to crossing Togga Saalax Jeele during the dry season or when water levels are low. When the Togga is full there is complete halt in traffic movement (Figure 30).

Figure 29: Observations on the current state of Salax Jeele Bridge

8.2. Galkayo-Hobyo Road

Severe water scarcity along this road continues to harshly affect the local communities. Familiess have resorted to harvesting water from the road runoff. Providing boreholes for these communities will alleviate the suffering caused by water scarcity especially in the parts where herdsmen travel 100 km to get water. Particular areas where boreholes can be placed area between the villages of Ceelguula and Afgaduud.

8.3. Galkayo-Garowe Road

The road between also has many water crossing in the form of culverts and two main bridges crossing the *toggas*. Some of these water crossings will require some repair.

8.4. Luuq-Dolow Road

The Luuq-Dolow Road has approximately 60 culverts some of which are in very bad condition and the community has resorted to filling the culverts with gravel (Figure 31).

Figure 30: Observation on the current state of the damaged Culvert between Luuq and Dolow

In order to rip the full benefits of paving these roads the culverts have to be repair or reconstructed. The Figure 32 shows the water crossings along the Luuq-Dolow Road.

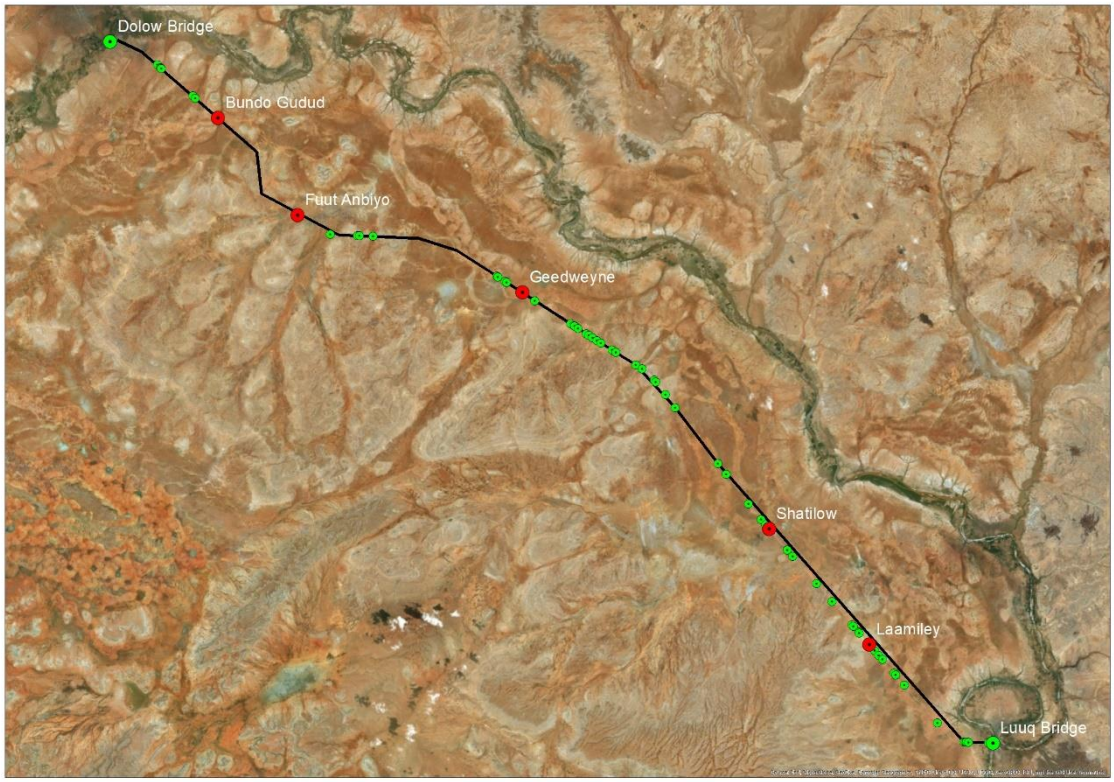


Figure 31: Water Crossings observed along the Luuq-Dolow Road

8.5. Major causes of environmental degradation in Somalia

Somalia at large frequently experiences many shocks and its economic stability is constantly at risk. Poorer groups /vulnerable people find themselves most threatened by disruptions to their economy, as they just barely meet minimum food requirements during a normal year and have fewer options for coping with shocks thus leading to unsustainable utilization of natural resources. In this evaluation, the major causes of environmental degradation by order of importance identified were:

1) Tree cutting for charcoal fuelwood. This is the main source of livelihoods in the rural communities. Lack of alternative energy for cooking and has also contributed to over relying on charcoal and fuelwood;
2) The community are too poor to afford factory made cement in construction work. Thus cobblestone and mixed with sand and firewood and heated to form local limestone/cement commonly known as "Nuriya" in Somali;
3) Rock /stone excavation is third major cause of loss of tree and vegetation cover;
4) Lastly, the inability of the local administration to implement bye laws and ordinances to protect the environment. There area has many clan militias who may oppose any environmental conservation and protection activities during enforcement. The ministry of environment is also under staffed with limited funding. Most of the staff at the ministry are working on voluntary basis and thus ineffective to implement any meaningful environmental programme

9.0 ENVIRONMENTAL IMPACT MONITORING AND MITIGATIONS

9.1. Approach to Developing Mitigation Measures

Options to address the various environmental and social issues identified have been worked out based on review of good practices and requirement of compliance with the legal provisions as well as consultations with the relevant stakeholders. The principle that guides the approach to mitigation measure development is outlined in Table 3. Possible mitigation measures are provided in Table 3 & 5.

Table 10: Approach to Mitigation Measure Development

MITIGATION MEASURE	PRACTICE
Seek viable alternatives first to avoid or minimize particular adverse impacts	• Consider viable alternatives to a proposed Project and its component that can avoid or minimize adverse impacts prior to accepting appropriate mitigation These alternatives should also be able to achieve the Project objectives to maximize benefits and at the same time minimize undesirable impacts
Take corrective measures to minimize unavoidable effects.	• Limit the scope of the work to within the Project influence area. If the impact extent is undetermined or goes way beyond the Project area, in most likelihood, the sub-project is a Category A which is not eligible for funding under the Project • Consider doable corrective measures intended to reduce adverse impacts to acceptable government and/or international standards. • Seek existing effective mitigation measures already applied in on-going Bank financed projects. The list of best practices is a good source of these information.
Public Consultation	• Conduct public consultation meetings to disclose proposed preliminary mitigation measures, seek comments and suggestions from stakeholders on the proposed measures especially those that directly affect them (i.e. mode of resettlement, rates applied for compensation of loss assets, location of waste disposal sites, etc.)

9.1.2. Gender Mainstreaming

The rights of women are protected in the Provisional Constitution. Women are given the right to education, allowed to work, own properties, hold public office, and receive inheritance. Under the Project, if disparity between men and women occur during implementation such as priority in hiring, pay rates for similar work done, safe working environment, health and sanitary facilities in the work place and office and others, then there is a need to mainstream gender concerns in the project. To do this, there is a need to conduct a study to identify and assess gender issues and opportunities in the project and the locality. The results of the study would serve as guide in adopting and updating the African GAP into all stages and components of

the Project. The updated plan should identify the project activities and its impacts on women, and propose mitigation and enhancement measures, name point/focal persons/organizations responsible of carrying out the measures, name verifiable indicators to monitor performance, prescribe implementation time frame and budget. The GAP comes with it, a monitoring program that will help decision makers keep track of the GAP implementation in order to assess if the mitigation is effective, else alternatives measures need to be put in-place. Annex 5 outlines some information that should be provided in an assessment of the challenges and opportunities for gender concerns.

The primary objective of the vulnerable persons assessment and assistance measures is to avoid the occurrence of Project-induced vulnerability, and if it occurs, to mitigate this through preventive and follow-up measures.

Criteria used to assess Project-induced vulnerability include pre-Project poverty, household composition, income, food supply, housing, social support, and health. In addition, marginalization of affected households due to temporary/permanent displacement during the construction phase. The criteria are used to establish household vulnerability relative to local conditions. Vulnerability thus becomes locally defined as those households that are recognized to be in a difficult situation against the background of general poverty in the area.
Vulnerability should be viewed in two stages: pre-existing vulnerability and transitional hardship vulnerability. Pre-existing vulnerability includes that stage which would be present with or without Project development. Transitional hardship vulnerability occurs when those directly affected by the Project, whether predisposed or not, are unable to adjust to new conditions due to shock or stress related to Project activities.

