EXECUTIVE SUMMARY OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

**Project Team**

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<tr>
<th>Team leader</th>
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<tr>
<td>M. CISSE</td>
<td>N. ANVARIPOUR</td>
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<td>T. TURNER</td>
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<td>J. LITSE</td>
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<td>K. LONSWAY</td>
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<td>M. FARAOUM</td>
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<td>R. ARON</td>
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<th>Chief Investment Officer</th>
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**Project Country:**

**Project:** LOMÉ CONTAINER TERMINAL PROJECT

**Country:** TOGO
Executive Summary of the Environmental and Social Impact Assessment

Project Title : Lomé Container Terminal Project  
Country : TOGO  
Project Reference : P-TG-DD0-002

1. Introduction
Lomé Container Terminal (LCT) has signed an agreement with the Togolese government to undertake a project which includes the design, funding, construction, management and operation of a private terminal at the Port of Lomé. LCT is seeking funding from the African Development Bank in order to realise this project.

In conformity with the requirements of the environmental legislation, an Environmental and Social Impact Assessment (ESIA) for the project was developed as well as an Environmental and Social Management Plan (ESMP) by the consulting firm, Inros Lackner A.G. Based on the results from the review of the ESIA, an environmental certificate of conformity was delivered to LCT by a ministerial decree dated 22 October 2010.

The environmental and social impact assessment (ESIA) of the said project was undertaken in compliance with the legal requirements of Togo, the Bank’s policies and procedures and the performance standards of the International Finance Corporation (IFC). In accordance with the Bank’s environmental and social requirements, the ESIA examined the physical, biological and socio-economic aspects and their impacts, upon which the ESIA recommended several mitigation measures. The ESIA summary of the aforementioned project is presented in this document.

2. Project description and justification

2.1. Project description: The project consists of expanding the existing facilities of the harbour in order to enable large container carriers to enter the port of Lomé and to subsequently distribute these containers to neighbouring countries on feeder ships.

The following images show the site intended for this project (see Figure 1).
LCT plans to build and operate facilities, which would include a dock with several berths, and to build a large area intended for container storage, within the framework of a Concession Agreement which binds it to the Togo government. The agreement covers a 35 year period, with the possibility of extending it by 10 years. The terminal layout is presented in Figure 2.

Figure 2- Terminal Layout
The project will be executed in the main stages described below.

- The pre-construction stage, during which subsurface studies, oceanographic studies and courantology studies will be undertaken

- The construction and installation of facilities stage: targeted construction and development sections of the project will be carried out in a progressive manner over the following three phases:

  **Phase I**
  - Land-facing wharf wall, 750m long, with three berths;
  - Sea-facing wharf wall, 1,025m long, without facilities;
  - Land-facing area for storing containers: 180,000 m²; and
  - Depth of water in the dock, the harbour basin and the access channel: −14.60m z.p.
  - Land-facing wharf wall, 1,050m long, with three berths;
  - Sea-facing wharf wall, 1,315 long, without facilities;
  - Land-facing area for storing containers: 220,000 m²; and
  - Depth of water in the dock, the harbour basin and the access channel: −16.60m z.p.

Construction of this phase will be preceded by:

- The construction of a 300m breakwater made of rocks; the rocks will be taken from the existing main wharf and moved directly to the site of the breakwater; and
- Clearing and backfilling an embankment of approximately 2m with sand pumped from the sea and transported to the site using a sand dredger, or sand taken directly from the site and then compacted.

To this end, construction of a dock with several berths and a large area for storing containers has been planned.

  **Phase II**
  - Land-facing wharf wall, 1,050m long, with three berths;
  - Sea-facing wharf wall, 1,315 long, with four berths;
  - Land-facing area for storing containers: 220,000 m²;
  - Sea-facing area for storing containers: 190,000 m²;
  - Depth of water in the dock, the harbour basin and the access channel: −16.60m z.p.

All berths will be equipped with extremely modern handling facilities, i.e. gantry cranes for moving containers from ship to land and vice versa, trucks equipped with trailers for transporting objects to the storage area and RTG cranes for container storage.

Construction consists of the eight technical elements shown below:

1) Construction of a sand barrier to extend the existing silting zone;
2) Backfilling the existing site to a thickness of approximately 2m;
3) Construction of a wharf wall with facilities (sheet piled wharf wall, diaphragm wall or using an alternative technique suggested by construction companies);
4) Foundations for the gantry cranes and the RTG cranes;
5) Opening of the main pier and dredging of the basin;
6) Construction of roads and services: a storm water drainage system, a network for supplying drinking water and electricity; resurfacing of the storage area and fire lanes;
7) Electrical supply to the terminal from the public network supplemented by back-up generators capable of providing the required capacity of 15 MW; and
8) Construction of buildings and fencing.

Use of the facilities throughout the duration of the agreement (35 years) - with the possibility of extending for a further 10 years. The objective of the holder of the concession (LCT) is to reach a handling volume of 400,000 to 500,000 TEU per year, within a period of 2 to 3 years, and an overall volume of 1,500,000 TEU. During this phase it is expected that approximately 670 direct jobs will be created.

Fuel will be supplied by a central service station. Two particular facilities have been designed for storing containers with dangerous goods. The design of the terminal management strategy takes environmental and safety concerns into account.

