ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT SUMMARY

Project Name: ETHIOPIA INTEGRATED TRANSPORT PROGRAM PHASE I (Jima –Chida & Sodo-Sawla Road Upgrading Project)
Country: Ethiopia
Division: OITC
Department: OITC 2
Project Number: P-ET-D00-007
Project Category: Category I

1. Introduction

In line with the format provided in the revised ENVIRONMENTAL AND SOCIAL ASSESSMENT PROCEDURES (ESAP), the Summary covers the policy, legal and administrative framework of the Bank and the Ethiopian government that governs the preparation, implementation and monitoring of Environmental and Social Impact Assessments, Resettlement Action Plans the corresponding mitigation plans. It also provides description of the project, its physical and social environment, and project alternatives considered and chosen. The Summary has also provided information on the expected negative and positive environmental and social impacts as well as negative impacts mitigation and positive impact enhancement measures along with the necessary implementation and monitoring arrangements/plans and the public consultation undertaken there in.

2. Policy, Legal and Administrative Framework

The Constitution of the Federal Democratic Republic of Ethiopia (FDRE), adopted in August 1995, has direct policy, legal and institutional relevance for the appropriate implementation of environmental protection and rehabilitation action plans to avoid, mitigate or compensate the adverse effects of development actions. The Constitution entrenches the concepts of sustainable development and environmental rights in the people of Ethiopia, providing for the right to development and the right to live in a clean and healthy environment. The FDRE has adopted several legislations and regulations that are aimed to promote environmental protection and sustainable social and economic development. The overall goal of the Environmental Policy of Ethiopia (EPE) is to improve and enhance the health and quality of life of all Ethiopians, to promote sustainable social and economic development through sound management and use of natural, human-made and cultural resources and their environment as a whole. The EIA policies are included in the cross-sectoral environmental policies and they emphasise the early recognition of environmental issues in project planning, public participation, mitigation and environmental management, and capacity building at all levels of administration.

The Proclamation on Establishment of Environmental Protection Organs assigns responsibilities to organizations for environmental development, management, regulations and monitoring activities at both federal and regional levels; re-establishes the federal EPA as an autonomous public institution of the FDRE; and empowers every Sector Ministry or Agency to establish or designate an Environmental Unit and each regional state to establish an independent regional environmental agency or designates an existing agency. Thus the Ministry of Transport (MOT) and the Ethiopian Road Agency (ERA) have both established environmental management units where the latter is responsible for reviewing environmental and Social Impact Assessment (ESIA) studies, while the former is ultimately responsible for approving and issuing clearance for road projects. The Environmental Impact Assessment Proclamation makes Environmental Impact Assessment mandatory for specified categories of development activities and is the legal tool for environmental planning, management and monitoring. The proposed road project has been assigned under the category of projects likely to have significant negative impacts and thus requires a full ESIA.

Other national legal instruments of relevance to this project are the Proclamation on Environmental Pollution Control, Proclamation on Expropriation of Land Holdings and Payment of Compensation,
and Regulations on Payment of Compensation for Property Situated on Landholdings Expropriated for Public Purposes. In addition, other pertinent documents have been used to guide the preparation of the ESIA, include EPA’s EIA Guidelines, ERA’s Environmental Procedures Manual, and ERA’s Standard Technical Specifications.

In addition, the following AfDB procedures and guidelines as contained in the Integrated Safeguards System (December 2013) have been followed. The project triggers all five of the Bank’s Operational Safeguards:

- **OS1 Environmental and Social Assessment**: The project has been categorised as Category 1 and therefore requires a full environmental and social impact assessment;
- **OS2 Involuntary Resettlement**: The project will cause physical and economic displacement necessitating the preparation of a resettlement action plan;
- **OS3 Biodiversity and Ecosystem Services**: The project road passes through a national park and two forest reserves thus affecting biodiversity and ecosystems;
- **OS4 Pollution Prevention and Control, Hazardous Materials and Resource Efficiency**: Construction and operational activities will create some pollution in the form of dust and vehicle emissions and sediment loading of water courses, and will use gravel, hardstone, water and sand resources;
- **OS5 Labour Conditions, Health and Safety**: The project will require a labour force comprising both skilled and non-skilled workers whose working conditions, health and safety must be respected, while at the same time the local communities must be protected from adverse social interactions with the contractor’s labour force.

Ethiopia is also a signatory to a number of multilateral environmental agreements, the most relevant ones to this project being: Convention on Biological Diversity (CBD), UNESCO Convention for the Protection of World Cultural and Natural Heritage, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), African Convention on the Conservation of Nature and Natural Resources, the United Nations Framework Convention on Climate Change (UNFCCC).