Project measures to identify vulnerable households and individuals include:

- Participatory engagement techniques to confirm community perceptions of well-being and to identify at-risk households
- Analysis of baseline data to identify at-risk households
- Implementation of household monitoring surveys designed to reveal trends in social welfare (household composition, assets, sources of income, expenditures….)
- Self-registration of households that identify themselves as vulnerable or at risk; with all such registrations leading to an evaluation of that household by the Project/investor team in order to assess the households' vulnerability
- Regular visits to all physically-displaced households and any economically displaced households identified as vulnerable during resettlement planning and implementation processes to re-assess those households' vulnerability. Such visits will occur at least once a quarter; and each visit will be recorded in the database flagging changes to indicators that are problematic.

9.1.3. Chance Find Protocols

In the event of chance finds of items of cultural significance (e.g. religious shrine, archaeological site, cemetery, etc.), all forms of excavation in and around the site will be stopped. Subsequently, experienced archaeologists and anthropologist would be recruited to carry out an investigation and proposed plans for the protection and preservation of such cultural artefacts (Annexure 2).

During the Project site induction meeting, all contractors will be made aware of the presence of an on-site archaeologist who will monitor earthmoving and excavation activities.

The following procedure is to be executed if archaeological material is discovered.

- All construction activity near the find/feature/site will cease immediately;
- The discovered find/ feature/ site will be delineated;
- Record the find location, and all remains are to be left in place;
- Secure the area to prevent any damage or loss of removable objects;
- The on-site archaeologist will assess, record and photograph the find/feature/ site;
- The on-site archaeologist will undertake the inspection process in accordance with all Project health and safety protocols under direction of the Project Health and Safety Officer; and
- In consultation with the statutory authorities the on-site archaeologist will determine the appropriate course of action to take.

This environmental and social monitoring programme is designed to measure the effectiveness of the identified mitigation measures and compliance in their implementation. The monitoring programme will be used during the preconstruction, construction, and operation phases. Specific environmental and social aspects to be monitored will include:

- Number of jobs created and locals employed in the project;
- Level of women participation in the project;
- Number of community consultations and awareness campaigns carried out;
- Recruitment of environmentalists to monitor the works;
- Level of involvement of the State governments in monitoring the works;
- Number of accidents;
- Number of complaints registered with the grievance redress committees;
- Levels water and air quality; and
- Compensation of PAPs

The contractor's environmental and social officer will carry out daily surveillance to ensure implementation of social and environmental management measures identified in the bid documents and requirements included in the works contract. The environmental and social officer from the engineering supervision firm will have the responsibility of ensuring the contractor's compliance on a daily basis. Monitoring will be led by an ESIA consultant specifically hired to monitor ESIA &

RAP implementation in accordance with the Bank OS policies. The ESIA consultant will be assisted by environmental and social officers in each of the four state governments where the project will be implemented. Each of these officers will on a weekly basis conduct random site inspection to verify implementation of the mitigation and enhancement measures identified for the project. The four environmental and social officers will prepare weekly reports for the ESIA &RAP consultant who in turn will submit monthly, quarterly progress reports and annual environmental monitoring reports to the Department of Environment at the Primes Minister's office, the Federal Ministry of Public Works and the Bank.

TABLE 11: ENVIRONMENTAL IMPACTS MONITORING AND MITIGATION COSTS PROPOSED PILOT ROAD SECTIONS UNDER SRCIP ACTIVITIES

ACTIVITY PHASE	ENVIRONMENTAL AND SOCIAL ISSUES	REMEDAL MEASURES	APPROXIMATE LOCATION	TIME FRAME	MITIGATION COSTS
PRE-CONSTRUCTION PHASE (BASELINE CONDITIONS)	Rapid deforestation (charcoal production) Unsustainable use of pastures and rivers due diminishing economic Rapid urbanization and growth in construction sector is another challenge,	Enhancing economics and livelihoods opportunities i.e. to boost trade through infrastructural projects	All of Somalia	Long term	None estimated at this level
CONSTRUCTION PHASE	Trees are lost from the land where rock extraction will take place	1) Awareness campaign to avoid areas covered with trees 2) Tree planting in areas of excavation 3) Extracting rocks in alternate manner to avoid over concentrating the losses on one place	Quarry sites	During rock extraction	To be included in Project preparation cost
	Caves are being created at the quarry sites, creating gullies and sometimes water logging (causing malaria and cholera cases)	1) Sand filling holes created 2) Awareness campaign to ensure refilling the holes	Quarry sites	During rock extraction	To be included in Project preparation cost

	Increased traffic jam, noise, dust along the street, community during construction,	1) Blocking the area under construction 2) Police to monitor and block the road 3) Putting road signs and indicators 4) Diversion of the roads access to the city	Pilot roads under construction	During design, contract and tendering stage	To be included in Project preparation cost
	Pastures/fodders for livestock grazing are lost	1) Quarrying should not be in grazing areas 2) Awareness campaigns to avoid extraction in grazing areas	Quarry sites	During rock extraction	To be included in Project preparation cost
CONSTRUCTION PHASE	Increased incidence of child labour especially in IDPs because road works with provide alternative sources of livelihoods	1) Food provision at school to encourage attendance 2) Awareness to avoid children working at the construction sites	Quarry sites	During construction stage	To be included in Project preparation cost
	Natural habitats for animals are disturbed e.g. for snakes and scorpions thus more cases of animal bites	Killing of snakes and scorpions	Quarry sites	During stone extraction	To be included in Project preparation cost
	Injuries as a result of using traditional tools in extraction and chiseling process	1) Procuring right equipments for workers 2) Training workers on appropriate methods	All project corridor i.e. at quarry sites and pilot road	During rock extraction, chiseling and construction stage	To be included in Project preparation cost
	Accumulation of solid waste during construction	Dumping off site solid waste	Outside the municipality	During design and contract	To be included in Project preparation cost

	Littering and waste generated from workers	1) Sensitization /awareness on proper solid waste management 2) Dig incinerator for dumping wastes	Along the pilot road	During design and contract	To be included in Project preparation cost
CONSTRUCTION PHASE	Workers causing depletion and polluting of water used by local communities for domestic water supply	Contractor providing water to their workers	All water resources likely to be impacted along the project corridor.	During design and contract	To be included in Project preparation cost
	Workshop construction and operations: Contamination of both surface and groundwater through oil spills Inflow of foreign equipments and technology for road construction/workshop construction	Constructing oil sock pit to collect the waste oils	All water resources likely to be impacted along the project corridor.	During design and contract	To be included in project preparation cost
	Workshop construction and operations :Air and noise pollution from workshop construction and operations	1) Closing the road, people avoided from using the road 2) Using exhaust maniple which reduces noise	All along the Project corridor	During design and contract	To be included in project preparation cost
	Demolition of structures within road reserves is associated with: air and noise pollution and if not carefully handled, collapsing building and debris may injure workers and general public	Awareness of the community to avoid areas of construction	Along the roads under construction	During design and contract	To be included in project preparation cost

	Hauling of construction materials such as gravel, fill materials, water may result; staining of household goods and dust	1) Community awareness to avoid such areas 2) Blocking the construction sites & policing	Along the roads under construction	During design and contract	To be included in project preparation cost
CONSTRUCTION PHASE	Hauling of construction materials such as gravel, fill materials, water may result; communication problems due to noise	1) Awareness of community to avoid such areas 2) Blocking the street under construction & policing	Along the roads under construction	During design and contract	To be included in project preparation cost
	Hauling of construction materials such as gravel, fill materials, water may result; disruption of sleep	Working only day time	Along the roads under construction	During design and contract	To be included in project preparation cost
	Traffic diversion will cause: congestion, traffic accidents along the diversion roads	Vehicles will be allocated a wider road as diversions	Municipality especially along business streets	During design and contract	To be included in project preparation cost
	Flooding of the road due to disruption of natural water flow during construction	Construction of Irish crossings to ensure smooth flow of water	Along the roads under construction	During design and contract	To be included in project preparation cost
	Selection of stone quarry sites and construction workers; perceived unfairness by some community members	Use of quarry Cooperatives to ensure equally supply of the stones from different sites	Along quarry corridor	During design and contract	To be included in project preparation cost
	Selection of stone quarry sites and construction workers; negative attitude towards government initiatives by some groups	Informed the people that is donor project, a banner will be printed for better awareness	Along quarry corridor	During design and contract	To be included in project preparation cost

