SUMMARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
OF THE KUMBA-MAMFE ROAD DEVELOPMENT PROJECT IN CAMEROON

INFRASTRUCTURE DEPARTMENT (OITC)  JUILLET 2012
SUMMARY OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Project Title: Kumba-Mamfe Road Development Project
Country: Cameroon
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1. Introduction

This document is the summary Environmental and Social Impact Assessment (ESIA) for the Kumba-Mamfe Road Pavement and Development Project (149 km) situated in the South West Region of Cameroon. The impact assessment was financed with Cameroon’s Public Investment Budget (PIB). This summary has been prepared in accordance with the environmental and social assessment guidelines and procedures of the African Development Bank (AfDB) for Category 1 projects.

It starts with the project description and rationale, followed by the legal and institutional framework in Cameroon. A brief description of the main environmental conditions of the project area is then presented, focusing on its physical, biological and human aspects. The variants and alternatives are then compared in terms of technical, economic, environmental and social feasibility and local community concerns. The project’s most significant positive and negative impacts on the biophysical and human (socio-economic) environments are next outlined. This is followed by a presentation of the enhancement and mitigative measures proposed to increase benefits and/or prevent, reduce, lessen or offset any negative impact. Lastly, the monitoring programme, the public consultations held and additional project-related initiatives are presented.

2. Project Description and Rationale

This road, which cuts across the second largest cocoa-growing area in Cameroon, is the most important segment of the Lagos-Mombasa Trans-African Highway, retained as a priority road under the Lagos Plan of Action. It is a natural extension of the Bamenda-Enugu corridor and guarantees greater returns on the investment made under the transport facilitation programme on this corridor that is being built with AfDB financing. Its construction will boost trade between the city of Douala, the main towns of the South West Region and the towns of Eastern Nigerian States. The road will connect Anglophone and Francophone Cameroon and boost trade between the two regional economic communities, ECCAS and ECOWAS. In 2011, the government updated studies on the road with own resources. These studies yielded technical proposals to develop and rehabilitate the Kumba-Mamfe road in three segments: Kumba-Supe Bakundu, Supe Bakundu-Nfaïtock and Nfaïtock-Bachuo Akagbe. In light of the outcome of these studies and the degraded state of the road section, the Government made a request to the Bank to finance of works on this road.

The overall objective of the project is to open up access to Cameroon’s South West Region and improve living conditions for the communities in the region.

The project comprises the following components:

A. Road Development: (i) development of 101.5 km of road, comprising 2 segments: Kumba-Kumbe Bakundu (54.439 km) and Nfaïtock-Bachuo Akagbe (46.880 km) to be paved with bituminous concrete, with a breadth of 7 m and shoulders of 1.5 m on each side; (ii) rehabilitation of 49.544 km of road between Kumba Bakundu and Nfaïtock to be paved with
bituminous concrete with a breadth of 7 m and shoulders of 1.5 m on each side; (iii) adoption of actions and measures that mitigate the negative impact on the environment; (iv) awareness-raising on environmental protection, road safety, AIDS prevention, sexually-transmitted diseases and malaria; and (iii) works control and supervision. Road development will include the laying of optical fibre cable in the South West Region.

B. Related Works: (i) development of about 100 km of feeder roads; (ii) construction of 5 market stalls; (iii) construction of 4 women’s and youth centres, rehabilitation and reconstruction of 5 primary schools, construction of 2 foot bridges; (iv) Supply of small farm-produce processing and conservation equipment; and (v) control and supervision of related works.


D. Project management comprising: (i) support to the Road Project Implementation Monitoring Unit (PIMU-AfDB); (ii) consultancy services for monitoring/evaluation of the socio-economic and environmental impacts of the project; and (iii) consultancy services for project accounting and financial audit.

3. Political, Legal and Administrative Framework

3.1 Legal Framework in Cameroon

The national legal framework governing the project’s environmental component comprises the following laws and regulations: (i) Framework Law No. 96/12 of 5 August 1996 governing environmental management, Decree No. 2005/0577/PM of 23 February 2005 laying down the conditions for carrying out EIAs; (ii) Order No. 0070/MINEP of 22 April 2005 defining the various types of operations subject to a detailed impact study and a summary impact study; (iii) Law No. 98/005 of 14 April 1998 laying down regulations governing water resources; (iv) Law No. 0001 of 16 April 2001 defining the mining code; and (v) Decree No. 99/818/PM of 9 November 1999 defining the terms for setting up and operating establishments classified as dangerous, unhealthy and obnoxious.

The protection of biological resources is governed by Law No. 94/01 of 20 January 1994 laying down Forestry, Wildlife and Fisheries Regulations; (ii) Decree No. 95/531/PM of 23 August 1995 laying down the conditions for implementing forestry regulations; and (iii) Norms of January 1998 governing intervention in Cameroon’s forests.

From the environmental standpoint, the road sector is governed by Circular No. 00908/MINTP/DR on Guidelines for Mainstreaming Environmental Impacts into Road Maintenance; Law No. 96/67 of 8 April 1996 on the Protection of National Roads; and Decree No. 2005/330 of 6 September 2005 organizing the Ministry of Public Works.

With respect to affected property, the national legal framework governing compensation comprises Law No. 85/09 of 4 July 1985 on expropriation for public purposes and conditions of compensation; Order No. 00832/4.15.1/MINUH/D000 defining the terms for implementing Law No. 85/09 of 4 July 1985 as concerns finished and unfinished constructions; and Decree No. 2003/418/PM of 25 February 2003 setting compensation rates payable to owners of crops and cultivated trees destroyed for public purposes.
3.2 Institutional Framework in Cameroon

Environmental management in Cameroon is the responsibility of the Ministry of the Environment, Nature Protection and Sustainable Development (MINEPDED). Several sectors are covered under this project. That is why the Inter-ministerial Committee for Validation of this ESIA Report and the Identification and Assessment Commission (CCE) responsible for assessing affected property are involved. The following ministries will intervene in both organs at various levels: the Ministry of Forestry and Wildlife (MINFOF); the Ministry of Public Works (MINTP); the Ministry of Energy and Water Resources (MINEE); the Ministry of Industry, Mines and Technological Development (MINIMIDT); the Ministry of Agriculture and Rural Development (MINADER); the Ministry of Livestock, Fisheries and Animal Industries (MINEPIA); the Ministry of Territorial Administration and Decentralisation (MINATD); and the Ministry of Lands, Surveys and Real Estate Affairs (MINDCAF).