After the concession period, all of the facilities will be surrendered to the Togolese government, who will either be able to operate the terminal itself or continue its operation by a concessionaire. The intended operating lifetime of the terminal is a minimum of fifty (50) years; it may be extended to a hundred (100) years if regular maintenance and repairs are carried out.

2.2. Project justification: This is in line with the Togolese government’s sectorial policy for the 2009-2018 period, the major strategic objectives of which are:
   - to increase the port’s capacity to create an international commercial, efficient and competitive port to rival ports in Sub-Saharan Africa;
   - to harness the natural, nautical and geographical resources of the Togolese coast and, in particular, resources from the existing port;
   - to increase maritime transhipment and transit trade with landlocked countries (Niger, Burkina, Mali);
   - to improve the competitiveness within Sub-Saharan Africa of the Togolese corridor giving access to the sea; and
   - to have a good shipping service with regular trade vessels, particularly container carriers, with an adequate frequency to reduce waiting times and costs.

The volume of merchandise handled at the port of Lomé has also increased since 2000, with an average yearly increase of 12%. Faced with the steady development of containerisation the existing port facilities have thus demonstrated their limits and their need to plan for expansion.

Such a project contributes to regional economic integration and complies with the main objective of the 1993 modification of the Treaty establishing the Economic Community of West African States.

3. Political, legal and administrative framework

3.1. The environmental and social impact study of the project has been carried out whilst taking into account the guidelines of the National Policy of Togo in the domains of the environment and national resources. Reference documents analysed to this effect include: the National Environmental Policy of Togo
(1998), the National Action Plan for the Environment (2001), the National Adaptation Action Plan for Climate Change, the Environmental Profile of the Coast of Togo and the National Programme for Combating Coastal Erosion.

3.2. In the analysis of the legal framework, on the one hand international agreements in which Togo takes part are taken into consideration depending on their relevance to the project; however the same also applies for national laws pertaining to environmental law. As regards these laws, among the texts reviewed are featured: Decree N° 013/MERF of 1st September 2006 establishing regulation pertaining to procedure, methodology and ESIA content, and Decree N° 18/MERF of 9th October 2006 establishing the terms and the information and participation procedures of the public in the EIE process.

3.3. The requirements of the African Development Bank in terms of environmental and social assessment as well as the IFC’s performance criteria in these domains were taken into account during the ESIA and the project in general. The project has taken into account the Bank’s requirements and policies, in particular the Policy on the Environment, the Gender Policy, the Involuntary Resettlement Policy, the Poverty Reduction Policy and its Climate Change Strategy.

3.4. Management of the environmental and social aspects linked to the project involves various institutions including the following:

- **The Ministry of the Environment and Forestry Resources** which instructs the Environmental Department (DE). The ministry is responsible for ensuring the implementation and monitoring of the National Environmental Policy, the assessment of environmental impact study reports and monitoring the implementation of mitigation measures for the negative impact of projects throughout the national territory. The Department of Wildlife and Hunting is responsible for managing coastal wetlands within which parts of the project is situated.

- **The Ministry of Public Work and Transport** is the ministry supervising the project. It includes a Department of Maritime Affairs whose mission is to implement the ministry’s strategy for developing the sub-sector of maritime transport.

- **The Autonomous Port of Lomé** is a public sector company under the administrative supervision of the Ministry of Transport. Its mission is to ensure the operation of port facilities by intermediary handling companies, and the management of the port. It is also responsible for safety throughout its domain, including that of ships, with pilotage and mooring, and for monitoring, along with its Technical Department, maintenance of the port in compliance with the planning standards and regulations, as well as the implementation of construction projects and operation of port infrastructures.

- **Other institutions**, including the Ministry of Mines and Energy, the Ministry of Water and village water engineering and the Municipality of Lomé have their own prerogatives concerning the environmental and social impact of the project.

4. **Description of the project site**

The southern part of the Togolese Republic is made up of a 50 km flat and sandy coastal zone, comprising lagoons and wetlands. The port of Lomé project, which is located 7 km away from the centre of the capital, will be undertaken on this new coastal zone which has been created through natural silting.
The assessed zone currently covers a surface area of approximately 80 ha. The sizing analysis of this area has enabled us to identify 11 main units shown on a site map. Prospecting for the elaboration of the site map enabled us to outline 11 main units made up of mangroves, prairies, shrubbery, agro forests, coastal grassland, patchwork of fallow land and crops and the remains of buildings and other facilities (Figure 3).