### 3. Project Description and Justification

The project comprises two roads sections: Jima-Chida (approximately 80 km in length) and Sodo-Sawla (about 136 km in length). The Jima-Chida road section is located partly in Oromiya Region and partly in the Southern Nations and Nationalities People Regional State (SNNPRS) in Southwestern part of Ethiopia, while the Sodo-Sawla road section lies entirely in SNNPRS. The Jima-Chida road section traverses Seka Chekorsa and Dedo Woredas of the Jima Zone of the Oromiya NRS, and Konta Special Woreda. It starts at the junction connecting the Jima-Chida and the Jima-Mizan Roads at the outskirt of Jima town which is about 346 km Southwest of Addis Ababa, and it terminates in Chida town. It connects three important towns, namely Jima, Sheki and Chida, the former two are zonal and woreda administrative centers in Jima zone. The Sodo-Sawla road section starts at Sodo town and passes through the towns of Sodo, Gasuba, Selam Ber, Dinke, Morka, Zagi-awando, finally ending at Sawla. This road section connects Welaya and Gamugafo Zones, and traverses Sodo Zuria and Sodo town in Welaya Zone and Offa, Kucha, Demba Gofa and Sawla town in Gamugafo Zone.

The proposed road-upgrading project basically follows the existing alignment. However, the Jima-Chida road section will involve realignments at three locations (approximately km 23.0-24.20, km 31.0-32.6 and km 36.3-39.0) covering a total length of 5.5 km. These realignments are proposed to avoid areas prone to landslides. In addition, a spur and a link road have been proposed at Sheki town and Gasuba, respectively, in order that these important towns are not isolated from the main thoroughfare.

For construction purposes, the project is divided into three lots:

- **Lot 1**: Jima – Chida (80km)
The objective of the 220-km long Jima-Chida Sodo-Sawla Road Project is to provide all-weather climate-resilient road transport infrastructure to the rich agricultural areas of southern Ethiopia and connect Sawla in the hinterland to Jima and Addis Ababa. The outcomes include improved road connectivity, improved access to farm inputs and markets for farmers, reduced travel times and costs, improved road safety, gender sensitization, and HIV/AIDS prevention. Furthermore, this road project serves the southern part of Ethiopia, a region where all the Bank’s USD 1 billion transport portfolio has been invested. The road links the just-completed 230km Jima – Mizan road (Addis Ababa – Juba) with the ongoing 700km Modjo - Moyale (Addis Ababa - Mombasa) corridor. The project roads therefore makes a strategic contribution to the country’s development.

**Map 1: Location of the Road Project**

The Jima-Chida Sodo-Sawla Road Upgrading Project has been categorised as Category 1 as the road is longer than 50km, and it passes through environmentally sensitive areas, namely two protected forests (Offale and Sisima-Kedo) and a national park (Maze National Park). The project area is also susceptible to erosion and landslides. Therefore, in line with the requirements of the AfDB’s Integrated Safeguards Systems Operational Safeguard 1 Environmental and Social Assessment, and GOE requirements as stipulated in the EIA Proclamation (2002) and EIA Directive (2008), a full environmental and social assessment is required to determine the project’s potential impacts, which includes the development of appropriate mitigation measures and an environmental and social management plan (ESMP) in order to prevent, reduce or offset the significant negative impacts to acceptable levels.

### 4. Description of the Project Environment

**Location and topography:** The Jima-Chida section of the project road traverses predominantly mountainous terrain, with some rolling sections and escarpments. Along the Sodo-Sawla road section the topography is generally characterized by hilly and rolling terrain with some section of project site is featured by gentle slope, particularly near Sodo town. The altitude of the project area ranges from 800 m asl in the Sodo area to 2625 m asl near Km 30 on the Jima-Chida section.
**Climate:** The annual rainfall along the project road ranges from 800 mm to 2000 mm, rainfall occurring mainly from June to September. November to March are the driest months. The mean annual maximum and minimum temperatures range from 27°C to 35°C, and 12°C to 15°C.

**Geology and Soil:** The geology of the area are derived from precambrian basement rocks that are the result of complex tectonic and metamorphic history during the Proterozoic times. The soils along the flat sections are generally black, swampy clays while the soils along the rolling and mountainous sections are well-drained red, silty clays.

**Water resources:** The project road traverses two major drainage systems, namely Gilgel Gibe river and Gojeb river catchments, that are sub-basins of the Omo-Gibe river system. It crosses a number of major perennial rivers, including Gilgel Gibe, Offole, Unta, Gurara, Deme, Maze and Zante rivers which have substantial flows throughout the year. In addition the project road crosses numerous smaller rivers and streams, most of which are seasonal.