Apart from these ministries, project activities will involve local communities and councils, local village communities, local support organisations (LSOs) and the most active environmental NGOs in the project area, such as WWF, WCS, CBP, GIZ and Nature Cameroun.

3.3 International Agreements

Cameroon is signatory to most international and regional agreements on environmental protection, prominent among which are: (i) the 1972 UNESCO Convention of Paris for the Protection of the World Cultural and Natural Heritage; (ii) the CITES Convention of 1973; the 1992 Rio UN Convention on Biological Diversity (CBD); (iii) the United Nations Framework Convention on Climate Change (UNFCCC); (iv) the Rotterdam Convention on PIC and the Stockholm Convention on POPs; (v) the International Tropical Timber Agreement of Geneva; (vi) the 2003 African Convention on the Conservation of Nature and Natural Resources of Maputo to ensure the sustainable development of African Economies; and (vii) Cooperation and Consultative Agreement among Central African States on the Conservation of Wildlife and the Creation of a Special Fund for the Conservation of Wildlife.

3.4 For the African Development Bank (AfDB)


4. Description of the Project Environment

4.1 Biophysical and Biological Environment

Relief: The project area is characterised by a coastal landscape comprising the Mamfe Depression, rocky coasts and highlands, including Mounts Cameroon (4095 m), Kupe (2064 m), Manengumba and Rumpi (1494 m). The northern part of the segment is characterized by a series of horsts formed through the great tectonic movements that preceded formation of the region's relief.
**Climate:** The area has a generally hot and humid equatorial climate with two seasons, namely: a short dry season of about 4 months (December to January) and a long rainy season (February to November). Annual rainfall ranges from 2298 mm to 3400 mm. The average annual temperature is approximately 27°C.

**Hydrology:** The project area is part of the Cross River basin and the road segment cuts across many perennial water courses (Meyfe, Mobengue, Kobe, Kaber, Ukengue, Nyuka, Mengue, Baduma, Mfen, Jiolo, Konye, Wadjie, Supe, Iboi, Modiba, Wone, Biriki, Obisse, Echangue, Tabadje, Djenguenele, Bayti, Ayako, Eyang, Nfaitock, Maifeng, Bessog, Bakebe Nyeng, Bache, Bene, Kenyensi, Nsigue, Chombire, Nyem, Mueye, Badi, Chembo).

**Pedology and Geology:** The project area is characterised by soils formed from crystalline rocks between Kumba and Nguti as well as hydromorphic and silty-loam soils between Nguti and Bachuo Akagbe. It abounds in mineral resources.

**Vegetation:** The project area is located in the tropical rainforest with vegetation that varies from South (Kumba) to North (Bachuo Akagbe). The savannah dominates in the South and the forest dominates in the North around Nguti Sub-division. Mangrove forests are located in the coastal and low-lying regions and the evergreen and semi-deciduous forests contain economically important tree species (iroko, mahogany, obeche, ebony, padouk, tiama, framire, sapelli, makore and bubinga, etc.). The herbaceous layer is dominated by *Pennisetum purpureum* and *Imperata cylindrica* with a ligneous cover that is heavily affected by human activity. The valleys are covered with Indian bamboo (*Bambousa sp.*) whose stems are used for handicraft activities. In general, deforestation is the main cause of environmental degradation in project area localities. Such deforestation stems from human activity on the environment, especially inappropriate farming practices (shifting cultivation), overgrazing, bush fires, poaching, illegal logging, etc.

**Wildlife:** The project area abounds in wildlife, especially between Konye and Bachuo Akagbe, and has many endangered species (giant pangolins, elephants, gorillas, chimpanzees, monitor lizards, etc.). The project area is replete with protected areas, although they are not directly located in the project zone (Byang Mbo’o wildlife sanctuary, Nta Ali forest reserves, Mounts Bakossi, Banga Bakundu, South Bakundu, Barombi Mbo, Bomoko, Mungo, Wone and Ejagham, the Korup and Takamanda national parks). It also has forest development units (FDU 11 005, 11 004 and 11 002), the Nguti sub-divisional forest, and the Bakebe, Manyemen, Wessing Kombone, Supe, Wone and Kumbe community forests.

4.2 Human Environment

**Population:** The four sub-divisions (Kumba, Konye, Nguti and Upper Banyang) traversed by the road segment have a population of 265,678 inhabitants, with 62.60% in Kumba, 16.82% in Konye, 10.34% in Upper Banyang and 10.21% in Nguti. The zone experiences two types of migratory movements: internal migration prompted by agricultural and trade activities and external migration mainly to neighbouring countries, like Nigeria, for trade/business reasons essentially. Socio-cultural life is characterised by the existence of a number of traditional rites and dances that vary from one ethnic group to another, namely: the Nyamkpe, Ma’a, Malinga, Houloua, Guini, Lignangui dances among the Bafaws in Meme Division; Monenkim, Odinin, Male, Olissango dances for women and the Obasindjom dance among the Banyangi in Manyu Division; and the Morini, Dania, Male, Nankwe, Mabunu, Malobo, Mosseke dances among the Mponge in Kupe Manegumba Division.
Community life is characterised by the existence of many cultural groups (Metracula in Meme Division, Kumuacula in Kupe Manengumba Division, Manyucula in Manyu Division) and local development entities (CIGs, cooperatives, development committees). Project area inhabitants are part-owners of their lands, which extend slightly beyond the plots on which their homes are built. The area has a group settlement pattern with progressive dispersion from the centre to the periphery. The tombs are generally located within the compound.

**Socio-Economic Activities:** activities carried out by project area communities are farming, stockbreeding, petty trading, handicraft, mining, exploitation of non-timber forest products (NTFP), hunting and fishing. Guidance/support for these programmes is provided through various development programmes, projects and missions intervening in the area.

