PROJECT : COYAH – FAMOREAH ROAD RECONSTRUCTION PROJECT
COUNTRY : REPUBLIC OF GUINEA

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) SUMMARY

<table>
<thead>
<tr>
<th>Project Team</th>
<th>Team Leader</th>
<th>Title</th>
<th>Office Code</th>
<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Abdoulaye Mahamane TANDINA, Transport Engineer</td>
<td>PICU.1/COML</td>
<td>7214</td>
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<tr>
<td>Team Members</td>
<td>Jean Pierre KALALA, Chief Socio Economist</td>
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<td></td>
<td>Lydie EHOUMAN, Principal Transport Economist</td>
<td>PICU.1</td>
<td>4215</td>
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<td></td>
<td>Abou FALL, Trade and Investment Officer</td>
<td>PTTD.2</td>
<td>4379</td>
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<td></td>
<td>Modeste Lawakilea KINANE, Principal Environmentalist</td>
<td>SNSC</td>
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<td>Pierre Chrysologue OUEDRAGO, Procurement Expert</td>
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<td>Oumar OUATTARA, Principal Financial Management Expert</td>
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<td>Sector Director</td>
<td>Mr. Amadou OUMAROU</td>
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<tr>
<td>Director General</td>
<td>Mr. Janvier KPOUROU LITSE</td>
<td>RDWG</td>
<td>4047</td>
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ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) SUMMARY

<table>
<thead>
<tr>
<th>Project Name: Coyah-Famoreah Road Reconstruction</th>
<th>Project Number: P-Z1-DB0-160</th>
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<tbody>
<tr>
<td>Country : Republic of Guinea</td>
<td>Category 1</td>
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<td>Department : PICU</td>
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### Introduction

This Paper is the Environmental and Social Impact Assessment (ESIA) Summary of the Coyah - Famoreah Road Reconstruction Project. The project is classified under Category 1 in compliance with the Integrated Safeguard System (ISS) of the African Development Bank (AfDB) and national requirements. This Summary was drafted in accordance with AfDB’s Environmental and Social Assessment Guidelines and Procedures for Category 1 projects.

The project description and justification are first presented, followed by the legal and institutional framework of Guinea. A brief description of the main conditions of the project area is then presented through its physical, biological and human components. The variants and alternatives are compared in terms of technical, economic and social feasibility. Next, the most significant positive and negative impacts on the biophysical and human (socio-economic) environments are presented. The proposed enhancement and mitigation measures are then presented to enhance the benefits and/or prevent, minimize, mitigate or offset the negative impacts of the project and finally, the follow-up program. The paper also presents public consultations held and additional initiatives related to the project. Lastly, the summary of climate change-related risks and adaptation as well as mitigation measures are proposed.

1. Project Description and Justification

1.1 Project Description and Objectives

The project involves the reconstruction of National Road No. 4 linking Coyah and Farmoréah situated in Maritime Guinea. The RN4 is an international road linking the Republic of Guinea and Sierra Leone. It is an integral part of the Trans-African coastal road intended to ultimately serve the capitals on the West African coast. It is an important component of the Conakry-Freetown road link and will help to operationalize the joint border control post at the Guinea/Sierra Leone border.

Strategically, the project aims to contribute to strengthening integration and trade in the West African sub-region. At the sector level, the project aims to open up Guinea internally and externally. The project will specifically help to improve the transport logistical service chain and traffic flow in the Conakry–Freetown Road Corridor and improve the living conditions of the people in the project’s direct impact area (PDIA).

The project will consist in reconstructing the road in compliance with the ECOWAS inter-state road development standards. This will involve: (i) rectifying 23% of the road alignment and raising the red line on 60% of its length; (ii) widening the platform to accommodate a 7-m wide roadway with two 1.5-m shoulders; (iii) applying a 20-cm lateritic gravel foundation course, a 15-cm sand-gravel mix subbase and a 5-cm bituminous concrete (BC) surface; and (iv) rebuilding several structures and bridges.
Figure 1: Map of the Project Area

The project will build development and related structures comprising socio-economic infrastructure and boreholes as well as support women’s groups. It will also contribute to transport facilitation. Table 1 below gives a description of the project components.

Table 1: Description of Project Components

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Road Reconstruction</td>
<td>(i) Widening of road and reconstruction of 75 km in BC, including rehabilitation of 3 bridges and 2 km of prefectural roads at Wonkifon; (ii) Works control and supervision; (iii) Sensitization on environmental protection, Ebola, HIV/AIDS/STIs and road safety; (iv) Communication; and (v) Clearance of rights of way.</td>
</tr>
<tr>
<td>Development and Related Measures</td>
<td>(i) Support to youth and women’s associations (multi-purpose platforms); (ii) rehabilitation of the youth house at Coyah; (iii) Control and supervision of related works.</td>
</tr>
<tr>
<td>Transport Facilitation</td>
<td>(i) Audit of two IT networks and design of TOR for interconnection of Customs IT systems of Guinea and Sierra Leone; (ii) Equipment and training to interconnect the PK36 customs post to the server in Conakry; (iii) Sensitization of road users and training of public border officials on Inter-State road transport facilitation measures and fighting over-loading.</td>
</tr>
<tr>
<td>Support to the Transport Sector</td>
<td>(i) Road studies and civil engineering works, study of the replacement of the 4 bridges of Tanène with a single bridge; (ii) Road safety support (ambulance); (iii) Axle load control Support; (iv) Support for the preparation of an ESIA sector guide for road projects.</td>
</tr>
<tr>
<td>Project Management</td>
<td>(i) Monitoring-evaluation of project socio-economic impacts and project facilitation; (ii) Technical assistance to DNI; (iii) Technical and road safety audit; (iv) Accounts and financial audit; (vi) Equipment of implementation unit; and (vii) Operation of implementation unit; (viii) ESMP implementation monitoring by Bureau Guinéen des Etudes, d’Evaluation Environnementale (Guinean Studies and Environmental Evaluation Bureau - BGEEE).</td>
</tr>
</tbody>
</table>

The project cost, including physical contingencies and price escalation, is estimated at UA 65.05 million, or EUR 82.56 million. The project will be financed by the Bank under its concessional window (ADF loan), the European Union (EU) through a grant from African Investment Facility (AfIF) resources and the Government of Guinea with regard mainly to compensations. The estimated project duration is 48 months.
To meet ECOWAS standards, the road will be built as per the following technical specifications:

### Table 2: Project Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Length</td>
<td>74.6 km</td>
</tr>
<tr>
<td>Right-of-way Width</td>
<td>40 to 50 m</td>
</tr>
<tr>
<td>Platform Width</td>
<td>10 m</td>
</tr>
<tr>
<td>Width of Paved Area</td>
<td>7 m</td>
</tr>
<tr>
<td>Speed Parameter</td>
<td>100 km/h</td>
</tr>
</tbody>
</table>

**Note:** Overall, the layout plan is maintained, particularly, where the road cuts across villages, in order to optimize the investments made on the road and soil stability. However, one-off alignment rectifications may be necessary to the right of narrow bends, sources of danger, or to facilitate the construction of new structures away from the existing alignment under the best implementation conditions. Furthermore, the analysis of the existing road alignment shows that many curves do not present the minimum required. These have therefore been rectified. Some plan rectifications are therefore necessary for approximately 17km corresponding to 23% of the road.

### 1.2 State of the Road

The road section considered for rehabilitation is in an advanced state of degradation, and towns and villages in the project area suffer as a result. This situation affects the local population in terms of mobility, socio-economic development and public health.

### 1.3 Main Inputs Required

**Water:** Water is also a product that will be heavily consumed under this project. Significant volumes of water will be necessary especially for concrete-making, optimum compacting of various layers of materials making up the road structure and cleaning operations at the main work sites. Water supply sites for works have been identified and do not pose any problem in the project area.

**Fuel:** Operating construction machines and vehicles will depend mainly on the fuel and lubricant supplies (oil and grease).

**Laterite Borrow Sites:** Borrow sites have been identified for laterite material that can be used during construction works. To implement the project, it will be imperative to excavate large surfaces of borrow zones.
Table 3: Laterite Borrow Site

<table>
<thead>
<tr>
<th>Borrow</th>
<th>P.K.</th>
<th>Location</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EG 1</td>
<td>Boundary « W »</td>
<td>Right</td>
<td>10,080</td>
</tr>
<tr>
<td>EG 2</td>
<td>CF 52</td>
<td>Right</td>
<td>10,240</td>
</tr>
<tr>
<td>EG 3</td>
<td>CF 109</td>
<td>Right</td>
<td>11,840</td>
</tr>
<tr>
<td>EG 4</td>
<td>PK 61</td>
<td>Left</td>
<td>9,920</td>
</tr>
</tbody>
</table>

**Rock Quarry:**

Quarry of “Société Guinéenne de Granite”: This quarry is in the process of being opened and is situated in Mangata at P.K. 10.4 to the left of the link and a short distance from the route. Its gentle relief offers a working area of several hectares. It contains calc-alkaline biotite granite belonging to the Maneah granite;

- **Senguelen (or Madiné) quarry:** This unexploited quarry is 85 kilometers from Conakry, to the South of the Coyah-Forécariah road, and it is accessed by taking a road (called Kabak road) on the right at Maférénia village situated at PK 23,200, then turning right at Senguelen after 18 kilometers and driving on for three more kilometers – a total distance of 21 km from Maférénia;

- **Fandié Area:** The area contains calc-alkaline biotite granite and muscovite. From Yoreya to Fandié; outcrops are visible between PK 27,000 and 28,750 on the left by an air housing project and the Fandié Bridge; these outcrops are limited and in-situ recognition will be required before retaining this site.