**Land use:** The major land use of the project area is predominantly subsistence farming characterized by smallholder crop production, followed by livestock grazing. In most places, the cropping pattern is characterized by a mixture of annual and perennial crops cultivation. Tree plantations, predominately eucalyptus trees, and remnant indigenous trees or patches of remnant forests are also common along the route corridor.

**Flora:** The project area is predominantly located in the range of Dry Evergreen Montane Forest and Grassland Complex (woodland and grassland). Riparian forests are found along sections of the perennial rivers. Two protected state forestlands are located around Km 10 – 11 (Offole Forest) and Km 48-52 (Sisima-Kedo) of the Jima-Chida road section, while the Maze National Park which lies between Km 84-96 along the Sodo-Sawla road section, is covered by savannah grassland with scattered deciduous broad leaved trees. Indigenous tree species found in the project area include *Ficus vasta* (Warka), *Ficus sur* (Shola), *Cordia africana* (Wanza), *Albizia schimperiana* (Sassa), *Prunus africana* (Tikur Inchet), *Podocarpus gracilior* (Zigba), *Acacia abyssinica* (Girar), *Ekebrgia capensis* (Sombo) and *Apodytes dimidiata* (Donka/ Wondabiyo).

**Fauna:** The Maze National Park supports a wide range of savanna species: 39 large and medium sized animals and 196 bird species have been recorded so far. It is one of the three sites in the world where good population of endemic Swayne’s hartebeest still survive. Other species found in the project area include Oribi, Bohor’s Reedbuck, Buffalo, Bushbuck, Waterbuck, Dikdik, Greater Kudu, Lesser Kudu, Bush Pig, Warthog, Anubis baboon, Vervet Monkey, Lion, Leopard, Wild Cat, Serval Cat, Aardvark, Abyssinian Genet, Jackal, Hyena, and Crested Porcupine. Bird species found in the project area include Egyptian Goose, Pigeons, Doves, Storks, Eagles, Vultures, Egrets, Herons, Starlings, Ravens, Weavers, Fire-fichenes, Grebes, Ground Hornbill, Hamerkop, Guinea Fowl and Francolin.

**Demographic characteristics:** The total population in the woredas through which the project road traverses is estimated at about 1.4 million. The population density along the project road ranges from 47 (in Konta special Woreda) to 305 (in Seka Chekorsa Woreda) persons/sq km along the Jima-Chida section, and from 112 (Demba Gofa Woreda) to 389 (Kucha Woreda) persons/sq km along the Sodo-Sawla road section. The project area hosts a number of diverse ethnic groups, the predominant ones being: Oromo, Konta Wolaita, Gamo and Gofa, ethnic groups.

**Main occupation and income source:** The most important economic base along the project road is agriculture. Major crops grown in the area are wheat, barley, teff, peas, sunflower, and groundnuts, pulses, sorghum, maize and sesame. In addition to cereals, enset and cassava are important staples. Livestock production is also common and livestock is exported, particularly from SNNP Region, up to Addis Ababa.
**Health facilities:** In the woredas along the Jima-Chida section, there are 1 hospital, 18 health centres, 10 clinics, 132 health posts and 7 rural drug stores, while the woredas along the Sodo-Sawla section have 3 hospitals, 31 health centres, 27 clinics, 152 health posts, 9 rural drug stores, and 9 pharmacies.

**Historical and Cultural Resources:** The Jima-Chida road section has no identified physical and cultural resources defined as movable or immovable objects, and sites of archaeological, paleontological, historical or religious value with in the road alignment.

5. **Project Alternatives**

For the Jima-Chida section of the project road, three route alternatives were considered, in addition to the “no project” alternative. Alternate Route 1 basically follows the alignment of the existing road. This route involves realignments at three locations that is at approximately km 23.0-24.2, km 31.0-32.6 and km 36.3-39.0 that cover a total length of 5.4km. These realignments are proposed to avoid existing land-sliding spots that are located at km 23.8-24.0, km 31.5 and km 38.5. This route is the shortest alignment that has a total length of 81km. Of the total length, 75.3km (93%) travels along the existing road and the remaining 5.4 km follows a new route. The second alternative is the longest route having a total length of 103.2km. It follows a new alignment for about 64.6km (63%) and the remaining 38.6km (37%) follows the existing road. The third alternative considered follows the alignment of Route 2 for the first 60.10km, then the alignment of Route 1 for the last 26.50km. It has a total length of 86.60km, of which 52.10km (60%) length runs along the existing road and the remaining 34.5km (40%) along a new route. The comparison of the alternatives considered aspects such as land acquisition, impact on soils and slope stability, interference with drainage systems and sediment loading, impacts due to borrow pits and quarries, and impacts on forests, indigenous trees, wildlife and wildlife habitats.

