

## SUMMARY OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

<b><u>Project Title</u></b>	:	Gitega-Nyangungu-Ngozi Road Development and Asphaltting Project Phase 1: Nyangungu-Ngozi Road Section (30 km)
<b><u>Project Number</u></b>	:	P-BI-DB0-015
<b><u>Country</u></b>	:	Burundi
<b><u>Department</u></b>	:	OITC
<b><u>Division</u></b>	:	OITC.2

### 1. BRIEF DESCRIPTION OF THE PROJECT AND MAIN ENVIRONMENTAL AND SOCIAL COMPONENTS:

#### 1.1 Project Activities:

The project aims at developing and asphaltting a road between Nyangungu and Ngozi. The project components include:

Components	Description of Components
<b>Road Works</b>	a.1) Development and asphaltting of the “Nyangungu –Ngozi Road Section” a.2) (i) Works control and supervision; (ii) Raising the awareness of people in the project impact area on road safety, environmental protection and sexually transmitted disease (STD) control, including HIV/AIDS
<b>Road-related developments</b>	b.1 (i) rehabilitation of 80 km of related farm-to-market roads; (ii) foot bridges; (iii) construction of fences, sanitary facilities/latrines and drinking water stand-pipes for five schools (Burasira, Gitamo, Ruhororo, Mugomera, Mubuga); (iv) construction of fences, sanitary facilities/latrines and drinking water stand-pipes for two health centres (Burasira, Mubuga); (v) support to three women’s associations via provision of six rice threshers including sheds, storehouses and farm equipment; and (vi) construction of two rural markets (Gitaramuka, Nyangugu) including room for shops.  b.2 Control and supervision of related works.
<b>Support to project management and monitoring</b>	c.1 Audit of project accounts c.2 Monitoring/evaluation of project impacts c.3 Running of the Project Implementation Monitoring Unit (PIMU).

The development and asphaltting of the 30 km road will help to achieve key project objectives notably: (1) national integration; (2) lower transport costs; (3) the opening up of rural zones within its geographic sphere;(4) easier trade within the project zone, the rest of the country and neighbouring countries; (5) creation of a permanent, all-season road link;(6) better living standards for the people in the project impact area; (7) contribution to poverty reduction; and (8) easier access to basic socio-economic infrastructure.

## **1.2 DESCRIPTION OF THE PROJECT ENVIRONMENT**

### **1.2.1 The key characteristics of the human and socio-economic environment within the Project Impact Area (PIA) are summarized as follows:**

- The project zone comprises 10 communities linked by the project road (RN15) in the provinces of Gitega, Ngozi, Karuzi and Kayanza. This zone covers a total area of 1,887 km<sup>2</sup> with population estimated at 775,000, corresponding to a density of 410 inhab./km<sup>2</sup> – more than half above the country's average density.
- It hosts the towns of Gitega and Ngozi and constitutes a pole of socio-economic development characterized by immense agricultural potential in Kirimiro and Buyanzi regions where the soil, reputedly the most fertile and productive in Burundi, is conducive for agriculture, and where rainfall averages 1,400 mm annually.
- On the economic front, the project zone is dominated by agriculture which occupies about 90% of the active population and whose production is estimated at 811,115 tons, over 45% of which is marketable.
- The active population suffers endemic unemployment due to the low recruitment capacity of the local industry dominated by small processing units (brewery, coffee mill and household items manufacturing) and the scarcity of job-creating foreign investments.

This zone is particularly hit by poverty, especially in rural areas (as high as 70% on average against about 35% in urban areas).

- Road traffic is dynamic along the whole project road, with the transportation of essential goods, building materials, petroleum products and shipment of surplus production.
- Due to low household income in rural areas and inadequate means of transportation, trekking is the dominant mode of transport in the project zone, with the attendant risk of accidents arising from people walking on the roadway in the same direction as vehicles and bicycles.
- Major social constraints are linked to the high population density, the inaccessibility of villages and the low level of literacy.
- The environmental and social impact assessment report took into account aspects affecting the most vulnerable segments of the population, notably women, children and the elderly, with special emphasis on households.