**Labor:** Worksite needs in terms of the number of workers to be mobilized are yet to be determined. Judging from similar works, this project will create at most 3,000 M/M for direct and indirect jobs.

2 Political, Legal and Administrative Framework

2.1 Human Resource and Environmental Management Policies and Programs

Guinea has prepared many national and sector-based strategies and programs on the environment and natural resource management. These include: (i) the National Action Plan for the Environment (PNAE), which forms the basis of the country’s environmental policy. They comprise three framework programs whose main thrusts are as follows: natural resource management, society and the environment, pollution and nuisance; (ii) the National Plan of Action for Adaptation to Climate Change in Guinea (PANA); (iii) the National Forestry Action Plan (PAFN-Guinea); (iv) the National Plan of Action to Fight Desertification (PAN/LCD); (v) the National Strategy and Action Plan for the Conservation and Sustainable use of Biological Diversity; and (vi) the Mangrove Development Master Plan (SDAM), aimed at combatting the process of degradation of mangrove ecosystems.

2.2 Project-Related Environmental Laws

The main laws and regulations on the environment and natural resources management relevant to the project are: (i) Ordinance No. 045/PRG/87 of 28 May 1987 establishing the Environment Code; (ii) Law No. L/96/012 of 22 July 1996 amending and supplementing Ordinance No. 022/PRG/89 of 10 March 1989 on the penalties of the Environment Code; (iii) Law No. 017/98 establishing the Urbanization and Construction Code; (iv) Ordinance No. 019/PRG/SGG/92 of 30 March 1992 establishing the Code on
Private and State-owned Land; (v) Law No. L/2006/AN of 15 May 2006 establishing the Local Authorities Code; (vi) Law No. L/96/010/AN of 22 July 1996 establishing the Regulation of Pollution Taxes Applicable to Classified Establishments; (vii) Law No. L/97/020/AN 97 to instituting the Public Health Code; (viii) Law No. L/96/009 of 22 July 1996 on the Management of Natural and Man-made Disasters; (ix) Law No. L/95/036/CTRN of 30 June 1995 instituting the Mining Code; (x) Law No. L/94/005/CTRN of 14 February 1994 establishing the Water Code; (xi) Decree No. 199/PRG/SGG/89 of 8 November 1989 codifying impact studies; (xii) Decree No. D/97/287/PRG/SGG of 24 December 1997 regulating the management and control of harmful and dangerous chemicals; (xiii) Decree No. 200/PRG/SGG/89 of 8 November 1989 establishing the legal system on classified installation for environmental protection; (xiv) Decree No. 201/ PRG / SGG 89 of 8 November 1989 establishing the preservation of marine environment against all forms of pollution; (xv) Order No. 8993/SGG/ of 11 October 1993 outlining the technical nomenclature of classified installations; (xvi) Order No. 990/MRNE/SGG/90 of 31 April 1990 on the contents, methodology and procedure for environmental impact assessment; (xvii) Order No. A/2013/474/MEEF/CAB of 11 March 2013 on the general environmental evaluation guide, specifying the contents, methodology and procedure for environmental impact assessments, determining the content, methodology and procedures to observe during an environmental impact assessment. This order also makes it obligatory to include in the impact assessment, the socio-economic environment analysis; the project’s socio-economic outcomes must be identified and analyzed; (xviii) Law No. L/2014/072/CNT of 10 January 2014 on the Labor Code.

2.3 Institutional Framework

The implementation of the project will require the participation of various institutions including:

- **Ministry of Public Works**: Ensures the project’s technical supervision through the National Directorate of Infrastructure (DNI);

- **Ministry of the Environment, Water and Forestry**: It is responsible for designing, formulating and coordinating the implementing Government policy on environmental protection, the rational management of natural resources and the improvement of the quality and standard of life. As far as the project is concerned, this Ministry will rely on several National Directorates (Environment, Sanitation and Living Standard, Water and Forestry); and in the area of environmental and social assessments, on the Guinean Bureau for Environmental Studies and Assessments (BGEEE).

- **Local Authorities**: The Prefecture, and in particular the two services concerned – the Prefectural Directorate of Agriculture and the Prefectural Directorate in charge of Town Planning and Housing – have a preponderant role to play in the ARP implementation process. Besides, some Prefectures officially have a Prefectural environmental and social monitoring committee. Such a committee must be established in each prefecture crossed by the project, thereby enlisting the participation of communal authorities with a view to supporting the ongoing relocation work as well as the urban planning of the commune. It should be noted that these committees are already in place in Coyah and Forécariah prefectures.

2.4 Bank (AfDB) Safeguard Policies applicable under the Project

The Integrated Safeguard System (ISS) through its five operational safeguards (OS):

**Operational Safeguard 1** – Environmental and Social Assessment: This operational safeguard is triggered by the fact that this being an investment project, it is subject de facto to an environmental and social assessment;
Operational Safeguard 2 – Involuntary Resettlement: This operational safeguard is triggered by the fact that the project will lead to expropriations;

Operational Safeguard 3 – Biodiversity, renewable resources and ecosystem services: This operational safeguard is not triggered because the road will not affect zones with a high biodiversity and ecosystem services potential;

- **Operational Safeguard 4** – Prevention and control of pollution, dangerous materials and efficient use of resources: This operational safeguard is triggered due to the existing risk of diverse pollutions and nuisances during works.

- **Operational Safeguard 5** – Working conditions, health and safety: This operational safeguard is triggered due to health and safety risks faced by employees while working on the site.

Other relevant policies and guidelines are applicable once triggered under ISS. These are mainly:

- The Bank’s Gender Policy (2001);
- The Framework for Enhanced Engagement with Civil Society Organizations (2012);
- The Disclosure and Access to Information Policy (2012);
- The Manual of Stakeholder Consultation and Participation in Bank Operations (2001);
- The Bank Policy on Population and its Implementation Strategy (2002);

2.5. Other International Instruments

In addition to national legislation, Guinea has adhered to several international conventions. The most significant ones likely to be linked with this project are: (i) the Convention on Bio Diversity (Date of adoption: 13 June 1992 in Rio de Janeiro); (ii) the Convention concerning the Protection of the World Cultural and Natural Heritage (Date of adoption: 16 November 1972 in Paris); (iii) the United Nations Framework Convention on Climate Change (Date of adoption: 9 May 1992 in New York); (iv) the African Convention on the Conservation of Nature and Natural Resources (Date of adoption: 15 September 1968 in Algiers); (v) the Vienna Convention on the Protection of the Ozone Layer (Date of adoption: 22 March 1985 in Vienna); (vi) Ramsar Convention on Wetlands of International Importance as Wildlife Habitat (Date of adoption: 1982 in Ramsar).

3 Description of the Project Environment

3.1 Definition of Zones

**Direct Impact Zone**: The platform link width is 10 m to accommodate a 7-m wide roadway bordered by two 1.5-m shoulders. For ESIA needs, the direct impact zone is globally contained in a 30-40 m wide corridor whose axis is the road alignment. The borrow sites (sand, laterite), quarries, related developments, installation sites should be exploited as well as the access roads to these zones and sites.
**Indirect and Cumulative Impact Zone**: This has to do with the surroundings of the 16 villages which the road traverses in a zone. It shall also concern neighbouring zones with induced infrastructure.

3.2 **Geographic and Administrative Situation and Project Location**

National Road No. 4 stretches along the Atlantic coast in lower Guinea between Coyah and Farmoréah over a distance of 74.6 km (based on the new alignment). The entire project cuts across two prefectures (Coyah and Forécariah) which belong to the Kindia administrative region.

3.3 **Land Occupation and Use in the restricted right-of-way Zone (road alignment)**

Visiting the road alignment helped to determine the sensitivity of the works zone and identify all socio-economic constraints that could be an impediment during road works (physical obstacles, socio-economics elements or heritage). Thanks to a definition of the different challenges (landscape, patrimonial, socio-economic and ecological) associated with the project site, the sensitivity of the host environment was assessed. Overall, the right of way was observed to be sufficient and can contain the road. Nevertheless, at certain places, it is occupied by petty traders, fruit trees, farms, utility companies’ networks (water and electricity).

3.4 **Main Biophysical Parameters of the Extended Study Area**

- **Climate**: The climate is of the Sub-Guinean tropical humid type influenced by the sea. It is characterized by two seasons of equal duration: the dry season which extends from November to April and the rainy season from May to October marked by the Monsoon. It receives 2,000 to 4,000 mm of rainfall each year from one prefecture to another. The mean annual temperature is 26.7°C.