**Access to Basic Infrastructure and Services:**

- In the project area, access to drinking water remains a major problem for the communities in several villages along the road segment. Drinking water is provided mainly through the community drinking water supply network, wells, rivers and springs, with very little coming from SCANWATER which only supplies the population in urban areas (Kumba, Nguti).

- Apart from the localities of Kumba III, Bachuo Akagbe, Bakebe and Ekiliwindi which are supplied with electricity by AES Sonel, most of the villages along the road segment are not electrified.

- With respect to education, the project area has a high number of schools. Government, lay private and denominational primary and nursery schools, general education and technical schools, etc. are located along the project road. However, most of the nursery and primary schools still do not have water points or toilets.

- Health coverage for the project area is provided by many health structures such as the district hospitals of Kumba, Konye, Nguti and Mamfe, as well as the Saint John of God Catholic Hospital in Nguti. However, infrastructure, logistic and staff coverage is very limited, especially in the Integrated Health Centres (IHCs) and Sub-divisional Health Centres (SHCs), which generally have a maximum of one nurse and one midwife.

### 5. Alternative Solutions

The technical baseline studies analysed different scenarios from the economic, environmental and social standpoints to determine the best variants possible.

The "no project" (i.e. "do nothing") variant highlights the fact that the road sector will continue to be the weak link in the South-West Region’s development policy. Consequently, the result will be a failure to achieve the economic growth targets of this region and a consequent aggravation of poverty. The "no project" alternative does not square with Cameroon’s economic and social development policies and especially the principles of economic growth revival set out in the Growth and Employment Strategy Paper (GESP).

The variant retained for the Kumba-Mamfe road follows 95% of the current road alignment. However, this variant could affect private property especially when the right-of-way cuts through urban areas or
6. Potential Impacts and Mitigation/Enhancement Measures

6.1 Direct Negative Impact

Worksite Preparation Phase

- **Biophysical Environment:** Destruction of trees and crops (fruit trees, food and industrial crops) during the opening of quarries, construction of workers’ camps and clearing of the right-of-way (see summary compensation and resettlement plan in the annex).

- **Human environment:** Disruption of trade activities and destruction of shops, residences, tombs etc. during clearing of the right-of-way (see summary compensation and resettlement plan in the annex).

Construction Phase

- **Bio-physical Environment:** (i) Alteration of the landscape during opening of quarries and borrow pits; (ii) modification of soil texture and structure in the immediate vicinity of the road through compacting; (iii) pollution of surface and ground water and of the soil through accidental spillage of drainage oils and other hydrocarbons, sedimentation, etc. The risk of ground water pollution is higher in Baduma and Faitock I B, where there are areas of groundwater upwelling, symptomatic of a high water table; (iv) degradation of air quality due to emissions from construction machinery and dust particles; (v) increase in noise pollution; and (vi) disruption of wildlife by noise from heavy machinery and risk of accident with wild animals such as elephants between Nguti and Nfaitock I B.

- **Human and Socio-Economic Environment:** (i) Risk of sexually-transmitted infections (STIs) and HIV/AIDS due to the presence of contractors’ staff on the worksite; (ii) risk of traffic accident and of industrial accidents during construction machine movements; and (iii) disruption of traffic and access for local residents.

Operational Phase:

- **Bio-physical Environment:** (i) Increase in road traffic and exhaust emissions; (ii) noise and air pollution and risk of accidents will be exacerbated by the combined action of vehicles; (iii) increased risk of accidents between wildlife and road users; and (iv) increased risk of illegal exploitation of timber resources and non-timber forest products.

- **Human environment:** (i) Risk of road accidents due to excess speed; (ii) increased noise and air pollution as well as risk of accidents will be aggravated by the greater
number of vehicles plying this road and the greater proximity of local residents, especially residential areas, schools and markets.

6.2. **Cumulative Negative Impacts**

Cumulative impacts will arise when road, energy and drinking water supply projects are implemented simultaneously or within the same locality. These impacts will create a greater risk of degradation, disruption of existing activities and, above all, a new drive in the redeployment of all types of activities due to the sharp rise in passenger and goods traffic. Hence, greater risk of degradation to protected areas and forest reserves is a possibility. There will be greater exploitation of current plant, forest and wildlife resources due to ease of access.

6.3. **Direct Positive Impacts**

The main positive impacts expected from the project are: (i) improved conditions for goods and passenger transport; (ii) opening up of access to the hinterland and improved access to basic socio-economic infrastructure; (iii) creation of direct and indirect employment during the road construction, operation and maintenance phases; (iv) enhanced potential for tourism, including ecotourism; (v) improved living conditions for the vulnerable communities along the road and related feeder roads; (vi) reduced risk of landslides and erosion thanks to the reinforcement and monitoring of embankments; (vii) increased value of land due to improved accessibility; and (viii) improved security around schools located along the road.

6.4. **Cumulative Positive Impact**

The redeployment of socio-economic activities, especially in ecotourism is possible because tourism sites will be more accessible to tourists thanks to this set of projects. Similarly, operators and entrepreneurs will give a new impetus to agricultural and stockbreeding activities. In the final analysis, human development in the community will be enhanced through human resources development.

6.5. **Mitigation/Enhancement and Monitoring Measures Anticipated at this Stage**

*Given the environmental impacts identified, five environmental measures were proposed namely: preparation and implementation for receiving environments (air, water, soil, vegetation), systematic maintenance of the machinery and vehicles used, management of solid and liquid waste, combating of poaching activities and accidents with animals.*

**Worksite Preparation Phase**

- Payment of a fair and equitable compensation to persons affected by the project for property identified in the Compensation and Resettlement Plan (CRP). The budget estimate for the three road segments, including the cost of monitoring CRP implementation, is CFAF 1,358,493,437. This amount must be paid by the Government of Cameroon prior to the commencement of works;
- Development of the environmental and social component in contractors’ internal regulations. One of the main actions is to recruit and involve an environmentalist in managing the enterprise to handle environmental and social aspects, help to enforce
them and monitor their implementation. The internal regulations must be approved by the control mission prior to the commencement of works. Drafting of an emergency plan.