For the Sodo-Sawla section of the project road alternatives were considered for entry to Sodo city, for passage through Gamboa town. For the Sodo city access, Alternative 1 will require the removal of vegetation which may also cause erosion as the terrain is very steep. Alternative 2 is almost three times longer than Alternative 1, but allows for a reasonable width although there may be a ROW problem at where the road meets the Sodo-Arba Minch Road Roundabout. Many houses as well as utilities will be demolished if this alternative is to be selected. The cost of mitigation for Alternative 2 would be higher as compared to Alternative 1 as it poses significant impacts on utilities, residential areas and erosion. However, Alternative 1 is the preferred alternative by the City Administration. As the proposed new alignments for first 2-3 km of road in Sodo town on Sodo-Sawla section of the road passes through a densely populated area with a steep gradient, prone to severe environmental degradation and excessive relocation of people, it is proposed that this section be omitted for the time being, and instead, the existing 1.5 km link road from the Arba Minch Road Roundabout to the natural start point of Sodo-Sawla road section be strengthened.

With regard to Gamboa town, the three alternative routes considered again vary in length. Alternative 1 runs along the existing road for 17.5 km and then deflects via Bisha kebele for 11.5 km to meet Gamboa town. This is the alternative preferred by the Offa Wereda and Welayta Zone Administrations. Alternative 2 is the existing alignment via Wachuga Goshu kebele (29km), and Alternative 3 follows the existing road for 3 km, then traverses Shola village (Km 9+300) and Beklosengno (Km 17+100) village, ending at Gamboa (Km 32). The new alignments traversing Beklisengo and Bisha kebeles will require clearing of some vegetation during widening. They will have also impacts on the residential areas.

6. **Results of Comparison of Alternatives**

Based on the comparison of potential environmental and social impacts, the “no project” option is preferable to project implementation, since it would avoid the occurrence of adverse impacts associated with the project construction and operation. However, the potential socio-economic benefits of
upgrading the road at the local as well as national levels would be foregone. As highlighted during the consultations with key stakeholders, upgrading of the road is highly desired to alleviate the existing transportation problems and to facilitate social and economic development activities in the project’s area of influence and access to crucial social services such as hospitals. In addition, upgrading of the road is needed to alleviate existing environmental problems like land-sliding, dust pollution, roadside erosion and siltation problems, and traffic accident risks related to poor road conditions.

In the case of Sodo- Sawla, the cost of mitigation for the two new alignments would be higher compared to the existing alignment as there would be significant impacts on utilities, residential houses, homestead plantations and vegetation. In this case, the proposal now is to construct both the main road thoroughfare through Wachuga Goshu kebele as well as the road through Bisha kebele to Gasuba town. For the Jimma- Chida section, the comparison shows that Alternative Route 1 is the best alignment for the proposed road upgrading project. Overall, implementation of the proposed road upgrading project along Alternative Route 1 is anticipated to bring moderately significant adverse environmental and social impacts. On the other hand, execution of the project along either of the other two alternative routes is predicted to cause highly significant adverse environmental and social impacts. In addition, Route 1 has the highest social acceptability whereas Route 2 and 3 are socially least accepted. The current design alignment passes through Sheki market from km 17+800 to 19+500, but a bypass will be constructed between km 17+800 to 18+800, while connecting Sheki town with a spur that re-joins the main road.

7. Potential Impacts

Positive Impacts

The positive environmental impacts anticipated as a result of the project will be a reduction in the occurrence of landslides, particularly along the project route, reduction of dust which affects roadside communities, and soil conservation through minimising erosion within the road corridor as well as beyond it, which in turn means that there will be less sediment loading and siltation in water courses. Drainage along the road will be improved so that the road structures do not cause ponding which could otherwise undermine the road, but could also provide breeding habitats for mosquitoes. In addition as part of the project design, urban drainage in Sawla town will be improved as there are currently major drainage issues in the town.

The social and socio-economic benefits are many. At the national (strategic) level, the road provides a critical link in the 230km Jima – Mizan road (Addis Ababa – Juba) and Modjo – Moyale (Addis Ababa - Mombasa) corridor. It will therefore serve to facilitate movement from the agriculturally rich regions of Oromia and SNNPR to Addis Ababa and other major cities through improved transport services and logistics and by empowering farmers to access trade and social services. At the local level, the project road will contribute to the reduction of accident risks for both motorized and non-motorized traffic by improving horizontal and vertical alignments, sight distance and providing for pedestrian walkways at the bridges and in trading centres. Pregnant women and people requiring emergency medical attention will be able to reach referral hospitals at Jima and Sodo quickly and safely.