	Chiseling-breaking and shaping stones into small pieces lead to; increased deposits of stone wastes in the environment	1) Training on proper chiseling by Trainers of Trainers, Providing training manuals. 2) Wastes generated will be used for casting concrete, backfilling the floor of the houses and back filling the road	Along quarry corridor	During design, contract and tendering stage	To be included in project preparation cost
CONSTRUCTION PHASE	Stone/rock excavation leads to; excessive exposure of workers to extreme weather (cold or heat)	Shades provided against heat & blankets against coldness provided to workers	Along quarry corridor	During design and contract	To be included in project preparation cost
	Vehicular traffic causes: human and livestock accidents, disrupting communication in hospitals and places of worship due to noise from traffic	1) Sensitizing the community about the road work and requested to adopt to the situation 2) Making slowing point/ridges along the road to reduce over speeding 3) Road signs /indicators	Along project corridor / municipality and the quarry sites)	During design and contract	To be included in project preparation cost
	Vehicle emissions increases air pollution causing: increased incidences of respiratory and eye infections	1) Providing masks to workers 2) Sensitizing /mobilization to avoid community accessing the site 3) Posters to avoid inhaling dust/ smoke	All project corridor	During design and contract	To be included in project preparation cost

	Medium and light grading disrupts traffic flows: increasing pressure on water sources used by the community	Contractor provides the water	All water resources likely to be impacted along the project corridor.	During design and contract	To be included in project preparation cost
OPERATIONAL PHASE	Gully formation and water logging providing breeding grounds for vectors and incidences of diseases	1) Supplying insect sprays. 2) Mobilization and sensitizing on use of clean water, boiling	Quarrying communities	During design and contract	To be included in project preparation cost
	Siltation of streams swamps by soil washed away from excavation sites.	Sand filling the holes created	Quarrying communities	During design and contract	To be included in project preparation cost

10. CONCLUSIONS

Almost the entire projects predicted no adverse and insignificant environmental impacts both during construction and operational phases. This is because, the sites of project activities are state owned former road reserves and located far from human settlements. Where the impacts are predicted, they are short term and reversible at reasonably very low costs. These impacts are manageable; most of them can be minimized through engineering solutions easily incorporated into project design. However, it is necessary to ensure that the EMP and monitoring plan are well implemented.

In the absence of the projects, the impacts to both the social and environment will substantially be very high than with the projects; as infrastructure is highly linked to the people's livelihoods and environmental degradation. Without the project, the community will continue to degrade the environments e.g. charcoal burning as alternative livelihoods but will reduce as trade gets rejuvenated through improved access roads. Worst still failure to implement the projects will likely raises serious concerns on the legitimacy/governance of the Federal Government to effectively deliver public goods and services and more importantly threatening livelihoods situation to already impoverished population in Somalia. With SRCIP, the public image of Federal government will improved for the lasting peace and recovery process of the country.

Since the projects locations have yet to be assessed by the engineering design, continued monitoring needs to be carried out to examine whether remedial actions are required to deal with unforeseen impacts, if any. In addition, the ESIA and EMP need to be updated if the final engineering design leads to major changes in the existing project plan. In this context and view of above findings, the consultant recommends that the ESIA and EMP need to be submitted to responsible line Government Ministry of Federal Government of Somalia, region State Administration and the African Development Bank for concurrence and issue of no-objection certificate.

ANNEXURES

ANNEXURE 1: SUMMARY OF STAKEHOLDERS CONSULTATIONS

Initial consultations were carried out during the scoping study along the corridors where local and State government officials were engaged along with members of women, youth, and business organizations, elders, and religious elders. Participants were provided with background information on the Project and informed of the scope of the Project and intended activities including the intention to only rehabilitate some sections of the corridors and not the whole length. All consultations were carried in Somali language. During these consultations intentions of conducting RAP and ESIA consultations were announced along with RAP census cut-off dates. In order not to create heightened expectation the communities were informed the project was in its initial phase and it would take time for the preparatory activities such as feasibility studies to be completed. The scoping study consultations along the four corridors were undertaken between 23/10/2018 and 24/11/2018.

In Beledweyne the participants warmly welcomed the intended project mentioning it was an indication of the return of Somali government and pledged their commitment in ensuring the project will be implemented without any form of hindrance from the community. They indicated the project will significantly enhance their lives especially through the reduction of travel time. The participants described the challenges presented by the damaged road culverts and bridges mentioning this was one of the main problems. They pointed out if given the opportunity their preferred rehabilitation section would be between Beledweyne and Jawiil. In Galkayo the intended project was warmly welcomed. The participants said they were happy that the government and its partners were considering undertaking a project of this scale. "As Somalis we are back on track, this very good news" an elder mentioned. The scoping study team was warmly welcomed to the Galkayo-Hobyo road by the community representatives in the village where members of the GOB community organization provided the team with background information on the community led and funded rehabilitation of the asphalt road. The GOB leadership accompanied the scoping study team to Hobyo where full consultations were carried out. Community members proudly pointed out they had taken their own initiative to address the challenges they faced from the poor condition of the road.

Before the rehabilitation of the road it would take them four hours to travel the 60 km stretch between Hobyo and Wasiil town and now it takes them one hour. This was a great achievement that increased the community's willingness to make further contributions they pointed out. When asked on the challenges they faced, the Chairman of GOB community organization, Professor Shirwac, indicated they embarked on the project without full equipment or a complete team of road engineers and technical staff. The professor mentioned it was a steep learning curve for them. For instance, they started constructing the road at a width of 8 m and have now changed this to 10 m. It was also pointed out initially GOB was unable to consider culverts, but will be installing single-celled culverts on the sections they are currently constructing. The GOB team currently constructs an approximate length of 20 km a month. The elders pointed out they had to clear the RoW inside the town of Hobyo whereby community consultations took place to decide the fate of structures that had encroached upon the road. The community agreed

the structures, including a mosque and a private house, would be removed. Compensation for the displacement was provided by the community through fund raising. Along the way to Hobyo a woman taking care of her goats mentioned she was waiting for the ongoing rehabilitation to reach her area and would be contributing two goats to further support the ongoing road rehabilitation. One of the main challenges currently being faced by GOB is lack of water within the vicinity of the ongoing construction activities. Water has to be sourced from nearly 100 km away. The message from the community was very clear. The community's first priority is asphalt paving for the newly rehabilitated & constructed Hobyo to Wasiil section (60 km) or completing construction of the gravel road from Wasiil to Galkayo. They pointed out they will not be waiting and will continue with their work. Participants in Garowe indicated they would welcome the project with "two hands". They mentioned some of the challenges they had faced during the rehabilitation of the Jalam-Harfo section of the road funded through GIZ. They indicated more community consultations would be essential prior to the beginning of any works. The participants were assured that the Bank's policies required ongoing consultations throughout the project from the planning stages. From consultations with the Puntland Public works ministry and local community members it was indicated that the rehabilitation of the Garowe to Jalam section is of first priority and Galkayo to Harfo section as second priority. In Dhusamareeb the community was elated by the news of the intended project, "We are very happy, thanks to God we have reached a stage where we are talking about building roads across the country, this is a very big achievement, thank you". The community described the ongoing political challenges in Galmudug State and the poor relationship between some sections of the State's politicians and the Federal Government. They indicated development projects should not be hindered by any political wrangling. "This road is going to be rehabilitated for us, we will be the beneficiaries, and we guarantee you that no one will cause any obstruction" pointed out one of the elders.

The section between Guriceel and Dhusamareeb was prioritized by the community during consultations in Dhusamareeb. The Project was also warmly welcomed in Dolow. The stakeholders quickly pointed out that they were glad the study team had made the effort to go to Dolow and engage the stakeholders. In Luuq the local leadership welcomed the study team and expressed their gratitude that the team had travelled through the road between Luuq and Dolow. "This is very important, as you can see, for example, the road is not an earthen road. It is a worn-out asphalt road, the Italians built it." one participant pointed out and another "Please tell them this not an earthen road, as you have seen, remnants of the asphalt are still visible in some parts of the road". The community leaders consulted acknowledged some of the security challenges between the two towns indicating "there are some challenges, but this will not be a problem, people want development". The ESIA & RAP consultations began in Mogadishu where public works civil servants and political representatives from the different States of Somalia were attending other planned meetings to discuss infrastructure development in the country. A time slot was provided for ESIA $ RAP consultations.