Figure 3: Site map of the studied zone

<table>
<thead>
<tr>
<th>Vers le centre ville</th>
<th>To the town centre</th>
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<tbody>
<tr>
<td>Vers Aneho</td>
<td>To Aneho</td>
</tr>
<tr>
<td>Direction generale du port et autres services</td>
<td>General management and other port services</td>
</tr>
<tr>
<td>Aire de jeux</td>
<td>Games area</td>
</tr>
<tr>
<td>Aire de stationnement</td>
<td>Parking area</td>
</tr>
<tr>
<td>Camp de la marine nationale</td>
<td>Navy compound</td>
</tr>
<tr>
<td>Appontement de la marine nationale</td>
<td>Navy landing stage</td>
</tr>
<tr>
<td>Actuele Port Autnome de Lome</td>
<td>Current Autonomous Port of Lome</td>
</tr>
<tr>
<td>Jetee principale</td>
<td>Main pier</td>
</tr>
<tr>
<td>Zone de ramassage de sable de mer</td>
<td>Sea sand collection site</td>
</tr>
<tr>
<td>Mer</td>
<td>Sea</td>
</tr>
<tr>
<td>Bar Cristal Plage</td>
<td>&quot;Cristal Plage&quot; restaurant/bar</td>
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4.1. Biophysical environment

Climate: As with the rest of the country, the maritime region is influenced by two winds: the continental trade winds and the maritime trade winds. These movements of air masses influence the arrival of a heavy rainy season from March-April to July and a moderate rainy season from September to November. These two rainy seasons are punctuated by a long dry season from December to March and a short dry season from July to August. The total rainfall increases further away from the coast; therefore the coastal region that houses the project site is poorly watered, with rainfall varying between 700 and 900 mm/year. Four quite distinct seasons can be identified over the year. In Lomé, the absolute maximum temperature is often in February (32.0°C).

Air quality and noise pollution: The studied area is an area with a high level of activity. The surroundings are often polluted by noise and exhaust gases coming from vehicles on the coastal road and, in particular, from trucks transporting sand from Tuesday to Friday (hundreds of trucks).

Geology: The substratum of the Togolese coast is made up of a series of three lithostratigraphic blocks resting upon a crystalline basement. It includes:
- detrital materials from the Maastrichtian Age: made up mainly of sand and clay sediments, but also limestone, shale and attapulgite;
- complex phosphate of Hahotoé–Kpogamé of the lower Eocene age which is an alternance of limestone, phosphates, clay and marl; and
- continental terminal where two discordant units from different ages can be found: one from the lower Miocene age and one from the Moi-pliocene age and which can be seen on the surface of the coastal region in the form of a terre de barre plateau.

Geomorphology: Three geomorphological formations can be identified across the Togolese coastal region:
- a terre de barre plateau at varying altitudes and subject to a process of differential and mechanical erosion;
- a baselevel plain on the same level of the Precambrian basement made up mainly of metamorphic rocks constituting Dahomeyen formations;
- a coastal and lagoon region with an average altitude of 5m, and which is made up of coastal river-lagoon and marine formations. This is an area claimed from the sea through natural sand build-up on the aforementioned formation, upon which the project will be constructed.

**Pedology:** The soil types encountered along this coast are extremely varied; they can be divided into five categories:

- the less developed soils on the sand alluvium of the coast or on the recent alluviums or colluviums at the bottom of the slope or thalweg;
- halomorphic soils located along the shores of Lake Togo, the lagoons and the banks of the Mono river;
- hydromorphic soils can be found at the mouth of the Haho, Zio and Mono rivers;
- sesquioxides that include several variants of tropical ferruginous soils and lateritic soils; and
- topographic or lithomorphic vertisols and paravertisols that represent approximately three quarters of soils of the Lama depression and a some of the soils at the bottom of the slope.

It is important to mention once again the beach soils, which are made up of sand and sediment drudged up by the coastal current and which have accumulated in the port area in front of the main wharf over the past few years. It is on this new zone of amassed sand that the project will be constructed.

**Sedimentary dynamics:** Sedimentary dynamics in the studied zone are similar to the usual conditions along the Togolese coast. In some areas, these dynamics have undergone changes due to the existing port and the city of Lomé. The baseline condition is considered average.

In the project zone, construction of the main wharf of the harbour basin has created some disturbances or indeed halted sediment shifting along the coast. As a result, the accumulation of sediment over several years has caused the progressive creation of a terrain that will house the terminal. The majority of the sediment comes from the large basin drained by the Volta River in Ghana. Deposits are mainly made during high tides, generally at night. However, the intensification of sand collection (almost 1.2 million m³) in the accumulation zone slows down the extension of the shoreline in this area.

**Quality of sediments:** Contamination of sediment in the existing harbour basin has increased slightly.

Analyses of the sediments in the existing harbour basin, more specifically of the turning areas and the harbour access channel, carried out in 2007 and 2009, reveal relatively weak pollution by heavy metals, but more marked pollution from tributyltin. It is presumed that this pollution is not much higher outside the harbour. The baseline conditions are average.

**Coastal erosion:** The zone is characterised in general by the erosion of the coastline since the construction of the harbour. Overall, we have seen a rate of average annual erosion of between 3 to 5m/year. However, due to the sedimentation phenomenon taking place at a higher level, the project is sheltered from this phenomenon. The ESIA demonstrates that the spike will lead to the silting up of the terminal site.

**Hydrography:** The hydrographic situation in the studied zone is similar to the usual conditions along the Togolese coast. In some areas, vegetation has undergone changes due to the existing harbour and the city of Lomé. The baseline conditions are average.
**Water quality:** There is no negative information available on the quality of water along the coast of Lomé. With the coastal current contributing to mixing and replacing the water, the quality of the coastal water is bound to be good, despite small quantities of waste water that flows directly into the sea from the city centre.