### 1.2.2 The natural environment is mainly characterized by:

- Various types of eco-systems notably terrestrial, aquatic and marshy. The zone has neither protected areas nor sensitive zones. As the natural vegetation in the project zone has disappeared, it no longer has rare or protected species.
- BUGENDANA is the only district (“*commune*”) in the zone that still has a few small patches of forests here and there. Some virgin lands are covered by *Eragrostis* (lovegrass genus), albeit in an advanced state of degradation. Hill slopes have benefited from artificial afforestation (eucalyptus).

## 2. KEY ENVIRONMENTAL IMPACT

### 2.1 POTENTIAL IMPACT DURING THE WORKS PHASE

The key potential project impact during the works phase can be controlled and are summarized below:

#### (1) Average Negative Impacts

- **The general Impact** is linked especially to disregard for laid-down rules for the proper conduct of works as well as environmental and social rules on the management of liquid and solid wastes from the contractor’s living base.
- **The impact on water and soils** relates especially to the risk of altering water quality through the discharge of pollutants, pumping of water from the groundwater table during works, soil erosion, and stagnant water in quarries and borrows.
- **The impact on the living surroundings** is mostly characterized by inconveniences linked to traffic disruptions around major localities and increased road traffic, particularly the movement of heavy-duty trucks.
- **The specific temporary impact on wildlife and flora** is linked to the establishment of the contractor’s living base as well as the massive influx of labourers, the attendant consequences being the excessive consumption of firewood and the disturbance of the peace of animals caused by noise from construction equipment, etc.
- **The impact on human health** originating from:
  - \* Stagnant water in exploited borrows, favouring the rampant spread of diseases;
  - \* Increased risk of STD and HIV/AIDS infections through the mix of people from diverse horizons;

- \* Increased risks linked to water-borne diseases caused by poor hygiene at the contractor's living base.

- **The impact on human safety** involves potential risks of accidents due to the movement of construction machines and failure by workers to follow safety rules requiring individuals to wear safety gear (helmets, gloves, eyeglasses and safety boots, etc.).

(2) Positive Impact

- **Positive socio-economic impact:** characterized by direct and indirect job opportunities for about 500 people, including some 350 local workers, development of trade in the project impact area and better access for the inhabitants of localities situated along the project route to health, educational, administrative and other services.

**2.2 POTENTIAL IMPACT OF THE PROJECT ROAD OPERATION PHASE:**

The main average potential impact of the project road during its operation phase is manageable. After the project is commissioned, the potential impact will include:

(1) Average Negative Impact

- **Risk of accidental spill of transported pollutants** linked mainly to increased traffic on the road.
- **The impact on human health** is closely linked to the population mix, which creates favourable conditions for the spread of STDs and HIV/AIDS as well as respiratory track infections linked to car exhaust gases and dust.
- **The negative impact on human senses** having to do with the increase in noise pollution, especially noise for residents along the road, given the increased road traffic.

(2) Positive Impact

- **Positive impact on air quality:**
  - \* Reduction of dust along the road due to planted trees, and reduced exhaust gas emissions into the atmosphere.
- **Positive economic impact:** includes the reduction of the average travel time on the project road at the end of works, better access to production and marketing centres for about 775,000 people in the project's direct impact area, and permanent link to hitherto inaccessible localities, thanks to the construction of farm-to-market roads.
- Clearly positive effects on everyday life stemming from easier access to production areas, supply, exchange and advisory support.