**Construction Phase**

- Observance of labour norms on construction sites. These relate to staff management, conditions for establishing and ensuring hygiene in workers’ camps, organization and management of hydrocarbon depots (controlling risks of spillage, explosion or fire), the origin of materials (quarries) and their transportation conditions, as well as the organization of depots required for the works or generated by renewals, extra watering of the road and the deviation, traffic regulations, solid and liquid waste management;

- Establishment of the baseline situation for surface and ground water by a specialized laboratory;

- Monitoring of the quality of surface and ground water for four years by a specialized laboratory;

- Reduced felling of trees, minimal clearing of land used for temporary occupation sites, borrow pits and quarries and no excess excavation. Planting of 8,000 replacement trees (agroforestry and fruit trees) in the project area and street tree planting over a distance of 150 m on both sides of the road running through all the 39 villages. Rehabilitation of the quarries and borrow areas (planting of trees in workers' camps, quarries and borrow areas on project completion);

- The contractors responsible for the works will ensure that base camps are located far from wells and rivers to avoid any risk of water pollution. Working hours shall be adjusted to reduce any discomfort to the local population. Construction machinery speed shall be limited on work sites located on the highway;

- A traffic plan shall be prepared for construction machines to ensure greater mobility and accessibility for the local population. This plan shall evolve through the various phases of the project. The plan shall be supplemented with road signs and notices. Works sites shall be clearly marked out;

- Construction of speed bumps in the villages along the road as well as in the vicinity of the elephants crossing point that was identified. Trapezoidal speed bumps having the geometrical characteristics described in the priced bills of quantities (PBQ);

- Setting up of sign boards for road user awareness of over 5 km on either side of the elephants crossing point located between and Nguti Nfaitock IB at GPS coordinates N00523584 00926837 and E 00926837;

- Construction and equipment of a wildlife and forestry check point at Konye

- Awareness raising campaigns of local residents on environmental protection including topics related to wildlife
• Construction of stopping areas for public transport, especially in villages; safety measures around schools, health centres, markets and other public places along the road;

• Monitoring of embankments during the operational phase; appropriate sizing of crossing structures (culverts and bridges) and road drainage structures, taking into account the intensity of rainfall, the peak-flow return periods, etc.; construction of protective structures against landslides and erosion in sensitive areas (retaining walls and gabion);

• Awareness-raising on STI/AIDS and environmental protection, including issues relating to water and soil conservation (WSC) and river bank protection techniques.

7. Environmental Risk Management

Environmental risks will mainly relate to accidental spillage of hydrocarbons, bituminous products, explosives and other substances used for road construction. There will be risk of accidents mainly on the work sites and near watercourses. There will also be cases of fire for which safety and training measures have been provided by the competent services. These measures concern: sensitization and training of worksite employees and ad hoc teams on rapid response techniques in case of disaster, safety measures to be observed in hazardous or high-risk areas, sensitization of local communities on health risk prevention and road safety.

Other technical measures concern the development of safe maintenance areas for trucks and for the storage of pollutants to avoid accidental spillage that could contaminate natural resources. Measures will be taken on-site to ensure good retention around the storage tanks for fuels, oils and bitumen and also to develop pits for disposal of oils, grease and other liquid pollutants from maintenance workshops, vehicle and equipment washing facilities, and loading areas. Safety and prevention measures will be put in place and maintained for preventing specific risks related to traffic, road accidents, first aid, communication and evacuation.

The Resident Engineer will ensure compliance with speed restrictions by all construction vehicles in order to limit traffic-related risks. Other measures include the use of road diversions and retro-reflective devices to protect people and animals. The Ministry of Environment will be responsible for monitoring compliance with these measures. The Contractor will ensure proper maintenance of all vehicles and equipment to reduce noise and diesel particulate emissions.

8. Monitoring Programme and Institutional Responsibilities

8.2 Responsibilities

Implementation of the environmental management programme will be the responsibility of the following institutions: (i) the ESMP implementation team (contracting firm); (ii) the environmentalist from the control agency; (iii) the Environmental Unit of DIPER in MINTP; and (iv) regional environmental officers.

8.3 Monitoring

Implementation of the ESMP-recommended measures will be monitored using the following criteria: (i) hygiene and sanitation in the camps; (ii) equipment maintenance level; (iii) use of worker protection
gear; (iv) level of soil and water protection in sensitive areas; (v) signposting; (vi) watering of the road during the works and rehabilitation of borrow areas; and (vii) implementation of enhancement measures.