Similarly, there is no information available concerning the quality of water in the harbour basin. However, based on the nature of the different harbour activities, we can assume that the water is contaminated by residue from various chemical substances and/or waste expelled by ships. This contamination, whilst it does exist, has however not reached levels high enough to affect the activities (diving, fishing) undertaken in the region.

**Vegetation:** Marine vegetation is in line with the typical situation that is found along the Togolese coast. In some areas, vegetation has undergone changes due to the existing harbour and the city of Lomé. The baseline condition is average.

The project zone contains a strip of unoccupied dunes and a wetland area of approximately 200m wide. This wetland area runs along more or less ¾ of the length of the project zone and contains approximately 6.5 ha of mangroves, with shrubbery in the centre. The remainder is made up of areas left as fallow land, of shrubland and market gardens. The most significant plant formations found in this area are as follows:

- Coastal vegetation, located along the lower part of the beach, heavily disturbed by human activities (collection of sea sand);
- The *Sesuvium portulacastrum* prairie and the *Avicenia germinans* mangroves in the wetlands; and
- *Conocarpus erectus* shrublands located next to the mangrove.

**Plant biodiversity:** This is quite important, as 134 species divided into 105 varieties and 47 families have been listed. In this list, *Conocarpus erectus* and *Avicenia germinans* are protected in Togo. Furthermore, the presence of *Dalbergia ecastaphyllum* is to be indicated as it is a rare species among the flora of Togo. The most important thickets are those observed in the project area; apart from aesthetics, they play a vital role in stabilising the dunes. As far as the other species are concerned, it was possible to index them in other sites in Togo and in considerable density, which allows for their survival.

It must be indicated that this portion of land which contains the mangrove and the thickets covers 6.3 ha and represents, in the eyes of the scientists, an area of high importance for study and conservation. Considering their composition, rarity, degree of risk and biotope fidelity, the terrestrial flora of the *Avicenia germinans* mangroves, the *Conocarpus erectus* thickets and the *Dalbergia ecastaphyllum*, which only cover approximately 7.8% of the area studied and which are directly affected, are to be classified as being of very high importance.

The portion of land between the harbour and Hotel Sarakawa is a place exploited by the market gardeners who practice peri-urban agriculture. Several crops were listed from which the best represented are lettuce, tomato, onion, spinach, carrot, capsicum, beetroot, shallot etc.

**Fauna:** The fauna associated with the ecosystem of the project area is much diversified. The malacological fauna of the marine environment comprises species found along sandy and rocky coasts. Overall, seven species have been identified on the site. In the exposed sandy habitats, as for example along the Togolese
coast, it can be assumed that the sublittoral and eulittoral macrozoobenthos are mainly composed of a community poor in species and biomass. Since the Togolese coast does not shelter very rich fish-farming fauna, it is rarely frequented by artisanal fishermen. Marine fauna in the studied area corresponds to the typical situation along the Togolese coast. At certain places, it has changed due to the existing harbour and the city of Lomé. The fish listed are those of the mangrove or fresh water depressions, some of which are indicators of pollution, are identified in the surroundings of the project site, in the mangrove channel and ponds and areas covered with vegetation, respectively.

Several bird species were listed in the different ecological environments encountered on site. The littoral region and the other humid areas of the coastal area constitute transit areas, thus sheltering high seasonal concentrations of migratory birds. Most of the 78 species of birds that have been listed in the different ecological environments of the studied area are taxons strictly bound to water. It must be highlighted that the roseate tern (*Sternula dougalli*) is listed in appendix D of threatened species. Thus the value of the initial state of the wildlife is estimated as average to high.

**Marine turtles:** Four species of marine turtles frequent the Togolese coast for nesting along the silting-up area to the west of the harbour extending up to the border of Ghana. These species are on the UICN red list of threatened species:
- *Dermochelys coriacea* (Leatherback Turtle) is in critical danger of extinction
- *Chelonia mydas* (Green Sea Turtle) is in danger of extinction
- *Lepidochelys olivacea* (Olive Ridley Turtle) is a vulnerable species
- *Eretmochelys imbricata* (Hawksbill Sea Turtle) is in critical danger of extinction

The silting-up area to the west of the harbour is the third most important area along the entire Togolese coastal area for being frequented by turtles. Only 0.4 km of beach in the project area seems to be used as a nesting site, which represents only a tiny part of the beaches frequented by the turtles. The turtles recorded are a species that undertake large transoceanic migrations. Considering the number of habitats, the value of the initial state is high.

### 4.2. Socio-economic environment

The project area, including the bed of the terrestrial part of the project and its surroundings, harbour different economic activities which involve more than one million persons. These are mainly involved in market gardening and collecting sand. The activities undertaken in the project area include market gardening, collection of sea sand, temporary dwellings, the restaurant trade and artisanal fishing. The activities which will be most affected by the project are market gardening and sand collection. The market gardeners and the sand miners occupy and/or use lands that do not belong to them under Togolese legislation but the Bank’s Involuntary Resettlement Policy recognizes their usage of the lands.

There are 175 market gardeners, most of whom have been in the area for more than 10 years. This area is part of the domain of the port; these market gardeners settled here illegally, without authorisation from the port authority. Some of these persons (36%) live on the site permanently, in makeshift dwellings.