- **Air Quality and Noise**: Based on data from recent documents on the project area, dust particles measuring less than 2.5 µm and 1 µm do not exceed international standards currently in force. In contrast, particles lower than 10 µm were found to exceed international standards at Maferenya Centre. For noise, the value obtained at Maferenya Centre is relatively high during the day (72 db).

- **Relief**: The entire alignment of the Coyah-Farmoreah road crosses a wide peneplain between a marshy coastal area, and those of mangroves, and the sandy ordovician plateaus forming the Southern extremity of the Fouta Djalon mountain; this peneplain with a slightly undulating relief does not exceed 100 meters in altitude.

- **Geology and Pedology**: The substratum is made of lower Precambrian rocks (granite). Eruptive (dolerites) or sedimentary (sandstone) formations are not found along the alignment. Precisely, the road successively cuts across three formations: (i) eruptive rocks (biotite gneiss with diffuse feldspathic content which caused the rock to lose its regular gneissic structure); (ii) Baoule-type biotite granites and muscovite2; (iii) biotite and sometimes well-bedded amphibole gneiss steeply dipping to the West. The mountain chain situated to the North and East of the road is mainly composed of silicious sandstone and micaschists, unsuitable for road construction; only a few levels of dolerites are reported towards Firiguiadi and Samaya.

- **Hydrography**: The hydrography is particularly dense in the project area where many water courses are found along the road alignment. The major ones include: the Killy, Koulété, Farmoréya and Forécariah Rivers. This observation is directly linked to the
regional rainfall pattern. The watercourses are generally perennial even though the water level drops between November and April. One observes a sharp fall in the duration of the wet season (characterized by monthly rainfall higher than one-third of evapotranspiration from South to North. The direct consequence on the regional hydrology is marked from the South to North of the country by the temporary drying up of small tributaries and the very marked difference between the high and low water levels of big rivers (up to a difference of 8 to 10 meters).

- **Flora:** The project area has rich and diversified vegetation. It forms part of the Guinean sub-tropical zone.

**Table 4:** Description of different Plant Formations of the Project Area

<table>
<thead>
<tr>
<th>Plant Formations</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallery Forests</td>
<td>Vegetation develops on a narrow strip along Kolentè River. This is the favourite environment for animals.</td>
</tr>
<tr>
<td>Fallow Land</td>
<td>Regenerated vegetation of farms left fallow. Found mainly on plateaus</td>
</tr>
<tr>
<td>Wooded Savannah</td>
<td>Generally found between gallery forests, fallow land and marshy areas. It is dominated by species hardly exceeding 7 m</td>
</tr>
<tr>
<td>Forest Islands</td>
<td>They are found in shallows and in source-heads surrounded by grass.</td>
</tr>
</tbody>
</table>

The main species encountered in the project area are: (i) *Parkia biglobosa* (Néré); *Chlophara excela* (Iroko); (iii) *Alzelia Africana* (Lengué); (iv) *Ceiba* (cheesemaker); (v) *Boumbax costatum* (silk cotton tree); *Adansonia digitata* (baobab); *Tectona grandis* (Teck); *Gmelina arboréa* (Gmelina); *Eucalyptus SP* (Eucalyptus).

- **Wildlife:** The project area fauna is very varied and comprises the following species: mammals; reptiles; birds; amphibians and insects. Key species normally found in the project area include: aulacoceritadace (Trymonys Swinderians), duikers (Cephalophus), warthogs (Phacochoerus aetrthigicus) rabbits (Lepus camistrji) Helogale paoula (Mongoose) Varanus oculus (monitor lizard) Tistioda gigantes (Tortoise) Néophron monachus (Vulture), Gallimila chozopis (moorhen) Détophilonis (Jacana) and Tpoccceus cuculetus (weaver bird).

The project zone has no protected areas, and no species on IUCN’s red list is directly concerned by the works. It is worth noting that the immediate vicinity of the road has almost entirely been transformed by man.

### 3.5 Main Socio-economic Parameters of the Study Zone

- **Administrative and Demographic Location:** The Coyah-Farmoréah road section is located in the Kindia administrative region in Coyah and Forecariah Prefectures, which make up the PDIZ. However, this section of the road forms part of the Trans-African No. 7 Dakar-Lagos Road Corridor. Therefore, its Extended Impact Zone (PEIZ) covers the Conakry and Kindia Regions in Guinea and the Northern Provinces (mainly Kambia and Port Loko Districts) and West Provinces (including the two Districts of the Western Rural and Western Urban Areas, where Freetown is located) in Sierra Leone. The DPIZ covers an area of 6,366 km², or 2% of the area of Guinea. In 2014, its population was estimated at 506,803, equivalent to nearly 5% of the country’s population. The PEIZ covers an area of 39,305 km², or 11% of the total area of the two countries and has an estimated population of 5,230,397 inhabitants, the equivalent of nearly 30% of the
population of the two countries. Women make up 51.93% of the population in the PDIZ.

- **Agriculture**: Agriculture is the main activity of the population of the PDIZ which has a dense hydrography, vast plains and lowlands suitable for agriculture. Agriculture is practiced in marshlands, on hills and in valleys. The main crops grown are rice (cultivated in mangroves, marshlands and foothills), cassava, maize and many other vegetables and tubers. Banana, oil palm, pineapple, mango, cashew nuts and citrus fruits are export crops.

- **Fishing**: Fishing is the second activity practiced in the study area. Available quantities of fish come mainly from traditional maritime and inland fishing. Fish and crustaceans are significant sources of protein for the local population. Fish products are sold on the market fresh or smoked.

- **Livestock**: Cattle and small ruminant farming is undeveloped in the project area. However, pig farming is mainly practiced in the area where the numbers are significant compared to other types of livestock farming.

- Women suffer many forms of discrimination. Most girls still undergo excision. 85% of women are illiterate (against 63% for men). They account for 41% of reported HIV/AIDS cases. Although they participate in public life, they remain marginally active in decision-making circles and are mainly confined to the informal economic sector. Furthermore, nearly a fifth of women (21%) are not engaged in any income-generating activity, and this is most evident in urban areas where the proportion is 37% compared to 17% in rural areas.

- **Health**: Urban districts have only one hospital (Prefectural). Sub-prefectures have health centers. Access to healthcare is characterized by poor patient care, inadequate health infrastructure and health care personnel. Vaccination coverage is estimated at 95%.

- **Education**: Although it has facilities, Coyah Urban District is among the communities where school enrolment is of major and critical concern. In spite of population growth, the school enrolment rate continues to be low (less than 60% according to DPE statistics). This problem equally affects the Farmoreah Prefecture.

### 4 Alternative Solutions for the Project

The study carried out a comparative analysis of the variant “with” or “without” project scenarios.

#### 4.1 Comparative Analysis of the “Without” and “With” Project Scenarios

If the road is not rehabilitated, the existing carriageway will continue to deteriorate, road accidents will not decrease, and the rate of socio-economic development of areas that the road serves will remain low. Meanwhile, the biophysical environment will not be disrupted as a result of the road works and there will be no expropriation.

The rehabilitated road has more advantages than disadvantages in terms of road traffic, the safety of persons and goods and the socio-economic development of areas served by the road. It is therefore, more advantageous to rehabilitate RN4 between Coyah and Farmoreah. Consequently, its rehabilitation has been retained for the well-being of the local population and users.
4.2 Project Variants

In most cases, the alignment will follow the existing road, to the extent possible. Nevertheless, one-off alignment rectifications will be necessary at narrow bends, sources of danger. In fact, the analysis of the existing road alignment shows that many bends lack the minimum required guarantee. As a result, new engineering structures will be constructed away from the existing alignment. Three main variant areas were identified:

- Alignment rectification at the level of 2 bridges on River Killy and River Koulété does not meet standards R80 (PK28+700 et PK35+400);
- Rectification of a very close bend at PK 38.

Most of the other rectification areas were widened at the lift strip (between 40 and 100m). Such rectifications are necessary on about 17 km, or 23% of the existing road alignment.

5 Main Potential Impacts

5.1 Summary of Positive Impacts

The road rehabilitation will facilitate a smoother traffic flow and cheaper travels. The following are the main advantages:

(i) **Opening up the Area:** The rehabilitated road will offer users better travelling conditions and eliminate accident-prone points, (ii) the existence of a road that meets international standards will provide a rapid and safe link between Conakry and Freetown;

(ii) **Development of Socio-Economic Activities along the Road:** Project works will very strongly revive the overall local, regional, national and international economy, not only in the impact area but also in the entire sub-region with better returns for the Pamalap control post;

(iii) **Contribution to Job Creation and Reduction in Unemployment:** Construction works will produce obvious spin-offs on the national and local economy with abundant use of labor provided by the SMEs (mainly local) at the sites, whose incomes will spur economic activities within the target communities. This project will have a significant impact on direct and indirect job creation. The projected monitoring-evaluation arrangement will make it possible to accurately measure its magnitude. However, based on experience from other projects, it is expected that at least 75,000 m/days of direct jobs will be created (including 35% for youths aged below 35 years and 15% for women) (see complementary initiatives).