Adverse Impacts

The road project will result in a number of adverse environmental and social impacts, the major ones being:

Environmentally Sensitive Areas: A major environmental issue will be threats to the two protected forests (Offale and Sisima-Kedo) along the Jima-Chida Section of the road, and the Maze National Park along the Sodo-Sawla Section of the Road. Poaching of animals was noted as a potential threat, as well as road kills particularly along the stretch that passes through Maze National Park (Lot 3, Km 84-96). Wetlands occur in some flat sections of the road (particularly Lot 1, Km 0-1 and Km 7; and Lot 3, at
various locations from Km 0 to 18). There are a number of sections along the road where landslides have been observed (especially at Lot 1 Km 24, 31.5 and 38 – Jima-Chida section).

**Erosion:** The entire project area is highly susceptible to erosion, and at several locations in both road sections some very large gullies were noted (eg. at Lot 2 Km 68). The potential causes of soil erosion as a result of construction activities include land clearing, earthworks/cutting in soil and earthmoving works to widen the road width, improve the alignment, construct the realignment sections, construct new culverts and side drains or replace the existing old and substandard structures, and to construct detour and access roads, campsites and other site facilities.

**Soils Compaction and Contamination:** Soils could also be affected due to compaction by heavy equipment and construction vehicles esp. dump trucks as well as due to contamination by hazardous substances like oils, fuel and detergents resulting from accidental spillage, leakage of equipment and vehicles, or improper disposal of used oils.

**Drainage/Flooding:** Drainage at Sawla town is a major issue due to its location at the base of a range of mountains, which is exacerbated by the built-up area in the town and inadequate provision for storm water. Many of the bridges along the project road are substantially damaged due to design shortcomings exacerbated by river flows.

**Air and Noise Quality:** Impacts on air quality will be due to emissions of particulate matters, notably dust, and exhaust gases and noise from vehicles and machines.

**Water Quality:** Potential impacts include increased sediment loading and water pollution risks of the streams, rivers and wetland spots crossed by the project road, due to excavations for foundation of culverts, increasing the road width, and construction of realignment sections and roadside ditches and diversion drains. Other possible causes include disposal of excavation materials on riverbanks or in river-courses and mining of sand from river-bed. In addition, water quality of streams, groundwater or other water sources could be impacted due to contamination through spillage of pollutants like fuel and oil, or due to improper disposal of used oil, as well as due to uncontrolled discharge of sewage and other fluid wastes at campsites.

**Permanent and Temporary Land Acquisition:** The most significant social impact will be due to the acquisition of agricultural and settled land for improving the existing alignments, widening the road and for the proposed three realignments. Land will also be required for the contractors’ and workmen’s camps and laydown areas and for gravel sites. It is estimated that the project will result in the physical and economic displacement of 2,851 households and 14,555 people in addition to the displacement of utilities, mainly electricity and telecommunication poles. Around 7% of the affected households are female headed and out of the total population affected 49% are female. A total of 303 vulnerable households (headed by females, elderly, physically/mentally disabled and underage youth) have been identified in consultation with the communities for special relocation support. In response, a full Resettlement Action Plan (RAP) has been prepared and a provision has been made to cover the full cost of RAP, including livelihood restoration and support to vulnerable households, estimated at USD 11 million. Based on lessons learned from existing projects, in order to expedite the compensation process and also respond to communities’ concern on potential payment delay, a specialist sociologist will be assigned as part of the supervision consultancy to support the field assessment of affected properties, community liaison, and documentation and follow up on timely settlement of compensation prior to the start of the work. The implementation of the RAP will be closely monitored as part of the project ESMP monitoring and reporting system and a Grievance Redress Mechanism will be setup to handle complaints.

**Disturbance/Nuisance:** Construction works will cause disturbance particularly in the urban and trading centres such as hindered access, noise, dust, etc.
Road Safety: There will be a risk of accidents during construction caused by construction vehicles, while during operation accidents may be expected as a result of speeding vehicles, anticipated increase in traffic, and a lack of awareness on the part of the communities on the dangers caused as a result of these.

Contractors’ and Workmen’s Camps: These may put pressure on local resources such as water, fuelwood, but they may also require goods and services which will result in income generating activities for members of the local communities. Sexual harassment of young women by immigrant labourers was cited as a concern by stakeholders.

Community and Occupational Health and Safety: The presence of an immigrant labour force and additional disposable income may result in undesirable interactions between the local communities (particularly youth) and the workforce, contributing to the spread of HIV/AIDS and STIs. Accumulation of water in borrow pits and quarries and improperly designed drainage structures, (the latter particularly in urban areas) may encourage the breeding of malaria-transmitting mosquitoes and other water-borne diseases.