Market gardening meets the subsistence needs of these people and provides them with a source of income. The land used for market gardening activities are estimated to be more than 18 hectares, divided into 10,375 beds of which 3,738 are held by women. Their amenities and production material consist of
boreholes, wells, water troughs, watering cans, rakes, eye hoes, sprayers etc. The overall economic condition of this population is relatively insecure.

Sand collection is an important activity being practiced in the area of the project site. It involves 1494 persons, including sand collectors, transporters, drivers, traders etc. The main relation with the project is that the trucks which transport the sand cross the site to reach the areas where the sand is taken from. Collection happens mainly in the coastal area. The granulometric structure of the sand in this area gives it a quality that is sought after in the building sector. The fleet of trucks involved in the transportation of sand includes a total of 500 to 600 vehicles with capacities of 5 to 12 m³; they are never all in use simultaneously. The annual volume of extractions should be around 1 250 000 m³ of sand.

Apart from gardening, which takes up more than 90% of the activities undertaken on the terrestrial section of the project area, there is a bar/restaurant called “Cristal Plage” that employs a staff of 29 at the extreme south-east of the site; resellers of various products and persons representing other professions (such as florists, mechanics, mattress makers and a carpenter). There are also fishermen doing pond fish farming and fishing with fishing rods or purse seine fishing gear.

5. Alternative options for the project

There are no alternate sites available in Togo for this project. The construction of a new harbour at a different site will impact much more harmfully on the environment, considering the area required and the extent of the construction needed to be undertaken.

6. Potential impacts and measures for mitigation and enhancement

The project activities will be a source of impact during all the phases (pre-construction, construction, operation and end of project). During the construction phase, activities will include construction of sand barriers, stripping the soil, raising the site, compacting the soil, sealing the soil, filling the beach and deepening the existing harbour basin and access channels. During the operational phase, activities will include increased maritime traffic, increased land port activities and development and operation of the terminal. During the end of project phase, activities will include continuation of maritime traffic, continuation of land port activities, development and operation of the terminal, as well as upgrade activities of various types, and repairs to e.g. wharf walls.

6.1. Negative impacts

Negative impacts on the various environments are potentially associated with the activities which will be carried out in the different phases of the project. These impacts and the measures for managing them are described below.

*Noise pollution and atmospheric pollution*

Most of the construction activities, as for example compaction of the area, construction of wharf areas and of the infrastructure of the new harbour area including roads, buildings, workshops etc., cause noise and atmospheric pollution that will continue at various intensities during the construction period. This will increase noise and atmospheric pollution. The impacts caused by noise pollution and by the quality of the air will be limited to the periods of work. Mitigation measures have been included in the ESMP to address this impact.
**Noise**
If option A (metal sheet-pile wall) is selected for construction of wharf walls, the hammering works will cause noise pollution which will be clearly heard by the riverside residents of the site for the duration of the 9 months that the operations continue. The inhabitants of the Cité du Port, Foyer des Marins and some other locations, as well as the restaurant “Alt München” and Hotel Sarakawa to the west will be exposed to this impact. Mitigation measures have been included in the ESMP to address this impact.

**Soil**
Through construction of an area of 540,000 m² for storage and handling, the existing and already raised land area will be completely covered. After this sealing off of the soil functions of the area, which includes the exchange of water, watercourses for recharging the ground water level will be lost permanently. Mitigation measures have been included in the ESMP to address this impact.

**Water resources**
The major risk concerns marine or underground water pollution by the chemical substances that will be handled in the construction and operation phases. Thus plans for management of these substances will be developed and implemented during these phases of the project.

**Vegetation**
Stripping of the soil in the pre-construction phase of the terminal will have a very destructive impact on the biophysical environment, as it will lead to the destruction of 6.3 hectares of thickets and mangroves.

A replanting programme is being developed in consultation with the appropriate institutions. This programme, which costs CFA 25 million, aims to include follow-up activities for 5 years. The replanting programme will at least double the area which was cleared and ensure the success of the replanting. The other activities targeted in this programme consist of identifying the reforestation sites, information and awareness of the riverside populations of the sites, training in plant production techniques, follow-up and evaluation. A specialised NGO will be appointed for the carrying out these tasks.

Additional compensation measures will consist of classifying an area of approximately 200 hectares near the mouth of the river Zio as a nature reserve. The said area is a humid area in the estuary and as such has specific ecological characteristics.

**Fauna**
Animal habitat will be affected directly by the construction of barriers and indirectly by the changes in the oceanic circulation regimes and the sedimentary dynamics related to it. More mobile species, such as fish, will be less affected as they will move to adjacent areas.

As far as the terrestrial area goes, the destruction of habitats (flora) consecutive to stripping of the site will inevitably affect the associated fauna. Mobile species will probably be capable of escaping to the west to take refuge in the buffer green area close to Hotel Sarakawa and in environments which will be reconstituted in accordance with the reforestation programme mentioned before.

Monitoring actions will be undertaken according to the said programme in order to evaluate the situation of the fauna in the area after activities on the project site have commenced.
The works, more particularly the activities involved in banking up the beach and constructing the sand barrier, will have a negative impact on marine turtles in that they affect the quality of the nesting sites.

As for the plant life, a turtle management and protection programme is being developed with the involvement of institutions and persons specialising in this subject. The programme will include the development of an information and awareness campaign. The beach will be monitored and nests identified will be relocated.