The participants including were given a presentation on the Project background and intended activities. This was followed with information on the findings from the scoping study and the purpose of the ESIA and RAP was explained along with the legal and policy requirements in undertaking these studies. The participants indicated their full support

for the Project mentioning it provided encouragement and hope for the local communities. They indicated that politics should be kept away from the project implementation and provided their commitment to support the ESIA & RAP consultations. They mentioned they would be very willing to support the consultations and provide any assistance in carrying out the RAP census. Concerns were raised about the issue of compensation for PAPs indicating their worry about influx into the Project areas mentioning the RoW were currently void of any occupation. The participants were reminded the RAP census had been announced during the scoping study and tentative dates agreed upon. This meeting was also attended by officials from the AfDB.

ANNEXURE 2: PROTECTION OF CULTURAL PROPERTY

Cultural property includes monuments, structures, works of art, or sites of significance points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.

The initial phase of the proposed emergency reconstruction operations pose limited risks of damaging cultural property since projects will largely consist of small investments in community infrastructure, reconstruction of existing structures, and minor public works. Nevertheless, the following procedures for identification, protection from theft, and treatment of discovered artefacts should be followed and included in standard bidding documents.

Chance Find Procedures

Chance find procedures will be used as follows:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Ministry in charge of Department of Archaeology and Museums take over; and
- Notify the supervisory Engineer who in turn will notify the responsible local authorities and the
  Ministry of Culture immediately (within 24 hours or less);

Responsible local authorities and the Ministry in charge of Department of Archaeology and Museums would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the Department of Archaeology and Museums (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values.

Decisions on how to handle the finding shall be taken by the responsible authorities and the Ministry in charge of Department of Archaeology and Museums. This could include changes in the layout (such as when finding an

irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage.

Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Ministry in charge of Department of Archaeology and Museums.

Construction work could resume only after permission is given from the responsible local authorities and the Ministry in charge of Department of Archaeology and Museums concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts, when applicable. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered are observed.

Relevant findings will be recorded in World Bank Project Supervision Reports and Implementation Completion Reports will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

ANNEXURE 3: TEMPLATE FOR IMPACT AND MITIGATION MATRIX FOR ROAD PROJECTS

Environmental Issues and Objectives	Mitigation Measures	Remarks
Design / Pre Construction Phase		
Protection of Sensitive Natural Areas • Minimize negative impacts on sensitive environment	• Identify potential environmentally sensitive areas • Avoid or locate optional construction sites/activities away from sensitive areas. • Ensure construction personnel are aware of locations of sensitive areas • Include temporary fences / barriers to restrict construction activities from encroaching sensitive area	• Inspect the alignment for unique features and environmentally sensitive areas which require design accommodation or protection • Develop replantation program using local flora and in consultation with the local communities
Road Safety and Environmentally Sound Design • To avoid accidents during and after construction of the road	Include footpaths and pull-off bays in villages and near markets, schools, and other community facilities in design • Include occupational health and safety requirements for the construction activities in the contract documents. • Provide cross walks, speed bumps near schools, hospitals, and markets in the design	• Identify natural drainage pattern and soil percolation rates to design for rapid disposal of road runoff • Identify and include traffic calming options in design for roads passing through villages, near

Environmental Issues and Objectives	Mitigation Measures	Remarks
• To provide sound drainage	• Ensure sufficient visibility along the road section and provide light and warning signs in design • Provide camber to effectively drain runoff away from road • Include cross drains at causeways, bridges, culverts, etc.	market places, schools, hospitals, gathering places, etc.
Cultural Heritage • To avoid damage to cultural heritage sites i.e. ceremonial sites and burial grounds	• When a cultural heritage site is identified during the construction, Contractor is to cease all work immediately and notify the relevant cultural institute	• Carry out public / community consultations prior to the start of construction and identify potential sites • Include a chance find protocol in the contract documents
Unexploded Ordinance (UXO)	• Survey of mined areas in accordance with the United Nations International Standard for Level 2 Surveys. • Nomination of a qualified EOD expert to declare sites safe, and formal recognized training for other staff involved in the work. • Implementation of approved clearance method. • A 100% sweep by mine/metal detectors and a deep magnetometer search following clearance work • Use of approved, nominated search instruments. • Provision for medical treatment and emergency evacuation. • Relocation of unexploded ordnance to an approved location under secure conditions • Clear and accurate marking and recording of all cleared areas to facilitate subsequent identification during construction.	• Applies to all sites where military combat is known or suspected to have taken place. • All measures to be carried out prior to construction • No construction to proceed without confirmation in writing from EOD expert that sites are safe for construction activities • Include UXO procedure in all contract documents

Environmental Issues and Objectives	Mitigation Measures	Remarks
Construction Phase		
Soil erosion, sediment and storm runoff control • Minimize the amount of sediment lost from the site • Minimize impact of storm water containing sediment and contaminated runoff water on streams and coastal areas	• Limit ground disturbance to areas of a workable size • Schedule construction to minimize areas of soil disturbance during wet seasons • Keep vegetation clearing to a minimum • Where vegetation was removed, re-vegetate all areas immediately after construction activity finishes and where the area is not to be paved after final land contouring • Reduce the time excavated drainage channels remain unsupported • Place geotextile silt traps at drainage ditches and materials stockpiles • Contain or isolate construction areas from other surface runoff. Clean and rehabilitate the area when construction is complete • Pass storm water run-off from construction areas through geotextile silt traps before discharge into culverts or drainage systems. • Prohibit discharge of sediment bearing contaminated water to streams and ocean	• Apply to all activities such as site clearance, borrow areas, quarries, construction camps, etc. where clearing is required
Management of Stockpiles and Spoil-heaps • To minimize dust and runoff	• Identify dumping / stockpile locations with local landowners • Ensure that stockpile or spoil-heap locations do not block surface runoff or natural drainage • Install proper drainage to isolate the stockpile / dumping sites • Minimize erosion and sediment runoff by covering or vegetating spoil-heaps or stockpiles especially if prolonged exposure is envisaged, • Keep maximum stockpile height at 3m to prevent windborne deposition • Place geotextile silt traps around materials stockpiles • Ensure that no stockpiles are able to release material into the sea or streams even under heavy rain or windy conditions • Stockpiles within 20m of water should be fitted with silt traps and covered to	• Applies to all dumping areas and materials storage areas such as stone crushers, concrete batch plants, asphalt plants, topsoil storage areas, etc.

Environmental Issues and Objectives	Mitigation Measures	Remarks
	prevent windborne deposition into the waters. • Ensure that silt from silt traps do not drain into water	
Material Management • Minimize impacts of materials delivery and waste disposal	• Develop and implement materials delivery and waste disposal handling plan, to avoid / minimize materials delivery during peak traffic periods • Implement safety measures for vehicle operation and to prevent loss of load from trucks • Implement methods to reduce dust emission from the loads • Place silt fences around materials stockpiles • All imported material to be free of organic matter, obtained from certified clean sources and/or fumigated prior to arrival in country • For imported materials, ensure adequate docking and storage facilities at point of transfer from barge • Use water sprays or covered chutes to reduce dust emission during loading and unloading of materials from barges; • Maintain materials processing plant in good working condition so as to reduce emission from the plant;	• Applies to all materials extraction, storage and management areas
Extraction of Materials • To ensure that extraction of materials does not cause damage to local environment	• Balance cut and fill and explore availability of suitable materials from other ongoing projects • Obtain borrow materials from designated or approved borrow areas • Restore and re vegetate borrow areas to promote natural drainage • Place silt fences around materials stockpiles • Ensure haul trucks are not over loaded and are covered • Ensure that materials are not stored below the high water mark • If possible, obtain sand, aggregates, gravel and stones from licensed operating quarry • Warn and clear people from surrounding areas before blasting	• New quarry site to be confirmed by geotechnical investigations • Locate quarry away from natural / sensitive habitats • Ensure minimum groundwater impact • Prepare quarry rehabilitation plan and secure quarry