8. Mitigation/Enhancement Measures and Complementary Initiatives

Environmentally Sensitive Areas: Mitigation measures include the installation of speed bumps and awareness signs along the entire length of the road traversing Maze National Park, while at established wildlife crossing points rumble strips and bumps should be placed at shorter intervals. Within the park boundary area (including a specified buffer stretch at either end of the section), half-width construction will be carried out and clear restriction to the immediate construction width (not the ROW). Proposed mitigation measures include enhancing the capacity of Maze National Park staff to improve patrolling and monitoring road kills. Works conducted within the forest sections of the road will be carefully supervised so that trees of conservation value are not destroyed, and again clearing of vegetation is limited to the immediate construction corridor, and half-width construction being undertaken. The technical design has allowed for raising the embankment in wetland sections, but also includes culverts at increased frequency to ensure that the passage of water in these sections is not hindered so that the road structure will not be undermined. The technical design has also provided for slope stability mechanisms in land slide affected areas.

Erosion: The design incorporates measures to treat gullies adjacent to the road that may present an immediate threat. The “little and often” principle will be adopted so that runoff is channelled off the road frequently, and therefore the design has made provision for well protected side drains, incorporating mitre drains (turn-out drains) where possible, and check dams, scour checks and impact dissipaters particularly where the slope is greater than 4%. Other mitigation means include immediate planting of appropriate plant species on erosion-prone slopes. At the same time, initiatives will be undertaken in the upper catchment of the road project to intercept surface runoff reaching the road. These could include for example cut-off drains and bio-engineering techniques, and would be linked to activities to ensure climate resilience.

Soils Compaction and Contamination: Impacts will be minimized by implementing the road works during the dry season, applying half-way construction method, construction of effective drainage structures (paved side-drains, diversion drains, check dams, sufficient turnouts), reducing the time surface remains bare following completion of works, planting of appropriate plant species on erosion-prone slopes, and preventing soil pollution by hazardous substances through careful handling and appropriate disposal of used oils through approved wastes agency.

Drainage/Flooding: The design has included drainage within the urban area of Sawla. Bridge designs will take include riverbank protection particularly where the structures meet the banks, and where necessary, river training will be considered (eg. at Zanga Bridge, Lot 3 Km 124).
**Air and Noise Quality:** Proposed mitigation measures include restriction of traffic speeds and spraying of water regularly on dusty roads, use of modern and well-maintained equipment, regular maintenance of machinery, plants and vehicles, siting of aggregate production plants and bitumen mixing plants at a minimum distance of 3km from sensitive receptors, application of a well-designed traffic management plan, carrying out noisy construction activities during normal working hours.

**Water Quality:** Recommended mitigation measures include execution of earthworks for construction of the road and drainage structures during dry season, avoidance of dumping excess excavation materials on riverbanks or in river courses, proper siting of spoil disposal sites (i.e. avoiding locating nearby streams and rivers, wetlands, drainage lines or slopes), proper handling of hazardous substances (oils, fuel, used oil, detergents etc.) to avoid water pollution, and provision of satisfactory solid and liquid wastes disposal facilities at construction camps.

**Permanent and Temporary Land Acquisition:** Resettlement action plans have been prepared for the two road sections in order to address these issues. The total cost for the implementation of the RAP is estimated at ETB 208,391,663. A summary of the RAP is presented as an Annex to this document ESIA Summary.

**Disturbance/Nuisance:** Sensitisation/awareness raising among the communities will be undertaken by the local authorities on issues such as the construction schedule, diversion locations, and potential hazards due to construction vehicles.

**Road Safety:** A well-designed work program and traffic management plan (TMP) will be developed that would consider local conditions such as the normal traffic, terrain, weather and socio-economic conditions, provision of necessary information such as speed limits, direction, hazard locations, sensitive sites (e.g. schools, villages, wildlife and livestock crossing, paths, etc) by putting appropriate signals and hazard markings, assigning traffic regulators or traffic police to control traffic flows at critical sections or periods where/when traffic safety is a serious issue, awareness training of operators of equipment and construction vehicles in traffic safety measures, establishment of speed limits and controls for construction vehicles and discipline for the drivers, and provision of awareness education for the local population in traffic safety measures. The emergency handling capacity of the Sawla hospital will also be strengthened through provision of equipment and working space.

**Contractors’ and Workmen’s Camps:** These may also require goods and services which will result in income generating activities for members of the local communities. The location of the contractors’ camps will be such that they are not close to learning institutions; moreover the contractor will put emphasis on sourcing labour from the local communities. In addition, there will be sensitisation of both the labour force and communities in this regard. For this Project, the location and design of the camps will be determined with a view to maximize their use as social infrastructure (such as schools, TVETs, health centers, primary hospitals, etc) on completion of the road project. It has therefore been recommended that camps be located around the towns of Miteso in Dedo Woreda, Gasuba in Offa Woreda and Nehamela in Zala Woreda for the respective Lots 1, 2 and 3. The fit-to-use design of the camps will be determined by the priorities of the respective woredas as the project nears completion.