- **Positive impact on safety:** in terms of better conditions of visibility or lower accident rates through improvement of the geometric characteristics of the road.
- **Positive impact on the living environment:**
  - \* Easier access to grassroots social services particularly for women, children and the elderly, thanks to the road and the development of related access roads.
  - \* Better delivery of basic social infrastructure through the construction of fences, sanitary facilities/latrines and drinking water standpipes for five schools, and the construction of fences, sanitary facilities/latrines and drinking water standpipes for two health centres.
  - \* Significant improvement in travel conditions especially for women, children and the elderly through the elimination of potholes on the road, thus affording greater comfort when travelling.
  - \* Reduced risk of flooding of localities situated along the project road, thanks to ditch cleaning and surface reshaping works and the construction of wastewater outlets and drainage structures.
  - \* Re-vegetation of the site, protection of productive land within the vicinity of the road, strengthening of biodiversity through street- and shade-tree planting, and erosion control structures.
  - \* Contribution to the reconstitution of agricultural and sylvo-pastoral resources, improvement of biological diversity of major importance to the local and global environment, and climate change mitigation (carbon sequestration and reduction of greenhouse gases in the atmosphere).
  - \* Planting of trees on the living base, as well as in parking and rest areas to make up for trees possibly felled at these places during works.

## **2.3 RECLAMATION AND MITIGATION PROGRAM:**

### **2.3.1 MEASURES DURING THE WORKS PHASE:**

The advocated environmental and social measures to mitigate the project impact during the works implementation phase are briefly presented below:

- **Measures to mitigate the general impact of works:** to mitigate all works-related nuisances, the measures advocated mainly centre around the organization of works and equipping of the living base. Briefly, these measures relate to:

- \* Involvement of environmentalists at national, regional and district levels during the works execution phase to monitor the implementation of measures to mitigate the project's negative impact.
- \* Incorporation of negative impact mitigation in contractors' contracts. The implementation of negative impact mitigation by contractors must be monitored by: (i) consultancy firms tasked with supervising the project works, (ii) the Environmental Expert at the Project Monitoring Unit, and (iii) the Environmental Experts at the national, regional and district level.
- \* Joint survey of the state of the site at the outset (before works) and at the end of the project (after works): physical, biological and social milieus.
- \* Choice of sites to be used by the contractors. The sites will be located outside inhabited areas, pasturelands, biodiversity zones, and classified areas and outside runoff and ground water impact areas.
- \* Choice of the period best suited to carry out certain site operations as well as methods most adapted to the environment (pre-cut materials, resort to labour-intensive techniques, etc.).
- \* Provision of equipment back by efficient services for managing solid wastes from living bases: dust bins, garbage cans, development of refuse dump, waste disposal plan, etc.
- \* Building of appropriate sanitary facilities and septic tanks at the living base, ensuring that they are constantly maintained and regularly disinfected with lime.
- \* Construction of concrete watertight platforms along with tanks and devises for collecting leaking fluids from fuel storage tanks and during drainage operations in living bases.
- \* Installation of drums to collect used oils.
- \* Construction of settling tanks for water from washing construction machines at the living bases; such water must be used in closed circuit.
- \* Rehabilitation of quarries, borrows and land used during the works phase.
- \* Extension of the guarantee to all the project's environmental and social aspects, with specific estimates meant to pay for the rehabilitation of all areas used by contractors during works.
- \* Erection of information boards to inform users and residents about the progress of works.

➤ **Water and soil conservation and preservation measures:** these measures mainly concern:

- \* Choice of areas to be used by contractors.
- \* Risk-free management of waste water, wastes produced by workers, drained oil and other dangerous chemical products.
- \* Stabilization of earth banks during works.
- \* Water table replenishment, thanks to the planting of trees and reduction of runoff.

➤ **Wildlife protection measures:** mostly concern:

- \* Control of the game consumption on the living base and works sites.
- \* Sensitization sessions for staff working for contractors.
- \* Cynegetic monitoring by the forestry services.

➤ **Protection of human senses** against the inconveniences caused by works. Apart from site rehabilitation measures envisaged at the end of works, other measures are planned:

- \* Measures to reduce noise, exhaust gas emissions, dust and mud via thorough inspection of construction machines, the location of living bases and project installations at places that are not detrimental to the residents of the project area, and establishment of participatory mechanisms for informing the population, etc.
- \* Systematic watering of paths used in transporting materials as well as construction areas and crushing sites in order to reduce dust; and
- \* Supply of tarpaulins specifically for trucks to cover materials transported.