Environmental Issues and Objectives	Mitigation Measures	Remarks
	• After completion of construction, restore quarry site as per quarry rehabilitation plan	operating licence
Storage and handling of fuel and lubricants • To minimize hazards relating to fuel, oil, paints etc.	• Store fuel oil and bituminous products in a dedicated, contained location away from drainage ditches. • Fuel in excess of 1,000 liters stored on site, should be stored in sealed tanks on a concrete base that is bunded to hold 110% of the tank capacity. • Install oil and water separators in all workshops • Only nominated authorized personnel to handles fuel • Develop procedures for cleaning up accidental spills. • Report any major spill immediately to Supervisor • Collect and dispose of all waste oil, oil and fuel filters at an approved landfill.	• Applies to all workshops, depots, storage sites work sites, construction plant sites and vehicles parking areas
Offsite and Waste Management • To prevent / minimize contamination from solid wastes, site drainage and sewage	• Contain all inert solid waste within construction sites and remove to landfill • Remove all hazardous waste, including bitumen containers • Prepare procedures for managing spills to ensure rapid containment, immediate site cleaning and appropriate disposal • Crush, and remove all nontoxic and non-hazardous inorganic solid waste to landfill • Develop a plan for handover, sale or removal of all plant, vehicles and machinery at the end of the contract, ensuring that no unserviceable items of equipment are left behind • Install onsite toilets with appropriate management arrangements for effluent and collection of sludge to prevent any release of contamination into the soil. Liaise with Local Authority for appropriate collection and disposal of sludge • Compost or use as animal feed all green or organic wastes • Reuse treated onsite drainage effluent for dust control, equipment washing, etc.	• Applies to all off-sites storage and disposal sites • Consider reuse of effluent from concrete batching plant after treatment

Environmental Issues and Objectives	Mitigation Measures	Remarks
Air Quality / Dust • To minimize and control dust generation and emissions from asphalt plant	• Asphalt plant generation (smoke, dust, smell, etc.) to meet regulatory requirements for temporary asphalt plant • Minimize exposed soil / material stockpile surfaces to wind • Install wind breaks or fences around material stockpiles, concrete batching and asphalt plants • Spray water on exposed soil surfaces and access roads • Asphalt plant should be equipped with either baghouse or wet scrubber particulate removing system	• Where possible, use existing, operating, licensed asphalt plant • New asphalt batching plant should be located 300-500m downwind of any settlements or inhabited areas and 150m away from any water bodies, streams or rivers
Noise • To ensure that nuisance from noise minimized	• Use modern and well maintained equipment with mufflers where appropriate • Schedule noisy construction activities during normal working hours • Use noise barriers / screens or mounds to shield sensitive locations • Advise local residents and authorities of any unusual or unavoidable noise activities	• Establish clear construction work policies to ensure that sensitive receptors such as schools, hospitals, religious establishment are least inconvenienced • Avoid noisy work from 6pm to 6am and during weekends and public holidays
Health & Safety • To ensure maximum safety of construction personnel and local residents	• Ensure all occupational health and safety requirements are in place on construction sites and in work camps • Install lights and cautionary signs in hazardous areas • Establish footpaths and pull-off bays along roads through villages, near markets, schools and other community facilities	• Applies to all construction sites

Environmental Issues and Objectives	Mitigation Measures	Remarks
	• Limit construction activities from 0700 hr to 1900 hr to limit exposure to dust, noise etc. • Enhance safety and inspection procedures • Ensure use of Personal Protection Equipment (PPE)	
Health and Safety • Awareness for construction workers:	• Prepare a site safety plan specifying responsibilities and authorities within the Contractor's staff for: ➢ adherence to safety and health requirements, ➢ adherence to occupational health and safety requirements, ➢ use of personal protective equipment, ➢ lighting and warning signs at hazardous areas, ➢ setting rules for operation of vehicles and equipment by authorized personnel, ➢ setting procedures for safe handling of toxic and hazardous materials, ➢ arrangements for first aid and emergency procedures, ➢ posting notices about medical assistance and location of emergency equipment, ➢ setting schedules for regular checking of adherence to the plan and ➢ training staff to familiarize them with the plan, their obligations to implement it, and main areas of risk to workers and others • Provide for the management and control of traffic during the works, arrangement for safe delivery of construction materials and safe parking of vehicles and plant (both during and after working hours) • Education on basic hygiene practices to minimize spread of tropical diseases • Increase workers' HIV/AIDS and STD awareness, including information on methods of transmission and protection measures • Prohibit usage of drugs and alcohol on construction sites	

Environmental Issues and Objectives	Mitigation Measures	Remarks
Disruption of Utilities	• Maintain high standards of site supervision and vehicle and plant operation to reduce risks of damage to water, power and telecommunication lines • Prepare procedures for rapid notification to the responsible Authority • Provide assistance with re-instatement, in the event of any disruption	• Applies to all construction sites
Site rehabilitation • To minimize ongoing impacts after construction is completed:	• Excavate any contaminated soil from fuel depots / workshops, remove and reshape the area. • Rake or loosen all compacted ground surfaces • Ensure that waste and surplus materials are removed from site • Contour sites to conform to the surrounding landscape and natural drainage. • Apply topsoil and re vegetate the site using local flora	• Applies to all disturbed areas and construction sites
Operation Phase		
Safety & Maintenance Practices • To enhance safety and maintenance practices	• Implement traffic calming procedures at selected places such as schools, markets, etc. • Promote use of off-road stops • Enhance improvements in road signage and pavement markings. • Analyse road accident black spots and implement remedies • Conduct regular monitoring and inventory of risks for erosion and drainage problems • Conduct routine maintenance like grading, grass cutting, drain clearing, pothole patching, and shoulder repairs, etc.	• Applies to the entire road

ANNEXURE 4: ENVIRONMENTAL MANAGEMENT CONTRACTOR CONDITIONS

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

Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental and/or social performance requirements specified in the ESMP.

In general, these measures shall include but not be limited to:

- Minimize the effect of dust on the surrounding environment resulting from earth mixing sites, asphalt mixing sites, dispersing coal ashes, vibrating equipment, temporary access infrastructure such as roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity dust producing activities;
- Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) are kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities;
- Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels are maintained and/or re-established where they are disrupted due to works being carried out;
- Prevent bitumen, oils, lubricants and waste water used or produced during the execution of works from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs, and also ensure that stagnant water in uncovered borrow pits is treated in the best way to avoid creating possible breeding grounds for mosquitoes or other disease vectors;
- Prevent and minimise the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access infrastructure such as roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. In as much as possible restore/rehabilitate all sites to acceptable standards;
- Upon discovery of ancient heritage, relics or anything that might be, or believed to be, of archaeological or historical importance during the execution of works, immediately report such findings to the SE so that the appropriate authorities may be expeditiously contacted for fulfilment of the measures aimed at protecting such historical or archaeological resources;
- Discourage construction workers from engaging in the exploitation of natural resources such as hunting, fishing, collection of forest products or any

other activity that might have a negative impact on the social and economic welfare of the local communities;
- Implement soil erosion control measures in order to avoid surface run off and prevents siltation, etc.;
- Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps;
- Ensure that, in as much as possible, local materials are used to avoid importing foreign material and long distance transportation; and
- Ensure public safety, and meet traffic safety requirements for the operation of work to avoid accidents.

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

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

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

Worksite/Campsite Waste Management

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

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

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

Entry of runoff to the site shall be restricted by constructing diversion channels or holding structures such as banks, drains, dams, etc. to reduce the potential of soil erosion and water pollution. Construction waste shall not be left in stockpiles along

the infrastructure such as road, but removed and reused or disposed of on a daily basis.

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

Material Excavation and Deposit

The Contractor shall obtain appropriate licences/permits from relevant authorities to operate quarries or borrow areas. The location of quarries and borrow areas shall be subject to approval by relevant local and national authorities, including traditional authorities if the land on which the quarry or borrow areas fall on traditional land.

New extraction sites:

- Shall not be located in the vicinity of settlement areas, cultural sites, wetlands or any other valued ecosystem component, or on high or steep ground or in areas of high scenic value, and shall not be located less than 1 km from such areas;
- Shall not be located adjacent to stream channels wherever possible to avoid siltation of river channels. Where they are located near water sources, borrow pits and perimeter drains shall surround quarry sites;
- Shall not be located in archaeological areas. Excavations in the vicinity of such areas shall proceed with great care and shall be done in the presence of government authorities having a mandate for their protection;
- Shall not be located in forest reserves. However, where there are no other alternatives, permission shall be obtained from the appropriate authorities and an environmental impact study shall be conducted;
- Shall be easily rehabilitated. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5 m in height, are preferred; and
- Shall have clearly demarcated and marked boundaries to minimise vegetation clearing.

Vegetation clearing shall be restricted to the area required for safe operation of construction work and shall not be done more than two months in advance of operations. Stockpile areas shall be located in areas where trees can act as buffers to prevent dust pollution. Perimeter drains shall be built around stockpile areas. Sediment and other pollutant traps shall be located at drainage exits from workings.