**Community and Occupational Health and Safety:** Awareness campaigns will be carried out on STIs/HIV/AIDS, malaria prevention and cure, road safety and community awareness on road construction processes and progress.

9. **Environmental and Social Management and Monitoring Plans**

Environmental and Social Management Plans (ESMPs) for each of the road sections provide the set of mitigation and monitoring measures recommended to be adopted to prevent, reduce or offset the main potential adverse impacts identified in this assessment. In addition, they indicate the responsibilities for implementation and timeframes as well as cost estimate where required. The proposed mitigation and
monitoring actions will be applied during the subsequent stages of the project, including the Detailed Engineering Design, Pre-construction/Preparation for Construction, Project Construction, Project Decommissioning, and Project Operation and Maintenance Stages. The ESMPs specify what actions shall be taken during each stage of the road project.

**Environmental and Social Monitoring**

The main aspects to be covered in the contract and also monitored in the environmental and social monitoring program include the following:

- Site selection/location of quarry and borrow material sources and their operation and hauling condition,
- Acquisition of land for the project requirements and rehabilitation measures after completion of works,
- Site selection, establishment and operation of contractors’ site facilities (like workers campsites, stone crusher and asphalt mixing plants, workshops, materials casting sites);
- Resettlement and compensation processes and grievances;
- Handling of soils/excavation materials exposed to erosion and rate of soil erosion and siltation;
- Drainage and water resources like modification of drainage systems/alteration of surface or subsurface water flows, water pollution;
- Impacts on water supply systems such as pipelines, protected springs and hand pumps, and competition for water;
- Spoil or excess excavation materials disposal condition like location of disposal sites,
- Impacts on land use, landscape quality;
- Management or disposal of wastes generated from campsites, workshops/garages, used oils; etc;
- Impacts on protected forests, indigenous trees as well as plantation trees; and
- Road and traffic safety issues.

**ESMP Costs**

The ESMPs for each road section propose mitigation measures, many of which are included in the detailed engineering design and/or in the tender documentation either as contract and/or special technical specification clauses as appropriate, and are included in the BOQs. These cover, among others: reinstatement of quarry and borrow pits, campsites and materials processing sites through backfilling, landscaping and establishment of appropriate vegetation; bio-engineering measures (grassing of road embankments, cut slopes & other erosion prone areas) to stabilize slopes and/or prevent erosion; replanting of trees and shrubs to replace or compensate for trees and other vegetation removed or to prevent erosion, stabilize slopes and/or improve the visual quality of areas impacted by project activities; awareness creation programs on traffic safety and public health issues for the local community as well as project workforce to minimize accidents related to road and traffic safety hazards and spreading of sexually infected diseases; sanitation facilities for construction workers; and environmental monitoring activities and capacity building. In addition a budget of ETB 12 million (approx. USD 560,000) has been allocated for the mitigation, management and monitoring actions that are not included in the BOQs – specifically for prevention of soil erosion and enhancing slope stability for mitigation measures along the road section within Maze National Park. The total cost for the implementation of the RAPs for the entire road project is estimated at ETB 208,391,663.

**Institutional Responsibilities for Environmental and Social Management of the Project**

ERA’s Environmental and Social Management Team (ESMT) will have the overall responsibility for overseeing that the ESMPs are implemented and will be responsible for environmental monitoring and auditing. In order to ensure that this is done effectively and efficiently, the Construction Supervision
Consultant (CSC) will hire a full-time Environmental Specialist as well as a full-time Social Specialist. The Contractors will also have dedicated full-time Environmentalists, Sociologists, and Road Safety Specialists on their teams.

The main responsibilities of the Construction Supervision Consultant (CSC) will be to review the Contractors’ Site Environmental Management Plan (SEMP), work plans, method statements, etc. and their approval, and making sure that these and other environmental protection requirements included in the contract document are in fact fully complied with. In addition, the CSC is responsible for a day-to-day observation of all site activities and occurrence of any unforeseen issues. The environmental mitigation measures to be implemented by the Contractors are specified in the ESMP and environmental clauses that will be part of the contract agreements. Based on the ESMPs, the environmental clauses in the contract for construction, and update site conditions and project features, the Contractors will be required to prepare detailed Site Environmental Management Plans (SEMPs) before the commencement of the road works. The SEMPs submitted by the Contractors will be reviewed by the CSC and submitted to ERA’s ESMT for further review and approval.