➤ **Measures for the preservation of human health:** these deal mainly with:

- \* Systematic protection of the population's drinking water needs in terms of quality and quantity;
- \* Education of workers, residents and road users on routine diseases, including STDs/AIDS;
- \* Respect and strict control of hygienic conditions on works site and environmental management of solid and liquid wastes (collection and burial of wastes, sanitary facilities and septic tanks, and regular disinfection with lime).

- \* Sensitization of workers, residents and users on road safety, good environmental and social practices.
- \* Health supervision and follow-up of workers (regular medical check-up, etc.).

➤ **Measures to preserve human security:** these centre on:

- \* Tougher road safety on works sites through temporary deviations, additional signage (safety strips, regulatory signs and indicator panels, etc.) and speed limits.
- \* Sensitization of drivers (to respect speed limits), workers, residents and road users (awareness campaigns and signboards).
- \* Equipping of workers with luminous vests, helmets, gloves, eyeglasses and safety boots. It is compulsory to wear this gear for any operation on site. This will be one of the stipulations of the internal rules and regulations of the works site. The Control Mission must ensure that these prescriptions are strictly followed.
- \* Obligation for living bases, extraction areas and machinery parking areas to be fenced and guarded,
- \* Prevention of fire through provision of fire-fighting equipment.

➤ **Measures relating to the living surroundings** are of two kinds:

- \* Preventive measures: choice of location of living bases, information of road users and resident populations, erection of indicator panels, setting up of temporary deviations, etc.
- \* Compensatory measures: through (i) support to women's activities in the region and, (ii) labour-intensive works.

➤ **Socio-economic measures** advocated pertain to:

- \* Participation of women and youths in project implementation in accordance with the laws: respect of minimum age, while avoiding giving women dangerous or strenuous work or children heavy and risky work.
- \* Negotiated compensation if private agricultural land is used for lodging and as quarry. The status of the land to be exploited will be known and a contract signed by the contractor with the landowner, in concert with the Control Mission. Based on this contract, the Control Mission will issue the contractor an operation permit.

### 2.3.2 MEASURES LINKED TO THE MANAGEMENT OF THE PROJECT ROAD:

The envisaged environmental and social measures to mitigate or improve impacts linked to managing the project are summarized as follows:

- **Wildlife preservation measures** concern the strengthening of signage and erection of wooden barriers to prevent animals from crossing the road at risky places (bends, slopes, roadside areas frequented by wildlife) near nature reserves.
- **Water and soil conservation measures:** control of soil erosion through (i) treatment and re-vegetation operations to protect and stabilize earth banks, (ii) protection and verification of the capacity of outlets and clearing of waterways, and (iii) construction of infiltration and spillage barriers around the main watercourses crossing the road.
- **Measures for improving human security and living surroundings** are targeted to minimize the risk of accidents. These include:
  - Rumble strips at the entrance to population centres in the project area.
  - Better signage and speed limits at the entrance to towns and villages, and at critical places. These actions will be in zones known to be passage corridors for livestock and wild animals.
  - Widening of berms at sections with reduced visibility (when the right-of-way permits) to allow more space for pedestrians.
  - Coverage of drains with small slabs at the level of villages to make access easier for inhabitants.
  - Construction of: (i) parking areas for vehicle in large localities, (ii) pedestrian passages over drains at sections where the road passes through localities.
  - Sensitization of villagers (through panels) on the dangers of walking on the roadway, and for them to use the shoulders and pavements as much as possible.
- **Measures for the preservation of human health** : these have to do with:
  - \* STD/AIDS sensitization, through posters to be erected in major villages crossed by the road.
  - \* Construction of latrines in local health and education centres for hygienic purposes.
- **Measures to protect human senses:** these include erecting traffic barriers in all dangerous zones or bends along the entire route.