The Contractor shall deposit any excess material in accordance with the principles of the general conditions, and any applicable ESMP, in areas approved by local authorities and/or the Supervisory Engineer (SE). Areas for depositing hazardous materials such as contaminated liquid and solid materials shall be approved by the SE and appropriate local and/or national authorities before the commencement of

work. Use of existing, approved sites shall be preferred over the establishment of new sites.

Rehabilitation and Soil Erosion Prevention

As far as possible, the Contractor shall rehabilitate the site progressively so that the rate of rehabilitation is similar to the rate of construction. Always remove and retain topsoil for subsequent rehabilitation. Soils shall not be stripped when they are wet as this can lead to soil compaction and loss of structure.

Topsoil shall not be stored in large heaps. Low mounds of no more than 1 to 2 m high are recommended. Re-vegetate stockpiles to protect the soil from erosion, discourage weeds and maintain an active population of beneficial soil microbes.

Locate stockpiles where they will not be disturbed by future construction activities. To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.

Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.

Identify potentially toxic overburden and screen with suitable material to prevent mobilisation of toxins. Ensure reshaped land is formed so as to be inherently stable, adequately drained and suitable for the desired long-term land use, and allow natural regeneration of vegetation.

Minimise the long-term visual impact by creating landforms that are compatible with the adjacent landscape. Minimise erosion by wind and water both during and after the process of reinstatement.

Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise. Revegetate with plant species that will control erosion, provide vegetative diversity and, through succession, contribute to a resilient ecosystem. The choice of plant species for rehabilitation shall be done in consultation with local research institutions, forest department and the local people.

Water Resources Management

The Contractor shall at all costs avoid conflicting with water demands of local communities. Abstraction of both surface and underground water shall only be done with the consultation of the local community and after obtaining a permit from the relevant Water Authority. Abstraction of water from wetlands shall be avoided. Where necessary, permission has to be obtained from relevant authorities.

Temporary damming of streams and rivers shall be done in such a way avoids disrupting water supplies to communities downstream, and maintains the ecological balance of the river system. No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses. Wash water from washing out of equipment shall not be discharged into water courses or infrastructure such as road drains. Site spoils and

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

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

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

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

Noise levels reaching the communities from blasting activities shall not exceed 90 decibels.

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

As far as possible, abandoned pipelines shall remain in place. Where for any reason no alternative alignment for the new pipeline is possible, the old pipes shall be safely removed and stored at a safe place to be agreed upon with the SE and the local authorities concerned.
Complete pipes as well as broken parts thereof have to be treated as hazardous material and disposed of as specified above.

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

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

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

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

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

In cases where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through the SE. This compensation is in general settled under the responsibility of the Client before signing the Contract. In unforeseeable cases, the respective administrative entities of the Client will take care of compensation.

Contractor's Environment, Health and Safety Management Plan (EHSMP)
Within six weeks of signing the Contract, the Contractor shall prepare an EHSMP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an ESMP for the works.

The Contractor's EHSMP will serve two main purposes:

- For internal purposes, to ensure that all measures are in place for adequate EHS management, and as an operational manual for contractor staff; and
- For the Client, supported where necessary by a SE, to ensure that the Contractor is fully prepared for the adequate management of the EHS aspects of the project, and as a basis for monitoring of the Contractor's EHS performance.

The Contractor's EHSMP shall provide as a minimum:

- A description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in the ESMP;
- A description of specific mitigation measures that will be implemented in order to minimise adverse impacts;
- A description of all planned monitoring activities (e.g. sediment discharges from borrow areas) and the subsequent reporting; and
- The internal organisational, management and reporting mechanisms put in place for such.

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

EHS Reporting
The Contractor shall prepare bi-weekly progress reports to the SE on compliance with these general conditions, the project ESMP if any, and the contractor's own EHSMP. An example format for a Contractor EHS report is provided below.

It is expected that the Contractor's reports will include information on:

- EHS management actions/measures taken, including approvals sought from local or national authorities;
- Problems encountered in relation to EHS aspects (incidents, including delays, cost consequences, etc. as a consequence);
- Lack of compliance with contract requirements on the part of the Contractor;
- Changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects; and
- Observations, concerns raised and/or decisions taken with regard to EHS management during site meetings.

It is advisable that reporting of significant EHS incidents be done immediately. Such incident reporting shall therefore be done individually. Also, it is advisable that the Contractor keep her/his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as Annexes to the bi-weekly reports.

A sample format for an incident notification is shown below. Details of EHS performance will be reported to the Client through the SE's reports to the Client.

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

- EHS in general (working procedures);
- Emergency procedures; and
- Social and cultural aspects (awareness raising on social issues).

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

EXAMPLE FORMAT: ENVIRONMENTAL, HEALTH AND SAFETY (EHS) REPORT

Contract: **Period of Reporting:**

EHS Management Actions/Measures:
Summarise EHS management actions/measures taken during period of reporting, including planning and management activities (e.g. risk and impact assessments), EHS training, specific design and work measures taken, etc.

EHS Incidents:
Report on any problems encountered in relation to EHS aspects, including its consequences (delays, costs) and corrective measures taken. Include relevant incident reports.

EHS Compliance:
Report on compliance with Contract EHS conditions, including any cases of non-compliance.

Changes:
Report on any changes of assumptions, conditions, measures, designs and actual works in relation to EHS aspects.

Concerns and Observations:
Report on any observations, concerns raised and/or decisions taken with regard to EHS management during site meetings and visits.

Signature (Name, Title Date):
Contractor Representative

EHS INCIDENT NOTIFICATION Provide within 24 hrs to the Supervising Engineer

Originators Reference No:

Date and Time of Incident:

Location of Incident:

Name of Person(s) involved:

Employing Company:

Type of Incident:

Description of Incident: Where, when, what, how, who, operation in progress at the time (only factual)

Immediate Action: Immediate remedial action and actions taken to prevent reoccurrence or escalation

Signature (Name, Title, Date):
Contractor Representative

ANNEXURE 5: GENDER MAINSTREAMING AND VULNERABILITY ASSESSMENT

Indicative Framework for Assessing and Mainstreaming Gender Concern

Gender issues are not only a part of a national discourse but they also should be integrated into policies and development programs. To this end and as part of project preparation, gender-specific consultations with communities should be conducted to assess the challenges and opportunities for the mainstreaming of gender concerns in the project

Objectives:

- Ascertain how to promote women's participation in the project and in particular activities;
- Determine under what conditions women could participate in the community-based activities;
- Determine under what conditions boys and girls could participate in the community-based activities;
- Determine under what conditions marginalized clans could participate in the community-based activities;
- Determine under what conditions displaced populations could participate in the community-based activities; and
- Determine potential negative impacts and potential mitigation measures.

Focus/Scope of the Study

In particular, the study should provide information on:

- Women's needs: aims to assess women's transport needs and identify ways to address such needs, including during sub-project selection;
- Women's voice in community consultation: aims to identify mechanisms to ensure women's preferences are reflected in community consultations, whether for consultations on social safeguards or sub-project selection;
- Women's participation in community-based maintenance: aims to identify context-specific entry points and mechanisms (e.g. quotas) for women's participation in the maintenance of rehabilitated infrastructure such as roads;
- Voice of the youth, marginalised clans and displaced populations to ensure preferences are reflected in community consultations, whether for consultations on social safeguards or sub-project selection or participation in sub-projects;
- Project impact on women's livelihoods and youth: recommend indicators or give indications on sex-disaggregation of existing indicators to reflect the project direct and indirect impact on livelihoods, and on marginalized clans and displaced populations; and

- Identify any potential security considerations or challenges that might impact women, youth, displaced populations or other vulnerable groups.

ANNEXURE 6: GRIEVANCE REGISTRATION FORM

COMPLAINANT DETAILS			
Complainant's name (or name of a representative for complainant/s)			
Complainant's address			
Complainant's telephone number and e-mail address (if available)			
Preferred language of communication			
Complainant confidentiality	I wish to raise my grievance anonymously		
	I request that my identity is not disclosed to anyone internally except the grievance coordinator handling my case		
I would prefer if the person contacting me is:	male	female	gender does not matter
GRIEVANCE DETAILS			
Date			
Description of incident			
Severity	One time incident/grievance (date)		
	Recurring (how many times)		
	Ongoing (currently experiencing problem)		
Complainant's request/proposal to resolve grievance (Please explain what should be done to solve this problem)			
Grievance type (environment, human rights, livelihood, health, legal, property, corruption)			
Level of damage?	low	medium	high
Additional documentation related to grievance			
Verbal Complaint	If complainant is verbal and in the case that the compliant cannot read or write, the grievance coordinator will help to write it down.		