(iv) **Improvement of Access to Socio-Economic Infrastructure:** With the road being in good state and regularly maintained will facilitate and secure the population’s access to socio-economic services, particularly health centers and posts, schools, markets, administration;

(v) **Improvement of Drainage along the Road:** The construction of a drainage network along the road will help to strengthen local hygiene and avoid flooding, source of water-borne diseases, the deterioration of living conditions among local residents and loss of goods, etc. Furthermore, the reconstruction of engineering
structures with adequate hydraulic sections and cleaning of existing ones will help to reduce the risk of flooding in the project area, making it accessible at all times.

(vi) **Gender and Specific Pro-Women Activities:** Based on needs expressed during plenary meetings held with PIA communities, specific provisions will be made for pro-women and pro-youth actions. These actions will be structured around the establishment of multi-purpose platforms for women (PTMF). There are plans to enable: (i) it is planned that 10,000 rural households in Coyah and Forécariah prefectures will have access to energy services provided by 20 PTMFs; and (ii) 30 grassroots women’s organizations (associations, groups and cooperatives) will be given the necessary managerial capacity and skills to lead and manage multi-purpose platforms.

The main cumulative positive impacts during the construction phase will concern the creation of jobs and subsequently the higher incomes of the populations concerned.

5.2 **Main Negative Impacts**

5.2.1 **Sources of Impact**

The sources of potential impacts correspond to all planned project activities likely to cause a change to the environment during the rehabilitation and operation phases.

**Rehabilitation Phase.** The sources of impact are: (i) installation of workers’ camps as well as parking areas of machines and equipment; (ii) clearing and cleaning of the right of way; (iii) earthworks and road construction; (iv) preparation and sprinkling of bitumen; (v) construction of crossing and drainage structures; (vi) opening and operation of borrow sites and quarries; (vii) transportation and storage of materials; (viii) pumping of water; (ix) presence of manpower.

**Operations Phase.** The sources of impacts are: (i) presence of the road and crossing structures; (ii) periodic maintenance works.

5.2.1 **Worksite Preparation, Road Construction and Crossing Works Phase**

5.2.1.1 **Biophysical Environment**

- **Impact on Air Quality:** Excavation, earthworks, road construction works and vehicles plying the road under construction will generate dust and gas emissions especially carbon dioxide and unburned hydrocarbons such as carbon monoxide. The coating plant is also a source of various risks including the discharge of toxic gases (sulfur dioxide, nitrogen oxides, carbon monoxide) during its operation (for further details, see section on environmental risks).

- **Risk of Physical and Chemical Pollution of Water and Soil:** The main causes of this risk are: uncontrolled oil-change on equipment at construction sites outside waterproof zones; refueling equipment under conditions difficult to avoid or contain leaks, and accidental fuel spillage. The storage of certain worksite materials such as cement and fuel in inappropriate spaces can contaminate the soil and remain on the surface or underground by infiltration into the water table. Besides, unchecked water drainage and erosion could impact on water turbidity levels and sedimentation in particular in Killy Killy, Koulètè, Farmoréya and Forécariah. Lastly, if the bitumen wastes produced are not well managed or recycled, they can contribute to water and soil pollution. Such risks grow with the
scale of the project. During bridge construction, rivers are subjected to high pollution due to foundation drilling works and accidental spillage of chemical products such as used oil and slurry during concrete-making and piling works.

- **Impacts on Soil Structure (compacting, erosion, loss of soil fertility) and re-planning of the borrow area profile:** During excavation and borrow site operations, the bare soil will be exposed to erosion. Given that the road cuts across two regions with high rainfall, the probability of seeing large gullies on deposited materials and in borrow areas will be very high.

- **Impact on Water Quantity:** There is water in the project area. During construction works, water needs will be quite significant (work-site, water for sprinkling/compacting, etc.) and a rational management of this resource must be put in place to preserve water and most importantly minimize conflicts with the people.

- **Impacts on Vegetation:** Overall, the layout plan will be maintained, especially at points where it crosses villages, in order to optimize the current road investment and soil stability. However, one-off alignment rectifications may be necessary to the right at narrow bends, sources of danger, or to facilitate the construction of new structures away from the existing alignment under the best implementation conditions (on about 17km, or 23% of the alignment). These works will impact on flora, particularly in terms of destruction of vegetation during potential brushing of the road alignment and establishing basic work site and living installations. The woodlands will be cleared in the vicinity of major engineering structures to be constructed, especially for Killy, Koulété and Forécariah Rivers. This impact will be mainly linked to the rigging of works, some of which will deviate slightly from the current alignment.

**Human Environment**

- **Expropriation:** Properties affected by the project are buildings which in some cases will be completely destroyed and partially in others. A census of affected persons was conducted in September 2016 and updated in February 2017. The census indicated that: (i) 15 houses in all should be demolished, 3 partially and 12 totally; (ii) the fence of a Mosque will be partially destroyed; (iii) 15 agricultural and sylvicultural lands will be affected; (iv) a source head will likely be affected if the alignment is not corrected. Considering the household members concerned by the demolition of residential abodes, the total number of PAPs is 135 people,

- **Impact on the Population’s Mobility and Noise Pollution:** The fact that the worksite will cut across 16 localities will temporarily affect the life style of roadside communities whose houses and trades are sometimes near the works zone. Works will therefore disturb mobility and access to homes. Noise pollution also characterizes works of this nature.

- **Risk for Human Health and Safety:** The main health risk is related to the exposure of workers and locals to STI/HIV/AIDS, water-borne and respiratory diseases and, of course, Ebola. This situation is exacerbated by the precarious nature of health structures in the area. The entire worksite will be a source of accidents for worksite personnel and the population due to movement of machines and vehicles, handling of dangerous objects and products and falling objects.
Also, the construction of three bridges on Rivers Killy-Killy, Koulété, Farmoréya and Forécariah exposes workers to the risk of drowning.

- **Risk of Conflict:** The temporary presence of company workers in the area might give rise to a cultural mix that could be the origin of conflicts. These conflicts could stem from several factors: (i) non-respect of the prevailing customs and practices in their new environment; (ii) absence of communication and sensitization campaign; (iii) non-respect of compensation procedures for properties destroyed and failure to consult the local population beforehand on expropriation procedures, the establishment of deviations, borrow areas etc. Furthermore, all damages caused during works and not captured in the ARP will be covered by the contractor through the plan for management of damages during works.

### 5.1.2 Operational Phase

- **Impacts on Water Resources and Soil:** The wear of the road surface by friction caused by a continuous flow of traffic and tear of the wearing course through rubbing provoked by continuous traffic flow produces a large amount of very fine dust. For pavements 7m wide, the pollution load is estimated at 0.66 kg/m². The risks of erosion (destruction of the environment through gully erosion, clogging, possible vegetation clearance) are also to be considered as a strong constraint to the road’s sustainability. The practices of the local populations also tend to clog up roadside gutters either through ploughing activities or the creation of make-shift accesses (blocking of gutters), dumping of household and plant wastes, etc. The obstruction of gutters causes water runoffs on the roadway leading to its accelerated degradation. This situation is exacerbated by heavy rains in the project area.

- **Risk of Accidents and Noise Pollution:** Noise and atmospheric pollution will be exacerbated by the combined action of a growing number of vehicles plying the road at very high speeds very close to roadside communities, and particularly residential areas, schools and markets.

### 5.4 Cumulative Impacts

#### 5.4.1 Negative Impacts

Various ongoing or planned development projects in the region (including the Binti port, industrial zone and the future Coyah airport etc…) will, during their construction and operational phase, induce the displacement of people in search of jobs or other economic activities and an increase in the transportation of primary products, resulting in higher road traffic. This situation is a potential source of accidents during road construction works. Furthermore, these projects will induce higher anthropic pressure on the natural resources.

#### 5.4.2 Positive Impacts

The Coyah- Farmoréah road project zone has a high agricultural potential, which is the main activity of the population of the PDIA, with a dense drainage pattern, vast plains and lowlands suitable for this type of activity. The Government plans to build modern markets at Forécariah and the South zone of the low lands (Forécariah, Coyah, Kindia). The road reconstruction project and construction of modern markets will help to structure value chains, and bring production and
processing zones closer to markets along the Coyah-Forécariah road. In the long run, the project will, alongside other planned interventions, help to improve marketing and processing and contribute to the enhancement of the agricultural sector. The project will not only boost the competitiveness of these industrial zones where many units are installed but also provide a chance to create other industrial units due to its complementarity with a second lever of the ongoing industrial zones development drive, namely the project to extend the Kaleta electric line from Coyah to Forekariah justified by the construction and installation of facilities (Binti port, industrial zone and the future Coyah airport, etc.).

6 Mitigation/Optimization Measures and Complementary Initiatives

6.1 Normative and Administrative Measures

This involves ensuring that the project complies with applicable regulations, administrative and contractual requirements etc., particularly:

- **Compliance with Environmental and Social Regulations:** The project will ensure compliance with national and Bank environmental and social regulations both under the preparation and operational phases. In that regard, the ESIA report was approved by BGEEE and a compliance certificate issued. The control mission will also verify the required documentation before works start and opening of borrow sites, quarried and workers’ camps are opened and operated, etc.