## **2.4 MONITORING PROGRAMME AND ADDITIONAL INITIATIVES:**

### **2.4.1 MONITORING:**

Government employers (Environment Experts from national, regional and district environmental departments) will be responsible for monitoring. Such monitoring will comprise measures to put in place to mitigate the negative impacts, especially in borrows and quarries to be exploited. These experts will ensure that the environmental and social measures of the Environmental and Social Management Plan (ESMP) are implemented at the end of works.

### **2.4.2 FOLLOW-UP:**

Follow-up will mostly focus on the negative impacts. Follow-up is: (i) the daily responsibility of the construction firm and is included in its contract amount, and (ii) the daily responsibility of the Works Control Mission, and is included in its contract.

Follow-up will also be done in public places to sensitize the population. This campaign will be carried out three times (at the start, mid-way, and at the end of Project) and will deal with road safety, good environmental and social practices, environmental protection and disease control, especially malaria and HIV/AIDS. This campaign will be in line with the national programmes of Burundi.

### **2.4.3 INSTITUTIONAL MECHANISMS AND CAPACITY-BUILDING NEEDS:**

Institutional responsibility for environmental and social monitoring falls on the General Directorate for the Environment.

In Burundi, the environmental and social management of road projects is performed at the regional and district level with the technical support of the central government. According to the institutional responsibility charter, environmental and social management is the responsibility of the General Directorate of the Environment, which has an internal multi-disciplinary team for that purpose.

Institutionally, the General Directorate of the Environment is under the Ministry of Environment and ensures the implementation of the Environmental and Social Management Plan (ESMP). It will call on other partners as and when necessary to give technical opinion on specific issues.

The General Directorate for the Environment will discharge environmental and social monitoring duties. Consequently, it will:

- \* Prepare a monthly assessment report on activities carried out (preventive control, field visits, training activities). This report will be submitted along with all documents that can illustrate and justify why environmental inspection was carried out: plans, photographs, non-compliance forms, meeting reports.
- \* Prepare a final environmental monitoring report at the end of the project, providing a general summary of activities carried out on the field. This

report will judge the effectiveness of measures and methods used in preventing the temporary impact of works and propose a methodological framework that could be used for similar “experience feedback” projects.

## **2.5 PUBLIC CONSULTATIONS AND THE INFORMATION DISSEMINATION REQUIREMENT:**

### **2.5.1 CONSULTATIONS HELD DURING THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA):**

The Consultant conducted two kinds of public consultations as part of the ESIA:

- \* Contacts with key national, regional and local officials, professional transporters, traders, civil society, women’s organizations in the project zone and organizations engaged in environmental protection, to acquaint them with the objectives of the project, solicit information on the natural, human and socio-economic environment and obtain their views, suggestions and concerns about the project.
  
- \* Meetings organized with Heads of Hills, populations of localities visited as well as women’s associations. These sessions aimed at informing the local population, gathering additional information on these villages and knowing the people’s concerns and expectations with respect to the project. In any event, this procedure of participation and consultation will be followed during the implementation of the Environmental and Social Management Plan (ESMP).

Although views about the project are favourable overall, the population nevertheless asked for: (i) the construction of farm-to-market roads linking to the road, and access to agricultural production zones and market outlets for their produce, (ii) the protection/sanitation of local education and health centres through the construction of latrines and fences, (iii) support to women’s activities, (iv) priority to the recruitment of unskilled labour within the project zone, (v) sub-contracting of works to local contractors, and (vi) contracting of tree-planting, erosion control operations, domestic waste management, and the handing of labourers to the three grassroots associations in the project zone.

The socio-economic study details the views and expectations of the populations of the project zone.

The choice of related activities takes into account the needs expressed by the population during public consultative meetings. The consultation will be deepened during the works implementation phase to ensure the project’s integration into its impact area and its ownership by the local people and authorities.