The Oromiya Bureau of Land and Environmental Protection (OBoLEP) and the SNNP Bureau of Land Administration and Environmental Protection (SNNP BoLAEP), mainly through their branches at woreda level, will be responsible at a higher level for ensuring that environmental mitigation measures are implemented and for external monitoring.

**Reporting**

During the construction phase, the results of monitoring will be reported on a quarterly basis to the ESMT, clearly addressing any specific concerns/issues using a report format acceptable to the Bank. Proposed solutions for any outstanding/unforeseen issues/impacts detected during the monitoring.

9. **Public Consultations and Disclosure**

Public and stakeholders consultations were conducted in urban centres and villages crossed by the project road with woreda authorities, men and women community members and civil society representatives. The main objectives of the public and stakeholders consultations were to inform the public and key stakeholders about the proposed road upgrading project and seek relevant information, the participation and contributions that are required from the public and all the stakeholders starting from the planning to the construction stages of the project.

The key findings of the public consultations were:

- Concerns related to temporary and permanent loss of land due to campsites, diversions, quarries and borrow pits and associated loss of livelihood;
- The existence of critical land-sliding problem at three locations (~km 23.80 – 24.00, km 31.50 and km 38.50) along the Jima-Chida Road section, and the need to provide appropriate solution for this;
- The request for realignment of the road to follow the route of the old road that passes through the center of the Sheki town;
- Consideration of a direct link to the Sodo town centre from the proposed start of the Sodo-Sawla road section and request for the project road to pass through Gasuba town;
- The poor condition of the existing road, and shortage of transportation facilities, high transportation costs and traffic safety issues related to this;

All the stakeholders expressed their appreciation for the road upgrading project and expressed their willingness to provide necessary support for the successful implementation of the project.
As required by law, the ESIA and RAP documents have had to be disclosed by ERA in affected woreda centres, national and local media and at ERA regional and H/Q offices. On its part the Bank will disclose the summary ESIA and RAP, and the full RAP on its website, at its Public information Centre and at the Ethiopia Field Office (ETF0) of the Bank for at least 120 days before Board presentation.

10. Institutional Capacities and Strengthening Plan

The Enhancing capacity for Climate Resilience Infrastructure project being designed through the Nordic Development Fund (NDF) funding (of approximately USD 5 million) will be instrumental in providing technical assistance (TA) and capacity building to promote and integrate climate resilience and disaster risk management practices into sector practices. The details of specific interventions are yet to be developed, but would focus on training of ERA technical design and Environmental and Social Management Team in climate risk assessment techniques for road projects, applicable and appropriate designs for climate resilient structures and climate impact management initiatives. The capacity strengthening component of the proposed project is also expected to address capacity gaps in the Ministry of Transport and ERA in the area of gender mainstreaming.

11. Conclusions

Most of the potential adverse impacts will occur during the construction period and thus, they are short-term in nature, and of low to moderate magnitude, although some are likely to be moderate to high in significance. Nonetheless, all can be mitigated to acceptable levels with good engineering design and proper construction methods, as well as thorough application of appropriate environmental and mitigation measures.

To ensure implementation, it is strictly recommended that the proposed mitigation measures shall be included in the detailed engineering design or in the tender documentation, either as contract and/or special technical specification clauses as appropriate. In addition, sufficient budget will be allocated for the mitigation, management and monitoring actions not included in the obligations of the Contractor and the Construction Supervision Consultant, and necessary institutional/specialist arrangement will be made for their implementation before the commencement of the construction works. Further, a well-planned monitoring programme will be instituted in order to follow up the proper implementation of the EIA recommendations and their effectiveness, as well as incidence of any unforeseen issues.

It can therefore be concluded that there are no serious environmental or social issues that will prevent the proposed Jimma – Chida Sodo-Sawla Road Upgrading Project from proceeding to the implementation stage as long as the recommended mitigation and monitoring measures are properly considered and timely implemented.

12. References and Contacts

References

Classic Consulting Engineers, Plc; Updated Environmental and Social Impact Assessment (ESIA) for the Sodo-Sawla Road Project; May 2016.

Associated Engineering Consultants Plc; Updated Environmental and Social Impact Assessment for the Jimma-Chida Road Project; May 2016.

AfDB; Integrated Safeguards System – Policy Statement and Operational Safeguards; Safeguards and Sustainability Series, Volume 1 – Issue 1; December 2013.
Contacts

Mr Araya Girmay
Director General
Ethiopian Road Authority
Government of Ethiopia
Email: nega-araya@yahoo.com
Phone: +2551 71 70/79

Mr Mumina Wa-Kyendo
Chief Transport Engineer / Task Manager
Department of Transport & ICT
Ethiopia Field Office
Email: M.WA-KYENDO@AFDB.ORG
Phone: +25591 057 2272