ERA Discloses the Updated Environmental Management Plans for APL 2 Road Projects

1. Introduction

The existing situation in the country has revealed that environmental degradation is increasing at an alarming rate resulting from several activities of which infrastructure development take substantial share. It is also obvious that no viable and substantial efforts have been made to reverse this trend which aggravates environmental degradation added to traditional farming system in Ethiopia.

Therefore, with the awareness of this environmental disaster that is increasing with time, the Ethiopian Roads Authority has taken an initiative to minimize the adverse effect of road construction projects on both the natural and human environments. This has been manifested through consideration of environmental issues in road infrastructure planning and implementation Procedures which was proceed by establishment of Environmental Unit in ERA. Since then, studies to assess the effects of road projects on the environment have been a mandatory tool and step in the planning procedures. These studies include Environmental Impact Assessment (EIA), Resettlement Action Plan (RAP), Land Acquisition Plan, preparation of Environmental Management plan and Road Safety Plan.

ERA has managed to incorporate environmental issues in the road sector program. The construction costs of road projects are enormous and huge and need support from stakeholders and international donors. The World Bank, as a major financer of RSDP, has been financing road projects in a series of financing Program, called Adaptable Program Lending (APL). The following are major trunk roads which were and are still under the World Bank financing program. These include; Dera - Mechara (124 km), Woreta - Woldia (295 km), Adigrat - Shire (192 km), Nazareth - Assela - Dodola/ Shashamane - Goba (395 km) and Rural Road including Assosa - Guba (135 km). These projects are financed by the World Bank. Eight road sections of these major trunk roads were classified under APL 2. These include; Assosa/ Sherkole - Blue Nile, Blue Nile-Guba, Gob Gob - Gashena, Gashena-Woldia, Asela - Dodola, Dodola Junction - Goba, Magna –Mechara, Shire-Adiabun Road Projects.

This report, therefore, presents with the updated site specific Environmental Management Plans of the eight APL II projects.

2. Description of APL-2 Road Projects

These road projects are classified under APL II which is the second World Bank financing program. The projects are found in different parts of the country with different agro-ecological zones. Some of the projects are new construction, for instance, Sherkole – Blue Nile – Guba and Magna – Mechara road projects, while the other is upgrading of the existing road to double bitumen surface type and to asphalt concrete depending on their traffic volume. The project locations Map is attached as Annex 2. Summary of the each project is presented hereunder:
2.1. Assosa/Sherkole-Blue Nile Road Project

The Sherkole-Blue Nile road project, designated as Contract-I, constitutes part of the Assosa/Sherkole-Guba Road Upgrading Project and contract road follows a completely new alignment. The road project is located in the Benishangul-Gumuz National Regional State (BGNRS) in the Western part of the country, about 680 km and 690km from Addis Ababa for Assosa and Guba, respectively. It represents a potentially important intra-Regional link between Assosa in the south and Guba in the north. The area of influence falls entirely within the Abay River (Blue Nile) basin and includes most part of its major tributary Dabus River Basin.

The project is financed by the World Bank and the construction works are currently underway by a Chinese contractor - Sinohydro Corporation while the consultancy services for the construction supervision of the project road are provided by a firm of international consultants based in the UK (Mouchel Parkman) and a national consultancy company (Civil Works Consulting Engineers, Ethiopia). The project road is a 70.6 km-long & 6m-wide DS-6 gravel road. The commencement date of the project is 1 September 2007 while the original completion dates August 31 plus one year defect liability period. But the revised completion date is September 5, 2010 plus one year defect liability period.

2.2. Blue Nile-Guba Road Project

The road project under consideration is located in the Benishangul-Gumuz National Regional State (BGNRS) in the western part of the country, about 680 km and 690km from Addis Ababa for Assosa and Guba, respectively. It represents a potentially important intra-Regional link between Assosa in the south and Guba in the north. The area of influence falls entirely within the Abay River (Blue Nile) basin and includes most part of its major tributary Dabus River Basin. Blue Nile - Guba is the Contract 2 of Assossa/Sherkole part, essentially consists of construction of about 57.112 (revised length) km, 2 la gravel surface road, has 6m carriageway width at the rural area and an additional 2.5m width parking lane on both sides of the road in the towns bringing 11m roadway width. The contractor is SINOHYDRO Cooperation and the supervision consultant is WSP-Imc, Uk in association with AEC, Ethiopia. The commencement date for this project is September 5, 2007 and the original completion date is September 04, 2010 while the revised completion date is the same as the original completion date. The actual progress to date 50.198%, as of December 2009.