ANNEXURE 7: SCOPE OF WORK AND FINAL DELIVERABLES

Deliverable ≠1: The ESIA Component

In this area, the ESIA scope of work will involve investigation on aspects related to social and economic activities, conservation of natural resources, historical and anthropological heritages, public consultations and public disclosures. The main tasks details include:

1) Desk review of available information and reports to form an initial assessment of the geographical, ecological, general layout of roads (including maps) and socio-economic aspects and gathering of initial data.
2) An Inception Report detailing the work plan, and the project schedule, and including Scoping Report, ESIA Terms of References (TORs), RAP Methodology, and Tables of Contents for the ESIA and RAP reports, and the proposed capacity building measures must be submitted by the ESIA and RAP Specialist within two (2) weeks after signing of the contract for this assignment.
3) Approval by MPWRH of RAP Methodology that the ESIA and RAP Specialist proposes to adopt.
4) Stakeholders' consultations and engagements with the FGS' MPWRH, Ministry of Finance, Ministry of Planning, local authorities in Galmudug, Hirshabelle, Jubaland, and Puntland, other relevant stakeholders (including federal and regional ministries/agencies in charge of finances, planning, lands, urban/rural development, water, environment, human rights, gender, labour, health, roads, security, affected/ benefiting local communities, etc.), our client, and the AfDB. Outcomes and key concerns emerging from public consultations will be recorded in the ESIA report. The results of these consultations will be accessible to the concerned stakeholders, including potential Project Affected Persons (PAPs).
5) Establishing baseline conditions against which future changes due to project implementation can be monitored. This involves undertaking general and site-specific bio-physical baseline conditions and assessments of the geological, drainage, edaphic, topography, land use patterns, climatic conditions, physical-cultural resources, accident patterns, and auxiliary sites (camps, equipment and material yards, borrow areas, stone quarries water, sand and other materials). Socio-economic baseline assessments will involve data on demographics, potential PAPs, beneficiaries of economic infrastructure, culture and religion, livelihoods and economic activities, housing and settlements, water and sanitation, transport, economic infrastructure use and conditions including maintenance, education, enrolment and literacy indicators, key health indicators (child and maternal health, health units etc.), HIV and AIDS conditions, employment and labour conditions, gender indicators (including gender based violence, sexual harassment, etc.), children's rights (including violence against children), other special interest categories like people with disabilities, the elderly, the youths among others, health and safety, potential drivers of fragility with an effect on peace and security, utilities and social infrastructure, existing complementary services to the road rehabilitation projects, among others.

6) Identification of pertinent policies, legislative and regulatory frameworks, and standards at the local and the AfDB levels that relate to environmental quality, health and safety, protection of sensitive areas, land use control, and ecological and socio-economic issues of potential PAPs. The ESIA and RAP Specialist will need to outline project activities that ensure compliance with such policies, regulations and standards.
7) Detailed assessment and evaluation of the positive and negative, direct and indirect, immediate and long term, and permanent and temporary impacts due to the construction and operation of the roads earmarked for rehabilitation, both, during the construction and future operation. Impacts will be assessed in either qualitative or quantitative terms (or a combination thereof), according to their inherent nature and the availability of adequate data to enable predictive analysis to be undertaken. The ESIA and RAP Specialist should pay special attention to the assessment of cumulative environmental and social impacts. Assessment shall include impacts on the different baseline conditions (environmental and socio-economic) during and after project implementation.
8) Recommendation of cost effective and appropriate alternative road re-alignments and locations in light of the current environmental and social circumstances.
9) Identification of cost-effective measures to avoid, minimize or mitigate adverse impacts, or to enhance beneficial or positive impacts. The identified project specific and general environmental and social protection measures will be incorporated in the Environmental and Social Management and Monitoring Plan (ESMMP). The ESMMP should outline (a) the exact project activities and their ecological and social impacts, the proposed mitigation measures, the institutional arrangements required for effective implementation of the proposed mitigation measures as well as for effective monitoring of the implementation of the mitigation measures, including time horizons and cost estimates for these activities, (b) recommendations pertaining to the strengthening of the institutions responsible for the implementation of the ESMMP; and (c) relevant monitoring indicators (d) overall costs and (e) principles for mitigation of impacts associated with unforeseen design modifications.
10) Prepare Environmental and Social Impact Assessment Reports in accordance with the AfDB Safeguards Policies. The reports shall be in the English Language, clear and concise. The reports have to be in line with international environmental standards and be acceptable to the AfDB and other development partners. Upon reviews and approvals by the MPWRH, the ESIA and RAP Specialist shall present the reports to the AfDB for publication. There will be four ESMMPs prepared in the ESIA and corresponding Resettlement Action Plans for each of the pilot sections along the proposed project roads i.e. :
    a. Component ≠1: Belet Weyne-Galkayo road
    b. Component ≠2: Galkayo-Garowe paved road
    c. Component ≠3: Galkayo-Hobyo gravel feeder road
    d. Component ≠4: Luuq, Ganane-Dolow earthen

Deliverable ≠2: Resettlement Action Plan (RAP) Component

In light of the current activities in the vicinity of the proposed projects, there may be need for compensation to affected properties like structure, crops, and trees as well as securing local social/economic infrastructure. The Resettlement Action Plan (RAP) will therefore be prepared to address this involuntary resettlement, livelihoods as well as compensation issues related to Project Affected Persons (PAPs). In addition, the processes of construction camps and access roads may lead to temporary loss of land and other assets which calls for compensation. RAPs will be carried out as per the international requirements with reference to the AfDB Policies. RAPs cover several elements, including:

1) Description of the projects and their locations, covering, Belet Weyne-Galkayo paved road; Galkayo-Garowe paved road; Luuq, Ganane-Dolow; and Galkayo-Hobyo gravel feeder road.
2) Objective of RAP, which is, to identify the project affected persons (PAPs), losses to be incurred, and plan, implement and monitor the appropriate resettlement measures for impacts that result from project activities. Therefore, the RAP will deal with social issues related to land acquisition, loss of economic activities and livelihoods or displacement due to construction of economic infrastructures, Right of Way (RoW) of clearing, setting of temporary camps for workers' accommodation, equipment storage and construction of access roads to construction sites.
3) Socio-economic study, including census of PAPs, land tenure and transfer systems, including an inventory of communal resources, non-title-based land use, land allocation mechanisms, and any issues raised by different tenure systems in the project area. Also to be covered are the patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project; public infrastructure and social services that will be affected; and social and cultural characteristics of communities to be affected, including a description of formal and informal institutions (e.g., community organizations, and Non-Governmental Organizations, NGOs) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.
4) Review of relevant legal framework. This will cover the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment; the applicable legal and administrative procedures, including a description of the remedies available to affected persons in the non-judicial/traditional processes and the timeframe for such alternative dispute resolution mechanisms. Agencies/traditional actors responsible for implementing resettlement activities will need to be identified. International and AfDB policies and standards may need to be brought to bear where there are gaps in local laws/practices covering eminent domain and resettlement mechanisms.
5) Identification of institutional framework for implementation of resettlement activities. These include the local employment authorities, community organizations and NGOs that may have a role in project implementation.

Capacity of such agencies and NGOs will be examined and proposals to enhance their institutional capacity for resettlement implementation will be made.

6) Proposed definition of persons to be affected and relevant criteria for determining their eligibility for compensation and other assistance, including relevant cut-off dates.
7) Proposal of the methodology of land/property survey and valuation. The methodology entails valuing losses to affected property to determine their replacement cost; and a description of the proposed types and levels of compensation under local norms/law while taking into account the requirements of AfDB safeguards policy and such supplementary measures as are necessary to achieve replacement cost for lost assets.
8) Appropriate survey of all land and assets considered for expropriation. Work with the local authorities who will ensure that the land for economic infrastructure is availed and as such less compensation issues will be expected. Surveying will involve establishing the names and particulars of the affected persons, and areas covered by their plots.
9) Conduct detailed valuation of all affected land, properties and livelihoods affected by the project in collaboration with MPWRH, and concerned infrastructure agencies. This will provide the basis for compensation/resettlement of identified project affected persons using procedures approved by the MPWRH. All structures to be affected and PAPs will need to be photographed and thoroughly documented, for easy identification during disclosure and payments.
10) Preparation of technically and economically feasible resettlement packages that are compatible with the cultural preferences of the affected persons.
11) Identification of alternative relocation sites and proposing institutional and technical arrangements for preparing such site for relocation. New sites should take into account a combination of productive potential, location advantages and other factors comparable to the advantages of the old sites. A time schedule will be designed that takes into account the process of acquiring land and other ancillary resources, site preparation, legal/traditional arrangements, and that minimizes opportunities for influx of ineligible persons at project sites.
12) Development of engineering, and architectural designs and plans for social infrastructure (e.g. water supply), and social services (e.g. schools, health services). such facilities should be comparable to host populations.
13) Description and assessment of the environmental impacts of the proposed resettlement, and instituting mitigation measures.
14) Development of a strategy describing consultation and participation of PAPs and hosts community in the design and implementation of the resettlement activities. The views expressed by the settlers and hosts will need to be described and taken into account in preparing resettlement plans. Institutionalized arrangements of how affected people can communicate their concerns to project authorities will be defined to ensure that the needs of vulnerable groups, including women and girls, are protected.
15) Development of measures to mitigate the impact of resettlement on host communities. Host communities, NGOs and local authorities need to be

consulted, and arrangements put in place for expeditiously resolving any conflict that may arise between PAPs and host communities, including augmenting services (e.g. education, water, health, and production services) in host communities to make them at least comparable to services available to PAPs.