- **Compliance with Land Regulations:** Since the project requires displacements, resettlement plans designed must comply with the Guinean land laws in force and AfDB requirements. These elements are contained in the Abbreviated Resettlement Plan (ARP) prepared in a separate document and to be implemented before works start on the section concerned. Compensation must be paid to each concerned party before works begin.

- **Choice and Commitment of Contractors:** Environmental, Hygiene, Health and Safety (EHHS) clauses shall be integrated in the bidding documents (BD). The BD requires that each bidder provide an EHHS methodology describing how he intends to meet the requirements and objectives specified in the EHHS clauses.

- **Prior Payment of Fair and Equitable Compensation** of project affected persons for goods identified in the ARP. The budget including all measures adopted in this Plan including the costs of implementing and monitoring the operation, amount to GNF 5,059,856,799. This amount will be paid by the Government of Guinea before the commencement of works on the sections concerned;

- **Commitments and Deliverables of Each Contractor:** Contractors shall have the works supervisor validate (45 days after contract notification), implement and update a Worksite Environmental and Social Management Plan (WESMP). The contractor shall establish a Worksite Environment Protection Plan (WEPP) for each of the sites identified, attached as annex to the WESMP. The WESMP is the single reference document where the contractor defines in detail all organizational and technical measures for fulfilling his EHHS contractual obligations. The WESMP will indicate at least:
The Environmental and Social Management System: (i) definition of the contractor’s environmental and social management plan; (ii) human resources assigned to EHHS management; (iii) definition of actors’ responsibilities regarding EHHS issues, including organizational chart; (iv) Bye Laws; (v) applicable standards and system for handling non-compliance; (vi) documentation and reporting;

The Environmental Protection Plan: (i) protection measures and construction methods needed to avoid affecting vegetation, soils, water table, biological diversity of animal and plant species, natural drainage and quality of adjoining areas; (ii) the choice of land needed as borrow sites and zones of excavation for necessary construction materials or deposit sites for excess excavated earth or rubble; (iii) the waste water management plan in compliance with national regulations and applicable international standards; (iii) work/construction method that minimizes atmospheric emissions and a mitigation plan; (iv) work/construction method minimizing noise and vibrations and a mitigation plan; (v) waste management plan (excluding hazardous substances indicated in the HHS plan); (vi) plan for clearing and restoring vegetation; (vii) plan for management and rehabilitation of borrow sites and quarries; (iv) erosion, drainage and silt management plan; (v) plan to document the state of sites; (v) conduct of the baseline situation concerning air and water quality for relevant areas in and around Fada;

Hygiene, Health and Safety Plan comprising at least: (i) the organizational set-up for implementing planned measures (frequency of hygiene and safety meetings by site and by type of activity); (ii) operating standards and equipment; (v) permit and authorization; (vi) management of dangerous substances; (vii) planning of emergency situations; (vii) on-site healthcare center and personnel, and first aid kit; (viii) medical follow-up; (ix) hygiene (drinking water, housing conditions and hygiene of common areas, feeding, etc.); (x) traffic management and signage plan

Relations/Communication with Local Communities and Employment: (i) local labor recruitment plan; (ii) gender mainstreaming action plan; (iii) plan for management of damage caused to persons and property during operations, including mechanisms for managing complaints; (iv) information of local populations and road users.

Thereafter, before activities commence at a new site, the WESMP will be updated including the site ESPP that will be submitted to the supervisor not later than (30) days, except if supervisor approves a different timeframe.

6.2 Summary of Specific Measures and Complementary Initiatives

Construction phase

- Air Quality and Noise: The contractor is required to take all measures to avoid spilling dust, rubble, mud or works materials around the worksite and on road surfaces, shoulders and sidewalks. The contractor’s ESPP containing all these measures will be approved by the Control Firm and DNI before works commence and must be monitored by the latter during works. The contractor shall use
equipment and adopt construction and transport methods whose atmospheric emissions and noise levels do not exceed recommended thresholds.

- **Protection of Soil Structure**: Erosion control measures are envisaged such as revegetation of berms, reforestation of roadsides and evacuation of rain water, which can cause erosion. The operator is required to install and maintain an erosion control system in quarries and deposits and to refill and/or reforest degraded land. Other measures and precautions will be taken. He is also responsible for identifying, collecting, transporting and processing all wastes produced on the site by his workers and sub-contractors.

- **Protection of Water Resources and Soil**: The protection of surface and ground water as well as water table and soil against pollution will mainly involve avoiding the spillage or discharge of waste water, mud, slurry, hydrocarbons and pollutants of any nature into wells, boreholes, groundwater, water bodies, and gutters or even on the ground. Also workers’ camps will be provided with appropriate facilities (septic tanks, adequate fuel pumps etc.). At the level of resource quantity management, boreholes will be drilled for use by the communities, as a means of offsetting the inconveniences caused during works (collection) and guarantee steady drinking water supply. The contractor shall plan earthworks on the entire site to optimize space management and minimize cleared areas exposed to soil erosion. Sediment barriers will also be built to slow down water flow and filter sediments on sites where (i) losses are higher than 20%; and (ii) land disturbed by works or stored materials are exposed to sheet or rill erosion.

- **Measures for Flora Restoration**: The Contractor shall spell out in the WESMP, the methods, species and origin of plants or grains, as well as the calendar of activities aligned to the provisional acceptance of sites for sustainable revegetation. The contracting authority will approve beforehand the species and origin of grains or plants proposed by contractor. Species used for revegetation must be adapted to local environmental conditions and selected depending on the restoration action targeted: stabilization of backfills, landscaping, drainage, erosion control, etc. During restoration of vegetation, there are plans for the compensatory planting of at least 4,000 trees.

**Human Environment**

- **Expropriation**: The cost of compensation of the loss of goods and other assets of PAPs is estimated at GNF 5,059,856,799 and will be financed by Guinea as part of ARP. Monitoring the implementation of ARP and the operation of the dispute settlement committee will help to mitigate expropriation-related impacts. Since submitting evidence of compensation is a condition for the commencement of works on the road sections concerned, it is important to ensure that ARP is implemented optimally.

- **Risk on Human Health and Safety**: Sensitization on Health (HIV/AIDS, Ebola and STIs), environmental protection and road safety: Sensitization campaigns on environmental protection, road safety, sexually transmissible diseases and Ebola are envisaged. Specialized NGOs will be recruited for door-to-door campaigns. More precise themes will be agreed upon with these NGOs, specialized structures of the technical ministries concerned and the project team.
during implementation of this sub-component. These themes can cover IEC aspects such as the transmission of practical and specific knowledge. These campaigns will be organized during and after the works and the objective shall be to reach 5,000 people, 50% of them women.

- **Gender and Specific Pro-Women Activities (complementary initiatives):** Based on needs expressed during plenary meetings held with the PIA communities, specific pro-women and youth actions are envisaged. These actions will be structured around establishing multi-purpose platforms for women (PTMF). Each PTMF will take account of local realities and local consumption products.

- **Risk of Conflict:** Measures will be taken at several levels. First, the contractor shall prepare rules and regulations for the sites, mentioning respect of local customs of the people and human relations in general and ensuring that workers comply with the said rules and regulations. Next, IEC/awareness actions targeting roadside residents or those at the sites will be envisaged. Lastly, the implementation of the ESMP’s RAP will be accompanied by consultation with and information sessions for the main stakeholders. The consultation plan shall include a disputes/complaints resolution mechanism to enable PAPs express their disagreement. The local PARC committee will assess admissibility of claims and process them. In addition to the possibility of resorting to the legal system, each affected person can make an appeal to this mechanism.

*Road Operation Phase*

- **Impacts on Water Resources and Soil:** The rehabilitation/construction of water works as well as cleaning/weeding around those that are clogged will help to reduce the risk of flooding and erosion in the project’s direct impact area. Furthermore, runoff control is crucial for road durability. This control depends on the construction of drainage structures but mostly on their regular maintenance to keep them in good order. Lastly, if well conducted and monitored, road user sensitization will make it possible to reduce water and soil pollution during the operational phase.

**Road Safety Measures:** To guarantee the safety of workers, the local population and road users, the contractor is required to take all necessary precautions to prevent the risk of accidents: road, fire, explosions, poor handling of construction equipment, etc. All recommendations relating to the preservation of human safety during works focus on road signs, control of access routes, awareness-raising, fire prevention and construction of related facilities. In that regard, an awareness-raising campaign shall be organized every 3 months by a specialized NGO. Special attention will be given to road crossing points in towns and villages, and which are dangerous for both road users and local communities (road signs, speed bumps, 2-meter wide sidewalks, expansion of road shoulders, parking areas in all villages, protective facilities near schools, etc.). The National Directorate of Road Maintenance will work closely with the RMF to ensure: (i) the routine and periodic maintenance of road infrastructure; (ii) maintenance of horizontal and vertical road signs; and (iii) continuation of road safety awareness campaigns.
7. Residual Impacts and Environmental Risk Management

7.1 Residual Negative Impacts

No average or high negative residual impact is expected after the implementation of mitigation measures. Negative residual impacts are minor and will not be subject to any special measures.