8.4 Monitoring Indicators

The following will be the key monitoring indicators: (i) number of erosion control structures and gutters around the workers’ camp, quarries, borrow pits and storage sites; and (ii) the physico-chemical parameters of surface and ground water. Tests will be conducted in a reference laboratory; (iii) number of consultations for waterborne diseases in health centres; (iv) number of jobs created for local workers; (v) the number of women or vulnerable persons employed for the construction works; (vi) number of accidents related to traffic disruption during the works; (vii) number and location of signs boards and speed calming pumps.
<table>
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<th>Phase</th>
<th>Negative Impact</th>
<th>Proposed Measures</th>
<th>Implementation Period</th>
<th>Surveillance and Monitoring Indicators</th>
<th>Monitoring Authority</th>
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<td>Construction</td>
<td>Lack of environmental awareness among workers and companies</td>
<td>Recruitment of an environmentalist/safety expert during the works</td>
<td>Before the start-up of works</td>
<td>Presence on the site</td>
<td>MINTP + PIU + Control Agency</td>
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<tr>
<td>Construction</td>
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<td>Before the start-up of works</td>
<td>Survey form (form per site)</td>
<td>MINTP + PIU</td>
</tr>
<tr>
<td>Construction</td>
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<td>Equipping workers with safety and protection gear (gloves, masks, reflective outfits and helmets)</td>
<td>At start-up and during the works</td>
<td>Level of equipment of workers in the work site</td>
<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Construction</td>
<td>Risk of HIV/ AIDS contamination stemming from intermingling with outsiders</td>
<td>Sensitization of workers on STU/HIV AIDS (visit by a doctor each month+ condom distribution)</td>
<td>At start-up and during the works</td>
<td>Number of visits by the doctor and condom-distribution operations</td>
<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Construction</td>
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<td>Before the start-up of works</td>
<td>Equipment of the infirmary</td>
<td>PIU + Supervising Engineer</td>
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<tr>
<td>Construction</td>
<td>Water and soil pollution by solid waste and negative impact on the landscape</td>
<td>Equipment for the management of solid wastes from the base camp (bins, tippers, etc.)</td>
<td>At start-up and during the works</td>
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<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Soil pollution by waste oils and hydrocarbons during maintenance of equipment</td>
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<td>Before the start-up of works</td>
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<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
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<td>Installation of a signalling device indicating the temporary deviation of day and night traffic and fluorescent strips demarcating work areas.</td>
<td>At start-up and during the works</td>
<td>Number of deviations made, equipment at risky bends</td>
<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Dust emission during transportation of materials</td>
<td>Supply trucks transporting loose materials with tarpaulins for use in covering the tippers.</td>
<td>During the works</td>
<td>Number of trucks with tarpaulins</td>
<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Emission of dust during earth-moving operations</td>
<td>Systematic watering of roads used for transporting materials, work areas and crushing sites to reduce dust emissions</td>
<td>During the works</td>
<td>Length of road watered</td>
<td>PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Erosion, water stagnation, disruption of the landscape</td>
<td>Restoration of massive rock quarries, including possible reforestation of the affected sites. Rehabilitation of borrow sites (slope correction, transporting and spreading topsoil, re-vegetation)</td>
<td>During and at the end of the works</td>
<td>Number of sites rehabilitated</td>
<td>MINTP + PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Erosion, water stagnation, disruption of the landscape</td>
<td>Rehabilitation of storage sites and depots</td>
<td>At the end of works</td>
<td>Number of sites rehabilitated</td>
<td>MINTP + PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Increase in speed with the attendant risk of accident in communities</td>
<td>Fence in durable material for neighbouring schools</td>
<td>During and at the end of the works</td>
<td>Linear meters (LM) of fence built</td>
<td>MINTP + PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Increase in speed with the attendant risk of accident in communities</td>
<td>Installation of warning devices at the entrance to villages along the road under construction</td>
<td>During and at the end of the works</td>
<td>Number of warning signs put up</td>
<td>MINTP + PIU + Supervising Engineer</td>
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<tr>
<td>Operation</td>
<td>Disruption of access by raising the road platform</td>
<td>Construction of stairs and slabs for the bridges (*)</td>
<td>During and at the end of the works</td>
<td>Number of access points restored</td>
<td>MINTP + PIU + Supervising Engineer</td>
</tr>
<tr>
<td>Operation</td>
<td>Disruption of access by raising the road platform Problem of access for communities located above the embankment areas</td>
<td>Covering of gutters in built-up areas or on access tracks with slabs</td>
<td>During and at the end of the works</td>
<td>Number of access points restored</td>
<td>MINTP + PIU + Control Office</td>
</tr>
<tr>
<td>Risk of accidents between road users and wildlife (elephants in particular)</td>
<td>• Construction of speed bumps in the villages along the road as well as in the vicinity of the elephants crossing point that was identified. • Setting up of sign boards for road user awareness of over 5 km on either side of the elephants crossing point between and Nguti Nfaitock IB; Construction of a wildlife and forestry check point office at Konye • Awareness raising campaigns of local residents on environmental</td>
<td>During and at the end of the works</td>
<td>• Number of physical speed bumps in place; • Number of sign boards; • Number of people reached by the awareness campaigns Check point operational</td>
<td>MINTP + PIU + Supervising Engineer</td>
<td></td>
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<tr>
<td>protection including topics related to wildlife</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.5 **Cost Estimates**

The costs of implementing the ESMP measures, including expropriation, are indicated in the following table.

*Table 1: Cost Estimate of ESMP Measures*

<table>
<thead>
<tr>
<th>Activities</th>
<th>Cost (CFAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation and implementation of the protection programme for receiving environments (air, water, soil, vegetation)</td>
<td>24 312 500</td>
</tr>
<tr>
<td>Measures to combat poaching, illegal logging and accidents with animals (construction and equipment of a wildlife and forestry check point at Konye)</td>
<td>50 700 000</td>
</tr>
<tr>
<td>Awareness-raising campaigns for workers, local communities and sub-contractors on environmental protection and HIV/AIDS and</td>
<td>160 000 000</td>
</tr>
<tr>
<td>Functioning of Conflict prevention and management Committees</td>
<td>110 2000 000</td>
</tr>
<tr>
<td>Indemnification/compensation for crops, houses, etc.</td>
<td>1 358 493 437</td>
</tr>
<tr>
<td>Environmental monitoring (internal and external)</td>
<td>31 240 000</td>
</tr>
<tr>
<td>Institutional support (procedures manuals on mainstreaming environmental and social aspects into road projects for the MINTP, procurement and supply of two GPS to the Environmental Unit of MINTP)</td>
<td>17 500 000</td>
</tr>
<tr>
<td>Total</td>
<td>1 627 933 437</td>
</tr>
</tbody>
</table>

*Source: ESIA Report, 2012*

The total cost of implementing the project’s Economic and Social Management Plan (ESMP) is **CFAF 1 627 933 437** broken down as follows: (i) CFAF 269 440 000 for environmental and social measures including institutional support; and (ii) CFAF 1 358 493 437 for compensation payments.

9. **Public Consultations and Information Dissemination**

The stakeholders concerned were consulted to give them the opportunity to express their views and concerns. As part of the process, they were also provided with relevant and sufficient information on the project prior to its start-up.

During the preliminary design phase, 14 meetings were organized for the 39 villages (with certain villages grouped together) along the road segments, attended by 740 persons including traditional authorities, the elite, opinion leaders, women and NGOs. The discussions focused on a presentation of the project, community opinions and expectations, its impact and measures identified by the community.