16) Recommendation of affordable and accessible procedures for settlement of disputes arising from resettlement. The MPWRH and the authorities in Galmudug, Hirshabelle, Jubaland, and Puntland should establish the grievance management committees for each road rehabilitation project as the first point of contact for any grievances. Because of the weak judicial systems in Somalia, community and traditional alternative dispute settlement mechanisms will need to be brought to bear as referral mechanisms.
17) Design of organizational framework for implementing resettlement, including identification of agencies responsible for delivery of resettlement measures and provision of services; arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation; and any measures (including technical assistance) needed to strengthen the MPWRH's capacity to design and carry out resettlement activities; provisions for the transfer to local authorities in Galmudug, Hirshabelle, Jubaland, and Puntland or PAPs themselves of responsibility for managing facilities and services provided under the project and for transferring other such responsibilities from the resettlement implementing agencies, when appropriate.
18) Development of an implementation schedule covering all resettlement activities from preparation through implementation including target dates for the achievement of expected benefits to PAPs and hosts and termination of the various forms of assistance. The schedule should indicate how the resettlement, livelihood restoration and community development activities are linked to the implementation of the overall project.
19) Detailing of cost estimates for all resettlement activities, including allowances for inflation, population growth, and other contingencies; timetables for expenditures; sources of funds; and arrangements for timely flow of funds, and funding for resettlements among others.
20) Preparation of a time-based schedule for monitoring of resettlement activities by the MPWRH, supplemented by independent monitors as considered. The schedule will have performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities. It will also define the roles of the Federal Member States (FMS, Galmudug, Hirshabelle, Jubaland, and Puntland), the affected persons, local communities and NGOs. Results of interim resettlement monitoring should guide subsequent implementation.

Deliverable ≠3: Capacity Building Component

The ESIA and RAP Scope of work will ensure, by the completion date of assignment, that the MPWRH has a functional Environmental Safeguards Unit that will undertake ESIAs and RAPs and monitor outcomes of related recommendations. In this regard, the MPWRH will ensure that the required resources (office space and facilities, appropriate personnel, and a conducive environment to deliver results)

are assigned for such a unit and to work closely with the ESIA and RAP consultant, including delivering specific tasks assigned. The ESIA and RAP work will undertake measures to enhance the capabilities of MPWRH staff to undertake ESIAs and RAPs and monitor the implementation of outcomes of such assessments. This entails that the Specialist organizes and delivers at least 4 training sessions of MPWRH staff in ESIA per month. These can be brief capacity development sessions, for example, 2 hours, to explain ESIAs and RAPs (e.g. structures, best practices, lessons learned…) or longer training sessions (e.g. half day or full-day seminar) of deeper technical issues surrounding ESIAs and RAPs. The specific capacity development interventions (number, durations, schedule…) will be discussed and agreed upon with the MPWRH and our client upon commencement of the assignment." The AfDB, on its part, through its Offices in Nairobi, will provide training and orientation of the ESIA and RAP Specialist to Bank Environment and Safeguards rules and practices at the commencement of the Specialist's contract and from time to time as need arise.

ESIA and RAP Reports

The ESIA and RAP Specialist will lead the preparation of all reports under this assignment. ESIA and RAP reports shall be fully signed by the ESIA and RAP Specialist and the respective experts at the MPWRH, and infrastructure agencies in Galmudug, Hirshabelle, Jubaland, and Puntland. The submission of the reports shall be made by the Minister of MPWRH under the recommendation of the ESIA and RAP Specialist. The ESIA and RAP reports shall be prepared as self-standing, and separate, documents. Final reports shall follow the approved RAP Methodology, incorporate the comments from the MPWRH, and infrastructure agencies in Galmudug, Hirshabelle, Jubaland, and Puntland and shall be submitted in satisfactory quality, in required numbers and in a CDROM in soft copy the AfDB for a No Objection

ANNEXURE 8: STAKEHOLDER CONSULTATIONS PICTURES AND ATTENDANCE SHEETS

ANNEX 1

Location: Galkayo Date : 10.01.2019

LOCATION: Hotel Embassy		DATE: 10.01.2019 at 04:00 pm	
Name	Organization	Telephone Number	Signature
Ahmed Mohamed Shire	Vice Governor Mudug	0618626699	
Hersi Yusuf Barre	Mayor of Galkayo	0615665277	
Sultan A/Nasir Jama	Sultan	0616141245	
Omar Hasan Siad	Elder	0615044090	
Abdulahi Mohamed	Sultan	0615054233	
Khalif Isse Egal	Businessman	0618051880	
Yonis Mohamed Shore	Youth Organization	0615910720	
Abdulahi Abdi Hassan	Bussinessman	0615961372	
Mohamed Abdi Elmi	GRDA	0617199795	
Abdirazak Yasin Mohamud	Youth	0615242436	
Burhan Warsame Hero	Rector of MUST (GLK)	0615151952	
Mohamud Ali Kahie	Medical Doctor	0616934246	

ANNEX 1

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Sultan A/Nasir Jama	Sultan	0616191245	
Omar Hasan Siad	Elder	0615044099	
Abdulahi Mohamed	Sultan	0615054233	
Khalif Isse Egal	Businessman	0618051880	
Yonis Mohamed Shore	Youth Organization	0615910720	
Abdihi Abdi Hassan	Businessman	0615961372	
Mohamed Abdi Elmi	GRDA	0617199795	
Abdirahi Yasin Mohamed	Youth	0615242436	
Burhan Warsame Hersi	Rector of MUST (GLK)	0615151952	
Mohamud Ali Kahie	Medical Doctor	0616934246	

SOMALIA REGIONAL CORRIDORS INFRASTRUCTURE PROGRAMME (SRCIP) PREPARATION MISSION
MOGADISHU, SOMALIA

LIST OF ATTENDANCE

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Ali Mohamed Ibrahim	Director of planning of southwest state	Ulimohali5180@ gmail	0615158340	

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MOGADISHU, SOMALIA

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3)

SOMALIA REGIONAL CORRIDORS INFRASTRUCTURE PROGRAMME (SRCIP) PREPARATION MISSION
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LIST OF ATTENDANCE

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Abdikarim Hassan Dahir	Director of Quality Control and Construction materials	qualitycontrol@mpwr.gov.so	0611509555	[signature]
Ilyaas yusuf Xaar				
Abdullahi Ahmed sheikh Abukar	MPWR& Ministry of public Work, Re & Housing FGS Federal	planning@mpwr.gov.so	0618449370	[signature]

List of Towns/Settlements along the roads

Road	Length	Towns and Settlements
Galkayo Beledweyne	395.2	Galkayo, Karin, Bandiiradley, Gelinsoor, Cadaado, Odinlaabe, Mareer Gur, Dhusamareeb, Ceeldheere, Guriceel, Matabaan, Jawiil, Beer Gediid, Ceel gaal/muslin, Hiiran Bile, Beledweyne
Galkayo to Garowe	229.4	Galkayo, Cagaaran, Daarsalaam, Bacaadweyne, Harfo, Burtinle, Ooman, Bir Dheer, Jalam, Farantooyo, Bilicil, Garowe
Galkayo to Hobyo	264	Docol, Afgaduud, Lulubsho, Wasiil, Gawaan, Hobyo
Luuq- Dolow	71.9	Dolow,Geedwyne, Shatalow, Luuq

ANNEXURE 9: REFERENCES

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