Waste
In addition to considerable quantities of various materials which will be collected in the course of cleaning the area during the pre-construction phase of the terminal, various types of solid and liquid waste, including everyday waste and hazardous waste, will be produced on the construction sites. Garbage bins will be placed on the sites. The waste thus collected will be evacuated to the appropriate public rubbish dumps regularly, which will prevent pollution of the marine environment. Specific measures will need to be developed to address handling of hazardous waste. Companies will be responsible for preparing and applying an environmental management plan which specifies appropriate management of this waste, including the different types of wastes and hazardous waste coming from outside the project site.

During the operational phase of the terminal, the production of solid and liquid household waste and industrial waste, including hazardous waste, is also expected. The design of the terminal thus provides for purification of toilet water, collection of oil and grease and controlled evacuation of garbage by the operator according to national standards and directives and, in their absence, according to international regulations on this matter.

Socio-economic environment
From the pre-construction phase (at the latest by the start of the construction phase) those people occupying the site of the facilities and involved in the activities found in or carried out around it will be relocated from the site permanently or they will no longer be able to continue with the activities that they are currently involved in. The 175 market gardeners, 1494 persons involved in the collection of sand and the tenant of the bar/restaurant and its staff are the main people concerned and will be relocated according to the Bank’s Involuntary Resettlement Policy. It is in this manner that a full resettlement action plan for the market gardeners and a full resettlement action plan for the sand miners were developed. The details on these plans can be consulted in the separate summary on the Resettlement Action Plans for this project.

The project has the potential of breaking social and cultural ties that characterise the populations in the area of the project. These ties have guided the populations in their economic and social activities, including sand collection, market gardening, harvest festivals etc. The break will be more serious if the population, due to the involuntary relocation, are not relocated to the same new locations and will no longer have their financial support systems, a shared culture etc.

Public health
During the two years that the construction works will continue, the intermingling of the riverside communities and the site workers could have a harmful impact on the health of these communities or that of the workers, particularly by spreading sexually transmitted infections like HIV-AIDS. In fact, large projects like the one concerning us attract workers coming from various backgrounds to settle in a place where they are away from their families for a long period of time, and this often leads to their displaying risky sexual behaviour.
During the construction phase, companies will be responsible for developing and implementing health programmes that include prevention of STI-HIV/AIDS and that will be aimed at both the labourers and the riverside populations.

Health and safety
Considering the nature of the work that they will have to perform, workers will be subject to health and safety risks during all the phases of the project (pre-construction, construction and operation). Such risks will be managed through health and safety plans at work, which will be mandatory for companies and for LCT during the operation phase. The said plan must include measures for prevention of accidents at work stations, which are to focus on safe behaviour such as wearing personal protection equipment; measures for prevention of and response to fire and measures for managing dangerous substances, as well as emergency response in case of accidental spilling of such substances.

6.2. Positive impacts

National economy and local economy
The most significant potential impact of the project is expected in the operation phase, during which the socio-economic consequences will contribute towards improving the national economy and the local economy. The Togolese state and the city of Lomé will have supplemental revenues with the injection of the financing for the realization of the terminal. The salary mass will have important fiscal effects. There will be an increase in taxes due to the increase in revenues by each person directly or indirectly involved in the terminal activities. The PAL will benefit from direct income from the container and the vessel calls as well as an increase in incomes. Maritime services will be improved. The increase in revenues and incomes for the state and the concerned institutions will enable them to have additional financial resources to enhance existing infrastructure and services and also to realize other projects or initiatives which would contribute to the economic development of the country.

Construction and operation of the terminal will make room for new companies and commercial activities. This emergence will be accompanied by a great demand for staff to support their activities. There will be direct and indirect job opportunities during the construction phase and the operational phase. Small and medium enterprises and large enterprises will be created to respond to the services and needs of the terminal. The additional incomes and salaries will benefit the national economy and the local economy. The same incomes and revenues will be injected into the Togolese economy for the purchase of merchandise for households and equipment for businesses and to ameliorate living conditions.

Job creation
The project prioritizes local recruitment. The recruitment of youth and women is also considered. Certain parts of the construction works will experience a need to employ local businesses and their staff, and this will require a considerable labour force. As skilled workers are available in large numbers in Lomé, most of these will be recruited on site. The project will result in the creation of direct employment opportunities (1,200 persons) and indirect employment opportunities (2,500 - 3,000 persons) during the construction phase. There will be permanent employment opportunities at the terminal (700 persons). Several associated and secondary jobs will also be required for such large projects that are carried out by such a large staff complement. Indirect employment opportunities (2,500 - 3,000 persons) will be created during the
construction phase. There will be employment opportunities (2000 - 2500 persons) in support of the terminal's activities, such as suppliers, hotels, transporters, etc.

**Training of personnel**
The operation of the terminal will require staff with specialized technical skills. Since these skills set are not necessary available in Togo, LCT has planned for a training program for its personnel. The program will serve to strengthen the capacities of the personnel by transfer of required expertise. The certification and training of the personnel will have a permanent effect and will establish a set of competent professional personnel in Togo and the sub-region.