7.2 Environmental Risk

The environmental risk will mainly be linked to accidental spills of hydrocarbons, bituminous products, explosive products and other substances used for road construction. The measures concern: sensitizing and training of construction staff and ad hoc teams with regard to rapid intervention techniques in case of disaster; safety measures to be respected in dangerous or risky zones; and sensitizing the local population on health risks prevention and road safety. All these measures shall be detailed in documents to be subsequently submitted by the contractor and approved by the Control Firm before commencement of works: (i) the waste management plan; (ii) the set of site protection measures and corresponding implementation program; (vii) methods of prevention and reduction of pollution, fires and road accidents; (viii) health infrastructure and the population’s access in case of emergency; (ix) worksite regulations concerning environmental protection and safety.

The operation of the concrete station, crushing plant and coating unit produces dust while the coating unit produces smoke containing Volatile Organic Compounds (VOC) and Polycyclic Aromatic Hydrocarbons (PAH) that can affect the health of workers and the local population. For that, various authorizations must be obtained to ensure compliance with standards.

The emergency plan required in the WESMP covers at least the following emergency situations: (i) fire outbreak or explosion; (ii) structural fault; (iii) loss of confinement of dangerous substances; (iv) safety or malicious incident. The contractor will ensure that all staff members are informed and trained to respond to such situations, and that responsibilities are defined.

7.3 Climate-Related Risks

With regard to climate change, the Republic of Guinea, through the Ministry of the Environment, Water and Forestry (National Environment Council), prepared a National Climate Change Adaptation Action Plan (PANA) in July 2007. The analysis of PANA showed that climate change vulnerability in the coastal strip (project area in Coyah and Forécariah Prefectures) can be seen in rising sea temperatures and levels as well as floods. Indeed, the rising sea level and drought observed in this region is a climate-related risk that will mostly affect socio-economic groups, followed by unstable rainfall and floods patterns. Furthermore, the risk of flooding is an essential factor that can affect road durability. In terms of mitigation, according to INDC 2015, Guinea as a whole is a carbon sink because of its forests. However, this trend is declining due to deforestation.

7.4.1 Adaptation

The following criteria were adopted in scaling the various water facilities to be constructed:

- **Secondary structures for restoring small natural flows:** Existing structures will be systematically replaced by those with equivalent conveyance. These box culverts will have a minimum dimension of 1.00 x 1.00 to facilitate maintenance operations;

- **Main structures for restoring natural flows**
Box culverts in non-submersible lowland crossings after site survey

Since the existing structures must be rebuilt to make the structure durable or to expand the platform to align it to international standards, the planned structure will have at least the same size as the existing ones.

Box culvert in submersible lowland crossings after site survey

To the right of some works where significant road submersion was observed by the local population, roadway elevation works shall have a size capable of avoiding road submersion. In this case, the flow speed in culverts must remain at 4 m/s or lower.

- **Bridges:** Bridge size is for a 50-year return period, allowing for a clearance limit of 1.5-meter, based on recommendations. The pressure drop or afflux linked to flow concentration under the planned bridge will remain at about 50 cm to limit attainment of normal operating speed under the bridge. The planned bridge sleeper plate will be equal to the water-marking calculated immediately downstream the bridge, plus the necessary clearance limit;

- **Longitudinal drainage:** Drainage gutter size is for a 5-year return period. Flow speeds in ditches and gutters will be about 1 m/s whereas in concrete ditches and works, it will be about 4 m/s. We have adopted sizes with a filling rate of 80% considering the risk of silting if ditches are not frequently maintained.

The road drainage and sanitation costs account for about 19% of the cost of works. After commissioning of the road, special attention will be paid to inspection and maintenance of transversal drainage structures to avoid obstruction by inevitable alluvial deposits and fallen branches.

7.4.2 Mitigation

The road construction will allow for higher average traffic speeds compared to the “without project” situation, leading to greater traffic fluidity and generally lower emission ratios than those at current speeds (atmospheric emission ratios are generally proportional to traffic speed).

To offset losses of carbon sequestration potential due to the felling of trees during works, there are plans for the compensatory reforestation/restoration of about 4,000 trees and rehabilitation of borrow sites and quarries after exploitation. Considering the species of the Guinean ecosystem, plantations during this project will in principle contribute to the sequestration of about 200 tons of CO₂ equivalent yearly (assuming that all planted trees survive).

The cost of vegetation restoration and monitoring is estimated at EUR 60,000.

8. Surveillance and Monitoring Program

8.1 Environmental Surveillance

The aim of environmental surveillance is to ensure compliance with the proposed environmental and social management measures. Environmental surveillance will concern both construction and operation phases. It shall be carried out by the Control Firm (works phase) and the Environmental Management Plan Monitoring Service of the National Directorate of Infrastructures (operation phase).
The contractor will submit to the works supervisor monthly ESSH progress reports summarizing ESSH actions implemented in order to carry out works during the preceding period. The ESSH progress report contains the following information: (i) ESSH staffing status at month end; (ii) Inspections conducted (location and frequency); (iii) non-compliance detected within the month and description of corrective measures applied; (iv) State of registers of dangerous products and wastes; (v) erosion control actions and fight against sedimentation undertaken during the month; (vi) actions undertaken with external actors: local population, local authorities, government agencies; (v) outcomes of follow-up on main indicators; (vi) notification of incidents.

8.2 Environmental Monitoring

8.2.1 Monitoring Arrangements

Environmental surveillance aims to verify on the ground the accuracy of the evaluation of certain impacts and effectiveness of mitigation or compensation measures listed in the EIA. The monitoring program describes: (i) elements to be monitored; (ii) monitoring methods/arrangements; (iii) monitoring responsibilities; (iv) monitoring period.

Environmental monitoring is undertaken by BGEEE. A draft convention has been prepared and shall be signed after project approval. The estimated budget is included in the cost of the ESMP.

8.2.2 Monitoring Indicators

Indicators are parameters used to provide quantitative and qualitative information on a project’s environmental and social impacts and benefits. For this project, the following monitoring indicators are being proposed by the Control Firm and DNI’s Environmental Management Plan Monitoring Service as well as environmental services (BGEEE and DNE): (i) Recruitment of Environmental Experts to monitor works; (ii) Effectiveness of the insertion of environmental clauses in job specifications; (iii) Efficiency of systems of elimination of wastes from works on the site; (iv) Number of quarries opened and rehabilitated by works contractors; (v) Level of implementation of environmental and social mitigation measures; (vi) Number of actors sensitized under environmental and social management; (vii) Number of jobs created locally (local labor used for works); (viii) Level of involvement of local communities in the monitoring of works; (ix) Quality and functionality of infrastructure constructed; (x) Number of awareness campaigns (on the project, hygiene, security during works); (xi) Number of persons affected and compensated by the project; (xii) Number and nature of works-related social conflicts; (xiii) Number of accidents caused by works; (xiv) Number of complaints registered during works; (xv) Regularity and effectiveness of close monitoring.

8.3 Cost of ESMP

The cost of ESMP as indicated below is EUR 587,000 excluding CRAP and EUR 1,114,068.42 with CRAP. Apart from CRAP which will be financed by national counterpart contributions, the other costs of ESMP will be financed by ADF as part of the project.
Table 5: Cost Estimates of ESMP

<table>
<thead>
<tr>
<th>Specific Measures</th>
<th>Total (EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compensations (CRAP)</td>
<td>527,068.42</td>
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<tr>
<td>1. Works Phase</td>
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<tr>
<td>Environmental and social management measures for works (excluding compensatory</td>
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<td>reforestation and sensitization on STIs)</td>
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<tr>
<td>Tree planting/compensatory restoration in each locality crossed</td>
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<td>Sensitization of local population, employees and road users on HIV/AIDS,</td>
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<td>environmental protection and road safety</td>
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<td>Development of water source head</td>
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<td><strong>ESMP Cost Works Phase</strong></td>
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<td>2. Operation Phase</td>
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<tr>
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<td>PM Included in the DNER budget</td>
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<td>3. Environmental and social monitoring</td>
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<td>Monitoring by the project management unit</td>
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<td>BGEEE monitoring under agreement</td>
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<td><strong>Monitoring cost</strong></td>
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<td><strong>Total ESMP excluding CRAP</strong></td>
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<td><strong>Total ESMP and CRAP</strong></td>
<td><strong>1,114,068.42</strong></td>
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9. **Public Consultations and Information Dissemination**

Participatory approach through public working sessions in the main localities concerned by the project was used for the design of the Environmental and Social Impact Assessment (ESIA), the Environmental and Social Management Plan (ESMP) and the Resettlement Action Plan (RAP).

9.1. **Country and AfDB Requirements**

At the national level, Order No. A/2013/474/MEEF/CAB adopting the general environmental assessment guide of 11 March 2013, clearly sets out the various approval phases of the ESIA report involving public audiences. A specific stakeholder consultation is also required when land is acquired through expropriation by virtue of a Declaration of Public Utility (DPU), pursuant to the Land and State Property Code.