The participatory approach was also adopted during preparation missions organized by the African Development Bank. Participatory sessions organised in Kumba, Konyé, Nguti, Nfàïtock and Mamfé (the main administrative centres of the region) were attended massively by project area communities. Over 500 persons, including 60% women, attended the meetings organized. Local elected representatives, administrative, religious and political authorities as well as youth and women’s associations were consulted to ensure better identification of the environmental and social challenges, and thus achieve lasting development goals for the project. Consultations with these stakeholders were mainly aimed at: (i) presenting the road construction project; (ii) identifying the direct beneficiaries.

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1 This amount does not include the cost of environmental measures that will be integrated directly in the contract environmental clauses of the contractor and the unit price schedule of the supervising Engineer.
and determining the benefits that accrue to them; and (iii) determining, in consultation with NGOs, women's associations, village communities in the project area as well as other stakeholders, the related works that can be factored into the project.

The project team informed people during the participatory sessions that ancillary works will not take into account rural electrification. Another department of the Bank is responsible for these issues and the Government of Cameroon should contact them for this purpose.

The participatory approach and public consultation process is expected to continue during project appraisal and implementation, mainly to: (i) validate the compensation plan; (ii) establish the worksites and start construction; and (iii) establish the baseline situation and ensure monitoring and evaluation of project impacts. The consultations should facilitate implementation of the measures recommended in the Environmental and Social Management Plan (ESMP).

10. Additional Initiatives

10.1 Related Works

Related works were selected on a participatory basis. They were the focus of the main recommendations made by the communities and retained by the Bank within the limits of the budget. They comprise: (i) the development of approximately 100 km of feeder roads connected to the main road to open up access to farming areas within the project area and access to socio-economic infrastructure; (ii) construction of 5 market stalls; (iii) construction of 4 women’s and youth centres, rehabilitation and reconstruction of 5 primary schools; (iv) construction of 2 foot bridges; and (v) supply of small farm produce processing and conservation equipment to women and youth groups in neighbouring villages.

10.2 Institutional Support

Institutional support will entail contributing to the finalization and publication of a procedure manual on mainstreaming environmental and social aspects into road projects and a handbook on expropriation for public purposes with regard to road projects. The idea is to help organise 3-day training sessions on these handbooks for employees from various ministries (Environment, Public Works, Wildlife and Forestry, etc.). Procurement and supply of two GPS with differential processing software to the Environmental Protection Unit of the MINTP.

11 Climate Change

11.1 Main Challenges

The main climate change challenges identified are: (i) a degraded ligneous cover; (ii) an 8-month long rainy season; and (iii) production of GHGs during construction and operationalization of the road. In Cameroon, transport accounts for 61% of these emissions, compared to 17% for the residential sector, and 11% for the manufacturing and construction sectors. The energy sector share is 9%.

11.1 Adaptation Measures

The adaptation measures retained under this project are: (i) appropriate sizing of water infrastructure, taking into account the intensity of rainfall, the peak-flow return periods; (ii) planting of trees or
construction of riprap to protect the embankments; construction of protective structures against landslides and erosion in sensitive areas (retaining walls and gabion); development of the cultural dimension of local knowledge on environmental constraints; facilitation of access to information (rural radio) by mainstreaming traditional knowledge.

11.3 Mitigative Measures

The adaptation measures retained under this project are: (i) traffic facilitation and setting of the speed limit between 60 km/h and 80 km/h during the operational phase to reduce CO₂ and CO emissions along this road; (ii) planting of 8000 replacement trees and street tree planting over a distance of 150 m on both sides of the road at the entrance and exit of each village along the road; (iii) awareness-raising on environmental protection including issues related to deforestation control; and (iv) limitation of cleared surface areas to the strict minimum.

To ensure optimum resilience and retain the benefits from mitigation and adaptation, the following measures should be taken during road operation: (i) repair the road surface and the unpaved shoulders as soon as degradation sets in and/or reaches a depth of over 3 cm. This will ensure that constant speed is maintained and reduce stop/acceleration periods to the minimum; (ii) restore the drainage system of the platform through regulation of the road shoulders and regular cleaning of gutters; (iii) ensure that there are vertical road signs, including those that indicate the speed limit and ensure that they are maintained/replaced if need be; (iv) reinforce and control embankments using riprap, gabions, rock fill or vegetal protection; (v) regularly clean the bridge structures; and (vi) maintain the planted trees.

12 Conclusion

The probable negative impacts of the project during the construction and operational phases essentially range from moderate to significant. These impacts will be considerably mitigated by applying the appropriate measures.

13. Contacts

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ANNEX: SUMMARY OF THE COMPENSATION AND RESETTLEMENT PLAN

1. POLITICAL, LEGAL AND INSTITUTIONAL FRAMEWORK

The policy, legal and institutional frameworks governing land tenure and expropriation for public purposes in Cameroon are summed up in the following laws and enabling decrees: (i) Land Reform of 1970 and all subsequent amending and supplemental instruments; (ii) Law No. 85/09 of 4 July 1985 on expropriation for public purposes and conditions of compensation; (iii) Order No. 00832/4.15.1/MINUH/D000 defining the terms for implementing Law No. 85/09 of 4 July 1985 as regards finished and unfinished constructions; (iv) Decree No. 2003/418/PM of 25 February 2003 setting the rates for compensation payable to owners of crops and cultivated trees destroyed for public purposes.

At the African Development Bank (AfDB), the Involuntary Resettlement Policy of November 2003 seeks to ensure that project activities financed by the Bank do not make life difficult for or impoverish displaced communities.

Several ministries are involved at various levels in the resettlement process in Cameroon. These are the Ministry of Public Works (MINTP); the Ministry of Territorial Administration and Decentralisation (MINATD); the Ministry of Lands, Surveys and Real Estate Affairs (MINDCAF); the Ministry of Agriculture and Rural Development (MINADER); the Ministry of the Environment, Nature Protection and Sustainable Development (MINEPDED); the Ministry of Social Affairs (MINAS); and the Divisional Registration and Assessment Commissions (CDCE). This structure, chaired by the Divisional Officer, is responsible for conducting a plot-by-plot assessment of any losses and affected property. Two divisional commissions will be set up under this project: one for Meme Division and the other for Manyu Division.