2.3.GobGob-Gashena Road Project

Woreta – Woldia road upgrading project is the upgrading the 293 km long road to asphalt standard. The Gob Gob – Gashena (lot III) is part of Woreta - Woldia (295 km) road project is found in the south Gonder zone and North Wolo zone of Amhara regional national state. The project starts in the Gob Gob town of south Gonder and ends at Gashena. Gob Gob-Gashena is a section of this road 86 kms long beginning near Gob Gob village at station 98+735 km and ending near Gashena town at station 184+200km. The Project is one of the contracts and consists of upgrading the existing gravel surfaced road to a two lane asphalt concrete Pavement of a length of approximately 86 km with a carriageway of 7 meters and shoulders of 1.5 meters width on both sides of the carriageway. The work includes the improvement of the geometric
conditions, drainage provisions and structures along the route.

The project is financed by the World Bank and the construction works are currently underway by the China International Water and Electric Corporation for the execution of the Project while the consultancy services for the construction supervision of the project road are provided by a local firm called Associated Engineering Consultants. The original contract commencement date was 01 August 2006 while revised completion date is 29 March 2010. The actual physical progress to date is 54.06% (46.49km), as of December 2009.

2.4. Gashena-Woldia Road Project

The government of Federal Democratic Republic of Ethiopia, represented by the Ethiopian Roads Authority (ERA) is upgrading the 293 km long Woreta-Woldia road to asphalt road. For easy of execution the project was divided into four lots. The Gashena-Woldia Lot IV is part of Woreta-Woldia and is situated in the Northern Wollo Zone to the east of Lake Tana. The start of the project road section is at Gashena and the end point is at Woldia town. The total length of the Gashena-Woldia section is 108.707 km with 7m carriage way and 1.5 m shoulder in each side.

The project is financed by the World Bank and the construction works are currently underway by the China Road and Bridge Cooperation while the consultancy services for the construction supervision of the project road are provided by the International Consultant and Technocrats Pvt. Ltd in Association with Sheladia Associates, INC, United Consulting Engineers PLC, Transcomm Technologies Ethiopia LTD and international Consultants and Technocrats Ethiopia PLC. The commence date for this project is August 30, 2006 and the original completion date is February 28, 2010. No extension of time has been given so far.

2.5. Asela-Dodola Road Project

The Asela-Dodola Road Project is part of the Nazareth - Assela - Dodola/ Shashamane - Goba (395 km) road project. The Asela-Dodola road upgrading project starts at the outskirt of Asela Town and ends at Dodola Junction. The total length of the project is 116.5 km. The project road is located in the Oromia regional state and passes mostly through plain, rolling and also rolling to hilly terrain. ERA awarded the contract to SINOHYDRO Cooperation China. The FINNROAD Ltd in association with SABA Engineering PLC has awarded for supervision consultancy service. The date of commence for this project is 16 August 2007 and the original completion date is 15 August 2010. No extension of time has been given for this project. The actual physical progress to date for the road project is 49.03%, as of December 2009.

2.6. Dodola Junction - Goba Road Project

The Dodola Junction - Goba Road Project is found in the Bale and Western Arsi zone of Oromia Regional State. It consists of upgrading double surface asphalt concrete of 129.85 km road between Dodola Junction-Goba town that is part of the Nazareth- Asela-Dodola and Shashamene-Goba Road. The existing road Dodola Junction to Goba is gravel surfaced. The works of this part of the upgrading of the existing road, with minor realignments, to a two lane asphalt concrete surfaced road with a 7.0 meter carriage-way width and 1.5 meter shoulders. The project starts at the outskirt of Dodola town at km 69+318 from the Shashmane, and passes
The construction works are currently underway by the an international contractor called CGC Overseas International Construction limited while the consultancy services for the construction supervision of the project road are provided by a local firm called Transport Construction Design Share Company (TCSDCo). Contract commencement date was 08 July 2006 while original contract completion date is 06 July 2010. The actual physical progress to date for the road project is 32.33%, as of December 2009.

2.7 Magna –Mechara Road Project

The Manga - Mechara Road upgrading Project, which is part of the Dera - Mechara road project, is located in Oromia Regional State and has a total land length of 119.67km. It creates a major link between Arsi and West Hararge Zones. It starts at Manga village which is located on the re-aligned route between Chole and Gololcha. It then follows in the north-east direction to Gololcha. The project road serves as a main link between the Eastern Arsi Zone with and Western Hararge Zone that would create greater opportunity of connecting the central part with that of the Eastern part of the country.