Under AfDB’s ISS of 2013, the Bank undertakes to ensure during the environmental and social assessment process that the Borrower or client organize transparent consultations with affected communities, in particular with vulnerable groups to enable them to principally participate freely, in an informed manner, in decisions on the prevention and management of environmental and social impacts. (i) free of intimidation or coercion; (ii) beforehand: opportune with regard to the evaluation process, leaving sufficient time to access information, understand it, and prepare answers; (iii) informed: provision of relevant, comprehensible and accessible information in advance and in an appropriate language. As demonstrated in the following sections, these requirements were monitored throughout the process both for the conduct of the ESIA and the resettlement plan.

9.2. **Public Consultations during ESIA/ESMP Design and Validation**

The 2016 public consultations were conducted in Forecariah and Coyah on 19 November 2016 under the chair of the respective Prefects. Over 65 persons participated in the public consultation meeting in Forecariah while that of Coyah had over 40 participants. In attendance at these meetings were Prefects, Sub-prefects, Mayors and representatives of municipal technical services, district heads, customary and religious authorities, representatives of DNI and BGEEE, the local population, etc. All the views expressed were noted in reports attached as annex to the ESIA report. These views were processed and reflected in the project design.
During public consultation sessions, people from localities cut across by the road showed interest in the project. Although they reaffirmed their support for all activities envisaged under the project, they expressed the hope that some related works would be undertaken to spur the socio-economic development of the localities concerned.

**Coyah Prefecture**

Concerns targeting environmental impacts had to do with: (i) reducing the effect of dust on the population through sprinkling to protect dwelling places from dust during road construction; (ii) preserving natural resources, especially water flows and forest galleries during road development works; (iii) monitoring implementation of Environmental and Social Management Plan (ESMP) by the Prefectural Environmental and Social Monitoring Committee (CPSES) of Coyah; (iv) conserving and protecting the inexhaustible source (well) situated in central Coyah in the road’s right of way.

Concerns expressed regarding social impacts related to: (i) youth employment; (ii) establishing safety measures during and after road reconstruction, mainly in localities crossed by trucks; (iii) compensating for all goods affected by road works (crop lands, fruit trees and residential houses).

It was suggested that the population be regularly sensitized to accept that with effect from the public consultation, they should settle more than 50 meters away from the road so as to avoid being eventually obliged to vacate the area in future (displacement).

**Forecariah Prefecture**

Concerns regarding environmental impacts had to do with: (i) protecting houses against dust during road construction; (ii) preserving natural resources, especially water flows and forest galleries during road development works; (iii) controlling the implementation of the environmental and social management plan (ESMP), rehabilitating quarries and borrow sites on completion of works, protecting forest species by limiting works exclusively to the project right of way; (iv) reducing the effects of dust on the population, protecting the road against accidental oil spillage and use of jacks on the pavement.

Social impact concerns expressed relate to: (i) compensation of goods that will be destroyed; (ii) supporting PAPs to fulfil compensation procedures; (iii) construction of the Fendéfodéyah bridge to facilitate the population’s access to the road in the urban municipality which could favor the expansion of the town; (iv) sensitization of the population and other road users during the entire project duration.

The project design and mitigation measures in the ESMP reflected most of these concerns, with the exception of the construction of the Fendéfodéyah bridge. The source head will be spared. It is proposed that it should be improved to better serve the people particularly, by protecting them against pollution.

The Minister of Public Works who participated in the public consultations of 19 November 2016, indicated that cases involving compensation for affected goods will be handled in a transparent manner and determined by the nature of habitations as well as a clear indication of the actors’ role. Hence, it was decided to strictly circumscribe and limit activities in the project right of way in order to avoid, to the extent possible, displacing houses, land with fruit trees, market gardens and road side farms.
The project’s certificate of compliance was issued by the competent authorities on 16 September 2016 and the ESIA/ESMP shall be circulated, through any channel deemed fit, by the Government of Guinea. The Bank shall publish the summary ESIA/ESMP on its website in compliance with its rules and procedures.

The ESIA and RAP reports were transmitted to the local authorities concerned for circulation, consultation and ownership by stakeholders in the project area. A book for noting remarks was opened for that purpose in each prefecture served by the road. After the public audience organized by BGEEE and consideration of the main concerns, the certificate of compliance was issued for the project on 16 September 2016.

The Bank will publish the summary ESIA on its website in accordance with its rules and procedures.

9.3 Consultations during CRAP Implementation

As required by country and Bank regulations, specific consultations with project affected persons were organized. They first began with the individual information of affected persons during the census conducted in September 2016. This phase allowed for the participatory identification of properties affected and the signing of each form by the owners, the representative of the Prefectural Directorate of Housing and that of Public Works. Next, a public consultation of PAPs was organized in February 2016 in the localities concerned as follows: (i) 15 February 2017 at Farmoreah; and (ii) 16 February 2017 at Coyah.

These meetings were attended by the Secretary-General of the rural commune concerned, the Sub-Prefect concerned, the District President of the commune concerned, the Head of the Environmental and Social Management Plan Monitoring Service in the Ministry of Public Works, the Head of the Infrastructure and Industrial Projects Evaluation Department at BGEEE, and affected persons or their representatives.

The objective of that consultation was to: (i) present the project to PAPs; (ii) present the CRAP implementation process including compensation options; (iii) collect complementary information from PAPs and discuss types of compensation desired by them.

Generally, all PAPs want to be compensated in cash for property losses incurred. Nevertheless, communities raise issues about calculation methods used for goods and conditions for paying possible compensations. Some argue that it is necessary to establish a system of calculation that reflects market prices. With regard to channels for compensation payments, many communities are averse to having intermediaries between them and the project. Others are altogether against partial demolition and demand that compensation money cover the entire affected property.

All communities look forward to having access to employment, especially for youths. During consultations, PAPs affirmed their wish to be regularly informed about the project. During discussions, participants reaffirmed their total support for the project, subject to the consideration of concerns and expectations expressed.

Suitable responses were given to all these concerns and expectations, in accordance with national and Bank requirements. These concerns and expectations expressed by PAPs were incorporated into the project as required by national and Bank regulations. The property assessments will take account of market prices. Better, they will be done at full replacement cost pursuant to AfDB regulations. The evaluation of goods will take into account the value of land and the full cost of the building to be demolished either partially or completely so as to put PAPs in better conditions.
For the source head situated in the road’s right of way and other community goods, measures will be taken to develop them. Also, the road alignment will be modified at this level in order to preserve it and enable the population to benefit from that source of drinking water.

**Cut-Off Date Announcement**, the cut-off date set by the Ministry of Public Works was Wednesday 15 March 2017. To that effect, announcements were made on Guinea’s radio and television (RTG) on 9 March 2017 in French, Soussou, Poular and Maninka (RTG).

### 9.4 Public Consultations during Project Preparation and Appraisal by the Bank

At the project preparatory stage, the Bank conducted public consultations in the project area (Forecariah and Coyah) and in Conakry in 2016 and 2017. More than 65 people participated in the public consultation in Forecariah and more than 40 in Coyah. During project appraisal, plenary sessions were held with all stakeholders in the two Prefectures and at the Guinea/Sierra Leone border at Pamelap. Three public consultations were held in Coyah, Forékarah and Pamelap. In all, over 400 people participated in these consultations.

The main focus of the consultations with stakeholders is to: (i) present the road construction project; (ii) identify direct beneficiaries and determine the appropriate compensation; (iii) agree through discussions with NGOs, women’s associations, village communities in the project impact area and other stakeholders, on related supporting facilities to be integrated into the project.

The stakeholders expressed themselves on: (i) related supporting facilities with proposals, (ii) the need to compensate properties that will be affected.

### 9.5 Practical Arrangements for Consultation on Remaining Stages and Complaint Management

#### 9.5.1 Consultation for Remaining Stages

A budgetary provision has been made for an NGO to prepare and implement a consultation plan. Some of these consultations are compulsory and unavoidable: (i) announcement of the deadline by the Ministry of PW is Wednesday 15 March 2017. Consequently, radio announcements were made on Guinea Radio-Television (RTG) on 9 March 2017 in French, Soussou, Poular and Maninka; (ii) announcement of expropriation, procurement and transfer of property; and (iii) announcement of commencement of works.

Committees and/or their members involved in the implementation and monitoring of ESMP and CRAP are stakeholders in the community participation and communication process. Therefore, in a bid for transparency, non-confidential decisions, including validations made by committees should be widely disseminated to the concerned population.

#### 9.5.2 Complaints Registration and Processing System

A complaints registration and processing mechanism shall be established to enable PAPs to express their disapproval. This mechanism will assess the admissibility of complaints and process them in case of grievances. It must use every means to collect complaints (contact information of members, including procedure for filing grievances). Whereas each affected person could take legal action, they could also appeal to this mechanism.
It will comprise two main stages:

- **Complaint or Dispute Registration**: The Ministry of Public Works shall, through the DNI, open complaint registers in the affected communities (village chief or head of the neighborhood, including municipal offices). The existence and accessibility of these registers as well as information on the venues where these registers have been opened and information on how to approach the agents must be widely circulated to the affected people and the PAPs during consultations and information sessions.