2. PERSONS AFFECTED BY THE PROJECT (PAP)

Persons affected by the project (PAPs) are defined as those who lose property, access to their property and income-generating opportunities as a result of the road project. Several types of potential losses were observed along the Kumba-Bachuo highway whose right-of-way is 15 m on each side of the road, especially on the two segments concerned by expropriation (segments 1 and 3). These are essentially bare land (plots), constructions (residential and commercial buildings) and accessories (terrace, walls, etc), tombs, crops, planted trees and water points (wells, boreholes and water pipes).

A survey conducted by the consultant responsible for preparing the CRP identified 164 owners (including 30 women) of 192 buildings situated along the right-of-way. Considering that each household in the project area has six members on average, the total population that will be affected is estimated at 984 persons. To this estimate should be added the PAPs who will lose crops (126 people), land or other developed property (10 people). The table below sums up the total number of goods identified along the two segments.
Table 1: Total Number of Goods Identified Along the Two Segments

<table>
<thead>
<tr>
<th>Type of property situated along the 30 m right-of-way</th>
<th>Number in Segment 1</th>
<th>Number in Segment 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bare land</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Buildings</td>
<td>155</td>
<td>37</td>
<td>192</td>
</tr>
<tr>
<td>Tombs</td>
<td>2</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Trees and young crops</td>
<td>399</td>
<td>551</td>
<td>950</td>
</tr>
<tr>
<td>Trees and young crops</td>
<td>1423</td>
<td>1519</td>
<td>2942</td>
</tr>
<tr>
<td>Wells</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Public taps</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

Based on AfDB definition of vulnerable people, only women-headed households were identified by the consultant. In the project area there are no ethnic, religious and linguistic minorities.

3. ELIGIBILITY OF PERSONS AFFECTED BY THE PROJECT AND RESETTLEMENT SITE

Any person directly or indirectly affected by the road project either through the loss of a dwelling, land, business, building or structure, or loss of access to income or resource used as means of subsistence, is eligible.

More precisely, these are anyone:

(i) With formal or legal rights to land (including customary and traditional rights recognised by applicable national laws);

(ii) With no formal or legal rights to land at the time registration started, but who holds claim to such land or property;

(iii) With no right or recognized legal claim to the lands they occupy;

(iv) Owners or occupants not identified at the time of registration of persons affected by the project. In such cases, investigations will be conducted jointly with local authorities to identify and contact such persons after registration.

It is important to note that displacement will entail moving back a few meters from the road right-of-way. For persons who lose all their land or home, new sites will be given in the same village by the village chief, to those of them who so desire.

4. PUBLIC CONSULTATIONS / COMMUNITY PARTICIPATION

Public participation started with the preparation of the Environmental and Social Impact Assessment (ESIA). Public consultations were conducted through consultative meetings with the local communities in the villages along the road segment. Hence, 19 meetings were organised for the 39 villages concerned (with certain villages grouped together) and were attended by 740 persons, including traditional authorities, the elite, opinion leaders and women. The discussions focused on a
presentation of the project, community opinions and expectations, its impact and a discussion on the most appropriate measures for mitigating such impact.

5. METHODS FOR EVALUATING COMPENSATION

**Land:** In the absence of purchase price data, the square meter price of land taken into account is CFAF 15,000 in urban areas and CFAF 7,000 in rural areas. This rate, now adopted by MINTP, comes from a recent expropriation study conducted by *Groupement ECTA BTP/AIC PROGETTI* under a road project in Cameroon financed by the World Bank. Titled and untitled lands will earn the same compensation. Financial provision will be made to assist landowners with no title to get one.

**Crops:** The evaluation for crops is based on the rates indicated in Decree No. 2003/418/PM of 25 February 2003 which sets the rates for compensation payable to owners of crops and cultivated trees destroyed for public purposes. This decree defines several categories of crops and cultivated trees, and sets a price for each type of crop. The productive status considered reflects the vegetative state trees are reflected in the scale.

**Buildings:** The square-meter cost of each building is calculated based on the various elements used for its construction, with a value rate of 7.5% per year for buildings in durable material and plank. Close to 80% of the houses are built of provisional material and earth. Order No. 0832/Y.15.1/MINUH/D000 of 20 November 1987 establishes the bases for calculating the value of construction. These values are updated on an annual basis.

**Tombs and Accessories:** Tombs, water points and accessories: There is no official scale for calculating the compensation payable in case of moving the graves. A flat rate that reflects the value of the tomb was considered. In addition, travel expenses, family reunion and ceremony will also be considered. As for the water points (wells, boreholes, standpipe and PVC pipes), a fixed cost was selected. Table 2 below shows the amounts proposed. Table 2 below presents the amounts proposed:

<table>
<thead>
<tr>
<th>Article</th>
<th>Estimate (CFAF/unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tombs</td>
<td></td>
</tr>
<tr>
<td>Exhumation and inhumation</td>
<td>90 000</td>
</tr>
<tr>
<td>Family meeting expenses</td>
<td>45 000</td>
</tr>
<tr>
<td>Reconstruction of cemented tombs</td>
<td>55 000</td>
</tr>
<tr>
<td>Reconstruction of tiled tombs</td>
<td>85 000</td>
</tr>
<tr>
<td>Reconstruction of earth tombs</td>
<td>25 000</td>
</tr>
<tr>
<td>Water points</td>
<td></td>
</tr>
<tr>
<td>Developed wells</td>
<td>300 000</td>
</tr>
<tr>
<td>Ordinary (traditional) wells</td>
<td>180 000</td>
</tr>
<tr>
<td>Bore hole</td>
<td>3 750 000</td>
</tr>
<tr>
<td>Wells equipped with manual pumps</td>
<td>1 300 000</td>
</tr>
<tr>
<td>Public tap + 600 m of PVC</td>
<td>1 800 000</td>
</tr>
<tr>
<td>Public tap + 080 m of PVC</td>
<td>760 000</td>
</tr>
</tbody>
</table>

These costs come from field readings collected in 2011 by Louise Berger SAS Cameroun and validated by the consultant. These will be updated when Divisional Commissions for Registration and Evaluation of Property are set up and chaired by the Prefect territorial jurisdiction (Meme and Manyu
for this project). For community water points (wells, boreholes, PVC pipe, etc.) a provision is made for their relocation / construction services in collaboration with the competent administrations.