The project is financed by the World Bank and the construction works are currently underway by the an international contractor called CGC Overseas International Construction limited while the consultancy services for the construction supervision of the project road are provided by a local firms called Construction Design Share Company (CSDCo) in association with Civil Works Consulting Engineers (CWCE). The date of contract signing was 23 June 2006 and the original completion date 14 January 2010. The actual progress to date is 71.53% (85.60km), as of December 2009.

2.8 Shire-Adiabun Road Project

Shire-Adiabun project is part of the Adigrat - Shire (192 km) and is found in the Tigray Regional State. It starts from Shire and ends at Adiabun. The total length is 91.8 km. The carriage way width varies from 5.0 to 7.0 m in most of the stretch. However, in some sections of the project road, the width of the carriage way is even more than 7.0 meters. The existing section of the project road passing through one historic city named Axum.

The construction works are currently underway by the an international contractor called China Gezhouba and Power (Group) Co. Ltd. [CGGC] of China while the consultancy services for the construction supervision of the project road are provided by an international and local firm called LEA International Ltd. Canada in joint venture with LEA Associate South Asia Pvt, Ltd India in Association with NANA Associates PLC of Ethiopia. Contract commencement date was 20 August 2007 while the original completion dates 19 August 2010 while the revised completion date is the same date 19 August 2010. The actual physical progress to date is 27.58% (25.32km), as of December 2009.
3. Rationale for Additional Financing

In the construction industry especially in road projects cost overrun is a common situation. Most of ERA’s projects completed with a large amount of cost increment beyond the estimated contract amount.

On the other hand, depending on the contract type, either the Employer or the Contractor covers these increased costs. In the lump sum contract type any additional cost beyond the total contract amount is covered by the contractor. Where as in the re-measurable; and unit rate contract type additional cost beyond the original contract is covered by the Employer (ERA’s most project are unit rate contract type).

In most projects the amount payable to the Contractor for each bill item is adjusted in respect of the rise or fall in the cost of labour, equipment/plant, materials and other inputs to the works. Likewise, if a payment is made in a currency other than the currency of the source of the index for a particular indexed input, a correction factor will be applied to the respective component factor of the price adjustment factor of the relevant currency.

Due to the assessed market price fluctuation, evidences show that the inputs of the works magnificently increased from time to time due to the Global demand of construction. The increment of the market price and/or input indices directly affects the price escalation amount.

The inflation and cost of construction inputs have been growing much faster than anticipated at the time of estimating additional funding in June, 2008. In addition, due to the rapid growth of traffic volume than initially forecasted during the design of surface types, the design of Asela-Dodola-Goba and GobGob- Gashena Road projects have been changed from Double Bitumen Surface Treatment to Asphalt Concrete. In addition due to increased quantities of work items, together with high price of construction inputs and inflation rate in the country and all over the world become the prime reason for the escalation of cost of construction.

4. Environmental Management Plan (EMP)

An Environmental Management Plan is a site or project specific plan developed to ensure that appropriate environmental management practices are followed during a project construction and/or operation. It is time and site specific activities needs to be effected by project proponents particularly contractors. It is valuable tool, among other things, to define details of who, what, where, and when environmental management and mitigation measures to be implemented. For detail see Annex 1.

Since the environment is very complex web, ERA found that it is necessary to update the environmental Impact Management Plan of APL II in such a way that it can address unforeseen impacts and impacts due to design changes and other circumstances.

It was clearly indicated in the Construction Contract Agreement document that it is the mandate of the Contractor to prepare the engineering work plan. Maximum efforts have been made to standardize the Environmental Management Plan of the APLII Projects. The Plans should be updated in the same way as for the civil works, but different contents and approaches. In
principle, in the process of the EMP preparation and updating, the contractor should consult the local concerned bodies, Zonal and Woreda line departments and other stakeholders and their view, suggestion and comments need to be reflected in the EMP.

For almost all APL II road projects, the EMPs have been prepared during the mobilization periods of the projects. However, those EMPs have many pitfalls, very generic and difficult to monitor during implementation. It did not help to halt the complex environmental degradations recently emerging in the region. There were changes in surface type for some of the projects which calls for the updating the original EMPs. It was with these justifications that, ERA and the World Bank found it necessary to update the EMPs for all APL II projects during the joint site visit made in October 2009. Both Supervision Consultants and Contractors were asked to jointly update EMPs taking in to consideration the changes and individual project site conditions. Accordingly, the contractors updated EMPs for their respective projects as per the discussion held during the October 2009 ERA and the World Bank joint site visit to all APL II projects. But the EMPs prepared and updated by the contractors and reviewed by the supervision consultants were inconsistent and generic similar to the original ones. Understanding the environmental consequences of construction projects, EMSB has made maximum effort to develop standardize EMPs and distributed to projects. The EMP of each project under consideration has been reviewed critically and updated.