- **Complaints processing and Monitoring**: For less serious cases where the impact on communities is not significant, the Complaints Resolution Service will carry out a rapid investigation to verify the validity of the complaint. A solution will then be proposed directly to the complainant. If this fails, mediation will be initiated with the local authorities. The solution proposed in this case shall generally be simple mediation or corrective measures. However, in more serious cases (categories 3 and 4 in the above table), the project shall convene a meeting with the plaintiffs in the presence of traditional authorities. The Complaints Resolution Service will then investigate the complaint and propose a solution. The project will then mobilize the competent services concerned. Mediation and arbitration shall be carried out with the local committee. Any corrective measure proposed shall first be approved before implementation.

- **Amicable Settlement**: The period for amicable settlements shall be one and a half months. Thereafter, a report shall formalize the agreements reached on changes to be made to better protect the interests of PAPs and those necessary changes shall be made. It shall be up to the local and administrative authorities to inform the PAPs.

Pending approval of the project and establishment of its implementation unit, possible complaints could be submitted to the National Director of Infrastructure (DNI) with copy to the Prefect or Sub-Prefect of the area concerned.

Dr. Bakary KABA, National Director of Infrastructure, Ministry of Public Works, Boulevard du Commerce, BP 581, Kaloum, Conakry, Guinea, E. mail drkabakary@yahoo.fr, Tel : +224 628 271 372,

9.5.3 **Administrative Arrangements and Recourse to Justice**

Recourse to justice is possible if amicable settlement fails. However, this procedure should be avoided as much as possible. Recourse to the courts: (i) often entails long periods before a matter is heard; (ii) the plaintiff could incur significant costs as it involves a complex mechanism (with experts and lawyers) that could completely elude the plaintiff and subsequently turn against him.

On this point, it is preferable to use less formal mechanisms that better protect individual rights. It would therefore be appropriate to set up an extra-judicial dispute settling mechanism that shall make provision for explanations and mediation by third parties such as the Local Reconciliation Commission. The composition of this committee shall be jointly determined and agreed by administrative and local authorities depending on the nature of the dispute.
<table>
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<th>Potential Negative Impacts</th>
<th>Mitigation Measure</th>
<th>Officer-in-Charge</th>
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<th>Monitoring/Regulatory Control</th>
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</table>
| Encroachment on private property, loss of source of income | - Limit works to the right of way  
- Identify and compensate and/or assist project affected persons | - DNI  
- Contractor | - Number of persons compensated  
- Existence of evidence of compensation  
- Number of complaints received and processed | - BGEEE  
- MDC  
- Local Authorities | - Report of right-of-way clearance  
- Contractor’s specifications  
- Compensation document |
| Soil pollution by dangerous wastes (used oil) | - Create a storage area for dangerous wastes that complies with standards in the workers’ camps  
- Establish a collection method and reception bins adapted for each category of dangerous wastes | - Contractor | - Existence of a clear waste management procedure | - BGEEE  
- DNE  
- MDC  
- DNI | - Site inspection |
| Pollution during maintenance and oil change operations | - Carry out maintenance following a well laid-out plan taking all necessary precautions to avoid oil spillage | - Contractor | - Waste management procedure during maintenance operations implemented | - BGEEE  
- DNE  
- MDC  
- DNI | - Site inspection |
| Pruning or possible removal of certain plantations and/or shrubs along the right of way | - Limit works to the selected right of way  
- Undertake compensatory reforestation | - Contractor  
- DNI | - Number of species protected  
- Existence of a reforestation plan | - BGEEE  
- DNE  
- MDC  
- Water and Forestry Service | - Site inspection  
- Report of right-of-way clearance |
| Temporary nuisance caused by noise and inconvenience to the neighborhood | - Mobilize worksite machines and equipment that respect standards  
- Equipe staff with PPE  
- Avoid doing noisy works outside regular working hours | - Contractor | - Number of complaints from neighbors  
- Complaints monitoring reports  
- Measures included in the contractor’s bill of estimates | - BGEEE, DNE, MDC  
- DNI | - Monitoring report |
| Nuisance due to dust and inconvenience to the neighborhood | - Protect project staff  
- Regularly water the works area  
- Regularly water distribution ramps (crushing station) | - Contractor | - Number of complaints from neighbors  
- Measures included in the contractor’s estimates | - BGEEE, DNE, MDC  
- DNI, Local Authorities | - Site inspection |
| Conflict with the People | - Undertake IEC actions in roadside communities or workers’ camps  
- Sensitize contractors on local hiring and ensure that with equal skills the local people are given priority for recruitment  
- Local publication of job opportunities | - Contractor | - Number of IEC sessions held  
- Number of positions occupied by locals and women | - BGEEE  
- DNE  
- MDC  
- DNI  
- Local and prefectural authorities | - Meeting report  
- Employment contracts |
Potential Negative Impacts | Mitigation Measure | Officer-in-Charge | Indicators | Monitoring/Regulatory Control | Source and Means of Verification |
---|---|---|---|---|---|
Risk of spread of STI/AIDS | - Undertake STI/AIDS prevention sensitization actions  
- Distribute condoms to employees | - Contractor | - Number of sensitization actions undertaken  
- Number of condoms distributed | - BGEEE, DNE, MDC  
- DNI, local and prefecutal Authorities and public health care assistant | - Monitoring report  
- Sensitization session report |
Possible degradation of utility network structures on the right of way | - Authorize the related network managers  
- Implement a plan for the rehabilitation of impacted infrastructure | - DNI  
- Contractor | - Authorizations obtained  
- Rehabilitation plans implemented | - BGEEE, DNE, MDC  
- DNI  
- Local and Prefectural Authorities | - Contractor’s contract  
- Inspection report |
Risk of industrial accidents | - Implement an emergency intervention plan on the worksite, train staff in particular in first aid  
- Mark out the worksite vicinity with sign boards indicating danger  
- Provide worksite workers with standard PPE and sensitize them to wear the equipment | - Contractor | - Emergency plan established  
- Marking undertaken according to standards  
- Wearing of PPE by workers | - BGEEE, DNE, MDC  
- DNI  
- Local and Prefectural Authorities | - Inspection visit  
- Contractor’s contract |
Risk of fire | - Establish a fire risk procedure | - Contractor | - Safety instructions  
- Procedure established | - BGEEE, DNE, MDC  
- DNI | - Site inspection |

OPERATION PHASE

Potential Negative Impacts | Mitigation Measure | Officer-in-Charge | Indicators | Surveillance/Regulatory Control | Source and Means of Verification |
---|---|---|---|---|---|
Risk of accident | - Ensure routine and periodic maintenance of road infrastructure  
- Place horizontal and vertical road signs  
- Roll out road safety campaigns & sensitize residents | - DNI  
- DNER  
- FER | - Annual road maintenance  
- Number of sensitization sessions held | - BGEEE | - Site inspection |
Road drainage | - Ensure proper operation of drainage systems, especially during rainy seasons | - DNI  
- DNER  
- FER | - Road in good state | - BGEEE | - Contractor’s contract  
- Site inspection
The environmental and social capacity of the Ministry of Public Works was assessed and considered very weak. Its capacity to monitor the implementation of ESMP is virtually non-existent. In fact, an ESMP Monitoring Service was set up in 2008 and initially housed in the DNIR. Currently, this service is attached to DNI and participates only in the conduct of studies. Appropriate arrangements should therefore be made to monitor this and other ongoing projects. The mission recommends that measures be taken at three levels:

(i) **Contractor and Control Mission (CM).** Provision shall be made in BDs for a Health Safety and Environment (HSE) officer to be part of the core staff of the contractor and CM. They shall be responsible for implementing and monitoring the ESMP measures respectively, including relations with various communities. They will be the first actors of HSE monitoring.

(ii) **Project Implementation Unit.** Monitoring of ESMP and ARP implementation shall be ensured by an Environmentalist assigned to the Project Management Unit in the Ministry of Public Works. The minimum qualification for these senior staff must be GCE A Level +5 in the specified field and at least 8 years of relevant work experience. Lastly, the Technical Assistance will cover training and building the capacity of these experts in monitoring ESMP implementation.

(iii) **BGEEE:** It is the institution responsible for approving the ESIA and monitoring the implementation of ESMP. However, although it has an equipped modern laboratory, it does not have a specific road sector guide and therefore lacks the capacity to improve the quality at entry of ESIAs. Thus, BGEEE is not very much involved in monitoring and implementing ESMP road projects. To address these concerns, a Memorandum of Understanding to monitor ESMP implementation by BGEEE is being finalized.

### 10. Conclusion

Overall, the assessment shows that the project will have significant positive impact in terms of social benefits. However, the project could also generate negative impacts but all such impacts can be effectively managed with the proper implementation of the environmental safeguards in the ESMP. To this end, a compliance certificate was issued in September 2016, in accordance with national regulations.

### 11. References and Contacts

The summary was prepared based on the following documents:

- ESIA of the Coyah-Famoreah Road Reconstruction Project, April 2017
- CRAP of the Coyah-Famoreah Road Reconstruction Project, February 2017

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