### **2.5.2 PUBLIC CONSULTATION DURING THE PROJECT IMPLEMENTATION PHASE:**

Public consultation will be based on the Environmental and Social Management Plan (ESMP) and the exhaustive summary furnished at the start of the Project’s Environmental and Social Impact Assessment (ESIA). It will have three main objectives:

- \* Highlight all impacts identified as well as explain in detail the measures advocated for their mitigation or improvement.
- \* Involve the whole population in project implementation while creating ownership for the implementation of ESMP.
- \* Bring the local population to take charge of road and community structure maintenance works on a contractual basis.

In any event, the success of the project and its integration into its environment are contingent on the people's effective involvement in its implementation. Consequently, the implementation of road safety measures during works is closely linked to the degree of involvement of the population. In that regard, special emphasis will need to be placed on the actual participation of the population to enable project implementation under the best social conditions through the establishment of a participatory and concerted partnership framework. This arrangement will have the advantage of paving the way for the subsequent maintenance of the road and these community facilities.

Consequently, the consultation process will be implemented following the action plan outlined in the ESMP. It will be designed in three major stages: (i) a preparatory stage where one-on-one social communication will be used, (ii) a site start-up and works execution stage, and (iii) an end-of-works stage involving the participatory planning of the operating phase.

### **2.5.3 INFORMATION DISCLOSURE:**

The Bank will publish this summary ESMP in its "Public Information Centre". The Government will also place it at public disposal.

### **2.6 ESTIMATED COST**

The cost of implementing the ESMP covers: (1) sensitization on health, road safety, good environmental practices and capacity building; (2) environmental protection works; (3) formation and training of three village committees to monitor the state of the road, inspect road signs and other appurtenances; (4) the total cost of implementing environmental monitoring and follow-up activities.

**Summary Table of Cost of Activities**

<b>Activities</b>	<b>Amount (in BIF Million)</b>
Campaign to raise the awareness of the population, including	431
Environmental protection works	360
Formation and training of three village committees to monitor the state of the road and inspect road signs, including the other appurtenances.	15
Monitoring	50
<b>Total</b>	<b>856</b>

## 2.7 IMPLEMENTATION TIMETABLE AND PRODUCTION OF REPORTS

The ESMP implementation schedule is summarized as follows:

Activities	Programming
Initiate ESMP information sessions	Before works start-up
Inform and sensitize project staff on good practices.	Before works start-up
Set up sanitary facilities	Before works start-up
Build (with concrete) areas for collecting used oils as well as install troughs and funnels.	Before works start-up
Install a fuel distribution station with automatic pumps.	Before works start-up
Sign a contract with a company specialized in the management and collection of used oils.	Before works start-up
Install fire-fighting equipment.	Before works start-up
Set up a liquid and solid wastes management system in the living base and works sites.	Before works start-up and during works
Set up a works signage system, including diversions.	Before works start-up and during works
Put in place appropriate equipment to avoid accidental spill of toxic products and pollutants.	Before works start-up and during works
Draft, sensitize, disseminate and apply the internal rules and regulations of the works site.	Before works start-up and during works
Install signage, sensitization and identification panels.	Before and during works
Favour the recruitment of local labour and labour-intensive works.	During works
Favour the recruitment of women and youths for certain works.	During works
Take appropriate steps for the risk-free storage and management of bituminous products on site.	During works
Enforce formal compliance with speed limits.	During works
Require that trucks have tarpaulins.	During transportation of materials
Sprinkle water in zones where movable materials are deposited	During works
Grade borrow sites	After exploitation of quarries
Avoid storing and discharging bituminous products on the ground	During works
Ensure the environmental and social monitoring of the ESMP	During and after works
Rehabilitate used areas (works sites, living bases and borrows).	At the end of works
Draft site rehabilitation reports.	At the end of works

The works supervision agency and the Project Implementation Monitoring Unit (PIMU) will draft monthly and quarterly reports on the implementation of environmental and social protection measures. These reports will be regularly forwarded to the Bank.