**Reputation of Togo**
Togo will gain a prestigious reputation due to hosting the realization of the largest project being developed in the region. The name of the Lomé Port will be inscribed in the world of container traffic making Lomé a focal point for West African traffic. The terminal will reduce overall transport costs for merchandise originating from or destined to Togo. The terminal will contribute to the promotion of opportunities for importation and exportation of Togolese products and also for products coming from neighboring countries.

**Enhancement of the socio-economic potential of the port zone**
The Lomé Port represents to a number of Togolese a space for economic transactions which offer different options for profitable activities. The labor market, the profits from diverse economic transactions for different users, and the sustainability of activities developed in or around the port as well as their stability and security depend on the growth, expansion or development of port activities, which will be the case with the terminal.

**Stopping of sand collection activities**
The project requires putting an end to sand collection activities in the project area. Relocation of these sand miners will facilitate the closure of the beach collection site and will thus alleviate the pressure on the sand sites. There will be fewer impoverished and abandoned quarries in the landscape. There will be fewer disturbances in the coastal configuration – contributing to the reduction of soil erosion along the coast.

**Protection of the environment**
The project will include undertaking actions with the aim of preserving the environment and conserving the biodiversity due to the negative impacts of the project on mangroves and marine turtles. A plan for replanting the mangroves and the thickets and promoting classification of an identified area as a nature reserve is provided for and will be realised. A turtle management plan to protect marine turtle nesting will also be carried out. These plans are already being developed in consultation with critical stakeholders implicated in the sector, including non-governmental organizations.

**Other Positive Impacts**
The project will result in other positive impacts:

The project will offer an alternative means for transporting merchandise. This alternative will contribute to a decrease in atmospheric pollution.

The construction of the road connecting Ghana and Benin is in the process of being realized. The rehabilitation of the road will facilitate access to the terminal and the movement of vehicles destined to the terminal.
The construction of parking stations for trucks relying on the routes connecting the ports is underway. The parking stations will reduce traffic congestion on the road for trucks coming from or going to the terminal.

**Implementation of environmental and social measures**

LCT envisages taking various actions to reduce the environmental and social impact of the project. An Environmental and Social Management Plan (ESMP) was developed at the ESIA stage. The ESMP sums up important measures, responsibilities, follow-up indicators and means of verification etc. during the different phases of the project. Moreover, this ESMP was ameliorated to better respond to the requirements and policies of the Bank.

*During the pre-construction phase:* LCT will take care of appropriate management of the products used for clearing the site and putting plans in place for replanting the mangrove and protecting the turtles, and of their implementation.

*During the construction phase:* Based on the environmental awareness established in the ESIA and orientations indicated in the ESMP of the project, companies will establish environmental and social management plans for the facility and for the progress of the construction sites. These plans must identify all the sources of significant impact (risks activities) associated with preparing the holding area of the works, transporting the material and site equipment and supervising the works on the one hand, and a specific sense of awareness of the area and the construction site on the other hand. Always being guided by the directions of the ESMP, but also taking into account the possible potential problems that are specific to the construction site and that have not been considered in this reference document, they should suggest measures and actions to address these problems effectively. These plans must eventually identify who the managers in charge of carrying out and following up the measures and actions contained in the plans will be. A prevention plan for STI-HIV/AIDS will be developed jointly by the companies and LCT. The companies will be responsible for applying it to their own staff, whereas LCT will implement it with the riverside communities. In addition, companies must develop health and safety plans that include taking responsibility of all the risks inherent in the activities that they conduct during the entire period of their work.

The company constructing the barrier has developed an environment assurance plan and a safety and hygiene plan. The former focuses on the management of noise, vibration, dust, soil pollution and the protection of the turtles. They have also defined an emergency reaction plan in case of a spill accident. The second plan defines, among other things, the sources of danger, measures to take for limiting the risks and the follow-up procedure of the plan.

*During the operation phase:* The responsibility of environmental and social management is incumbent upon LCT, who must have at least one environmental officer and one health and safety specialist in their team to take care of management of the terminal. Thus, in the light of the project ESMP, annual work programmes will be developed, implemented, followed and assessed.

7. **Additional initiatives**

Cumulative effects can occur with the existing road projects. In fact, the development of the coastal route between the border of Ghana, the development of the route towards Benin and construction of a parking facility in the port area will contribute towards improving the transportation of goods handled at the terminal.
LCT is obliged to develop and implement various detailed management plans to better address the environmental and social impacts of the project. These plans include: a plan for replanting the mangrove and thickets, a beach rehabilitation plan to protect nesting of the marine turtles, a health and safety plan, an environmental plan, a waste management plan, a management plan for hazardous substances, a management plan for emergency situations such as accidents involving spilling of hazardous material and a traffic management plan. Some of these plans are already being developed.

8. Monitoring programme

An ESMP covering all the phases of the project is developed according to the directives of the Togolese Ministry of the Environment. It consists of an overall programme including a set of procedures, action plans and control mechanisms aimed at maximising the positive effects and reducing the negative effects of the project on the one hand, and specific management plans for management of waste, hazardous substances, emergency situations such as spilling accidents involving hazardous substances on the other hand. A budget of 162.5 million francs CFA is reserved for the implementation of the ESMP. The follow-up programme comprises follow-up activities and also monitoring of the ESMP. LCT’s capacity will be strengthened by the existence of an independent Health, Safety, and Environment (HSE) unit. The unit will be composed of HSE professionals and will be headed by an HSE manager. Factoring in the National Adaptation Action Plan of Togo of 2009 of Togo, the ESMP will be regularly improved to ensure that the project addresses climatic risks.