These EMPs have incorporated biophysical like borrow pits, quarry sites, detour roads, drainage lines, erosion prone areas, embankment stability, slope stability, tree plantations and grassing, access roads, etc. reinstatement and restoration activities. It also emphasized on protection of ecologically sensitive areas, habitat of wild life, important bird areas, wetlands and water bodies. Waste management is the typical components of the EMPs. Indeed, social issues like dust suppression, traffic safety, occupational safety, labour law and employment management, protection of cultural and religious heritages, STD and HIV/AIDS have been incorporated in the updated EMPs.

The Environmental Management Plans prepared for the 8 lots were reviewed and updated incorporating the above mentioned major points. As it is already mentioned above, the reasons for updating EMPs was initiated because the EMPs prepared during the mobilization period of the projects were very generic and were found difficult to monitor. The road design and surface type changes of some of APL II projects have been changed and that requires the updating of the EMPs for the roads. Comments have been given and format has been prepared and forwarded to the respective projects by to standardize the implementation of EMPs. Therefore, the updated environmental management plans have incorporated all the comments and suggestions from ERA and key stakeholders, and it will be updated periodically based on the existing site conditions and believed to contribute in the realization of environmental friend and socially responsive roads ERA set as of its goal for the last two decades.

5. Executing Bodies

The EMP needs multi-sector involvement in the implementation process. However, it is mainly the contractor’s responsibility to implement this EMP before the official close of the project, while the overseeing of the implementation is the responsibility of the Consultant. The monitoring activities could be done by the Environmental Monitoring and Safety Branch of ERA
and World Bank Environmental Team as the financer of the projects. Local elders and local administrations as well as NGOs have immense contribution on realizing the environmental protection works and all environmental protection proponents at different level.

ERA Environmental Monitoring and Safety Branch involve on the implementation through reviewing and commenting on the EMP. Moreover, EMSB directly monitor the implementation of the mitigation measures on the ground. ERA’s Construction Contract Implementation Division also monitors the implementation of EMP through the supervision consultant. The environmentalist on the behalf of the contractor and consultant should monitor day to day activity of the contractor to safeguard the environment. The environmentalists have also the responsibility to contact the local line departments.
### Annex 1: Environmental Management Plan

<table>
<thead>
<tr>
<th>No.</th>
<th>Impacts</th>
<th>Location/Chainage (km) including LHS or RHS</th>
<th>Proposed Mitigation measures</th>
<th>Performance status</th>
<th>When is it going to be done? (specific time)</th>
<th>Who to do it?</th>
<th>How will it be checked and verified and by whom?</th>
<th>Cost of mitigation works</th>
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### Land Required for Borrow Pits and Quarries

<table>
<thead>
<tr>
<th>No.</th>
<th>Ser No.</th>
<th>Chainage</th>
<th>Off. Dis.</th>
<th>Area (m²)</th>
<th>Est. Qua. (m³)</th>
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**Legend:**

- Borrow Pit Under use
- Borrow Pit Used out
- Proposed Borrow Pit
- Quarry
- Bridge

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**Design:** ADIFRAT-ADWA-SHIRE ROAD UPGRAADING

**Drawn by:** PROJECT CONTRACT 1: SHIRE TO ADI ABUN

**Checked by:** Utilization Plan for Borrow Areas and Quarries

**Scale:** N.T.S

**Date:** Drawing No.
SITE ENVIRONMENTAL PLAN

THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

ETHIOPIAN ROADS AUTHORITY

ETHIOPIAN ROADS AUTHORITY

ENVIRONMENTAL CORPORATION

LAYOUT OF CRUSHER PLANT AT KM 104+400 RHS
LAYOUT OF CRUSHER PLANT AT KM 140+000 LHS
LAYOUT OF THE BORROW PIT AT KM 90+150 RHS
LAYOUT OF THE BORROW PIT AT KM 105+600 LHS
LAYOUT OF THE BORROW PIT AT KM 135+650 LHS
LAYOUT OF THE BORROW PIT AT KM 99+800 RHS