6. INSTITUTIONAL RESPONSIBILITIES, MONITORING AND EVALUATION

Organisational Responsibilities: The MINTP will guarantee implementation of the CRP in coordination with local communities and the administrative services concerned (especially the CDCE).

Monitoring: The CRP will be monitored through a participatory approach by all stakeholders. At project level, this shall be done by the environmentalist in the control mission. A local monitoring/evaluation committee will be set up within the communities and the administration. It will comprise representatives of PAPs, NGOs, various services and traditional authorities. Furthermore, a local support body (LSB) will be recruited to provide operational support and prepare monitoring reports for the MINTP monitoring unit. The service costs of the LSB were set at CFAF 3 million and that of the Committee at CFAF 1 million.

Evaluation: A performance audit of CRP implementation will be commissioned by MINTP at the end of the process. The audit is estimated to cost CFAF 7 million.

7. GRIEVANCE REDRESS PROCEDURE

Any complainant may bring grievances before the CDCE which should register them and respond within a time-limit of 10 days. The CDCE shall conduct an investigation and determine whether or not there should be redress.

If the complainant is not satisfied, the grievance shall be reviewed by the Arbitration Commission, an organ composed of traditional authorities and notables appointed by the communities to ensure amicable settlement of conflicts resulting from resettlement. Arbitration may give lead to either reparations or provision of additional information to the complainant to enable him/her to have a better understanding of the calculation methods used and the eligibility criteria adopted. If the complainant is still not satisfied at the end of this process, (s) he shall be free to resort to the judicial bodies recognised by law.

One of the responsibilities of the LSB will be to raise community awareness of these grievance redress mechanisms for CRP implementation and monitoring.

8. COST ESTIMATE

Table 3 below provides the total budget for implementing the resettlement plan. Based on the information available to the consultant at this stage of the study, the total budget of the compensation and resettlement plan is CFAF 1 358 493 437.
Table 3: Cost Estimates

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Total Cost (CFAF)</th>
<th>Segment 1</th>
<th>Segment 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plots or bare land</td>
<td>45 170 000</td>
<td>18 270 000</td>
<td>26 900 000</td>
</tr>
<tr>
<td>Crops and cultivated trees</td>
<td>53 859 775</td>
<td>22 559 725</td>
<td>31 300 050</td>
</tr>
<tr>
<td>Buildings and accessories</td>
<td>1 107 909 259</td>
<td>830 797 548</td>
<td>277 111 711</td>
</tr>
<tr>
<td>Tombs</td>
<td>8 755 000</td>
<td>350 000</td>
<td>8 405 000</td>
</tr>
<tr>
<td>Wells and public taps</td>
<td>8 300 000</td>
<td>8 300 000</td>
<td>0</td>
</tr>
<tr>
<td><strong>Sub-total for goods to be compensated</strong></td>
<td><strong>1 223 994 034</strong></td>
<td><strong>880 277 273</strong></td>
<td><strong>343 716 761</strong></td>
</tr>
<tr>
<td>Monitoring/evaluation costs</td>
<td>11 000 000</td>
<td>5 500 000</td>
<td>5 500 000</td>
</tr>
<tr>
<td>Assistance costs</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1 234 994 034</td>
<td>885 777 273</td>
<td>349 216 761</td>
</tr>
<tr>
<td>Contingencies (10%)</td>
<td>123 499 403</td>
<td>88 577 727</td>
<td>34 921 676</td>
</tr>
<tr>
<td><strong>OVERALL COST</strong></td>
<td>1 358 493 437</td>
<td>974 355 000</td>
<td>384 138 437</td>
</tr>
</tbody>
</table>

9. IMPLEMENTATION SCHEDULE

The implementation schedule for all resettlement, from preparation to execution, including deadlines for achieving the benefits earmarked for displaced persons and any host communities, is proposed in Table 4 below:

Table 4
Implementation Schedule

<table>
<thead>
<tr>
<th>Scheduled Activities</th>
<th>Duration</th>
<th>Period</th>
<th>Implementing Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration of PAPs and presentation of alternatives (cf. paragraph)</td>
<td>1 month</td>
<td>From the first month</td>
<td>MINTP</td>
</tr>
<tr>
<td>Validation of types of compensation, preparation of compensation documents, complaint procedure</td>
<td>1 month</td>
<td>From the first month</td>
<td>MINTP</td>
</tr>
<tr>
<td>Mobilisation of resources for the compensation process</td>
<td>3 months</td>
<td>From the first month</td>
<td>MINTP</td>
</tr>
<tr>
<td>Confirmation of the affected lands and property, and preparation of payments to each PAP</td>
<td>1 week</td>
<td>First month</td>
<td>MINTP</td>
</tr>
<tr>
<td>Payment of indemnifications and compensation to affected persons (buildings, land, crops, trees, structures, tombs)</td>
<td>6 months</td>
<td>First to sixth month</td>
<td>CDCE, Local communities</td>
</tr>
<tr>
<td>Claims process (if any)</td>
<td>Throughout project duration</td>
<td>From the first month</td>
<td>MINTP, Arbitration Commission</td>
</tr>
<tr>
<td>Monitoring/evaluation of PAR activities</td>
<td>3 years</td>
<td>From the first month</td>
<td>MINTP, OAL, External consultant</td>
</tr>
<tr>
<td>Reports</td>
<td>3 years</td>
<td>At the end of each activity</td>
<td>MINTP, CDCE</td>
</tr>
</tbody>
</table>
10. CONCLUSION

Compensation is paid for buildings, crops, tombs, wells and public taps within the project right-of-way. A summary inventory of the property and developments affected by the project has identified 10 plots or bare land, 192 buildings, 551 trees and young crops, 1554 trees and full-grown crops, 25 tombs, 7 public taps and 7 wells.