8.1. Environmental and social monitoring

Environmental monitoring allows checking, on site, the accuracy of the evaluation of certain effects on the one hand and efficiency of the reduction or compensation measures proposed on the other hand. The data acquired during the follow-up will allow correcting the reduction measures initially envisaged. The follow-up programme describes: (i) the elements to follow; (ii) follow-up indicators; (iii) responsibilities; (iv) follow-up period/frequency. The monitoring will be ensured by a committee headed by the Department of the Environment and within which LCT and other interested parties, like the companies involved in the construction phase, will take part. The Department of the Environment has the institutional prerogative for follow-up of the ESMP; it will define the structuring and conditions of operation of this committee.

During the pre-construction phase: On starting clearing of the site and before commencing construction works, the Follow-up Committee will undertake at least two visits to ensure that the products used for clearing the site are managed appropriately.

During the construction phase: Follow-up will be carried out at two levels: firstly, at the level of the companies and the Follow-up Committee. The companies will be responsible for following up, on a daily basis, through observing work stations or applying measures in environmental areas as required. Follow-up will also take place at the level of occurrence of the above-mentioned effect and application of measures and actions contained in the environmental and social management plans of their sites. Guided by the importance of the follow-up aspects, they will produce monthly or quarterly follow-up reports, on which the Committee will base its decisions. In addition to the company reports, the Committee will carry out site visits, under conditions that it will define, with the aim of validating the information provided by the companies. Thus, as required, the required corrections to the aspects concerned will be identified and provided.
During the operation phase: The annual work programmes will be followed up on a daily basis by the LCT expert, who will produce monthly or quarterly follow-up reports. There too the Follow-up Committee will examine these reports and carry out site visits to check the occurrence of the above-mentioned effects and effectiveness of the measures applied on the one hand, and to propose rectifying measures or actions if required on the other hand.

8.2 Environmental and social surveillance

Environmental observation aims at ensuring compliance with the environmental management measures proposed in the ESMP.

During the pre-construction phase: Through their site visits, the Follow-up Committee will stay informed of the effectiveness of the application of the required measures; it will indicate the corrections to be made if required.

During the construction phase: Observation is a responsibility which is incumbent, firstly, upon the site managers, who are responsible for ensuring that the measures retained in the ESMP are applied. In practice, observation is undertaken through inspections, review of the implementation reports, etc.

During the operation phase: Based on the monthly or quarterly follow-up reports, the hierarchical head of the platform environmentalist will ensure the application of the annual work programme and will propose, as required, corrections to be made so that this application is carried out appropriately. To this end, he must carry out inspections to validate the reports in addition to reviewing the activity reports. The Follow-up Committee will have all these reports and will organise visits to validate them.

Irrespective of the phase, the follow-up and observation results must be documented through periodic reports (monthly or quarterly) which clearly inform about the effectiveness of the ESMP implementation, constraints or difficulties in its implementation where applicable, and measures and actions to be taken to remove these. LCT is obliged to send regular reports on the environmental and social aspects of the project to the Bank. Depending on the requirements of the Bank and other backers, LCT will recruit an Independent Environmental and Social Consultant/Advisor to evaluate the progress on the environmental and social aspects; this consultant will send reports to the Bank and the other backers.

9. Public consultations and dissemination of information

The realisation of the ESIA took into account the principle of participation. Thus, all the persons who carry out activities on the site were consulted during the site surveys; their concerns, opinions, suggestions or recommendations were taken into consideration in identifying the impacts and the proposal of measures for management of these impacts, as well as in the development of different management plans. The national authorities involved in this kind of project have been consulted.

10. Environmental risk management

The activities that will be undertaken during the construction and operation phases are associated with a potential effect on the health and safety of the workers and persons present on the premises in general. On all these sites, storage of hydrocarbon constitutes a potential source of pollution (accidental spill), fire and/or explosions, while the containers of chemical products can constitute sources of chemical risks
during the operation phase. In fact, spilling accidents involving hazardous substances can cause damage to the marine environment in particular.

To reduce these risks and their potential effects on the environment and/or health and safety, a safety plan integrating these aspects will be developed by any company that is contracted by the project during the construction phase. In addition, the transportation and any other handling of hazardous materials will be carried out in compliance with national standards and good practices in this field. Finally, in the design of the terminal, LCT developed a strategy for management of hazardous substances/chemical products; it will be included in a more global health and safety plan for the terminal.

11. Conclusion
The ESIA of the construction and operation project of a terminal by the company LCT has revealed that this project will lead to negative impacts, of which the most important will occur during the pre-construction and construction phases. These impacts will be addressed through diverse mitigation measures included in the ESMP and by the complimentary initiatives. Irrespective of the negative impacts, the significance of this project lies in the positive impacts that will be achieved. The socio-economic benefits will be shared by LCT personnel, local businesses, local communities, the local economy, and the national economy. The realisation of the terminal will be an enormous contribution directly and indirectly to the development of Togo.
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