



PROJECT: Lagos Cable Car Transit Project

COUNTRY: Nigeria

SUMMARY OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

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***Nigeria: Lagos Cable Car Transit Project
Project SAP number: P-NG-D00-004***

I. INTRODUCTION

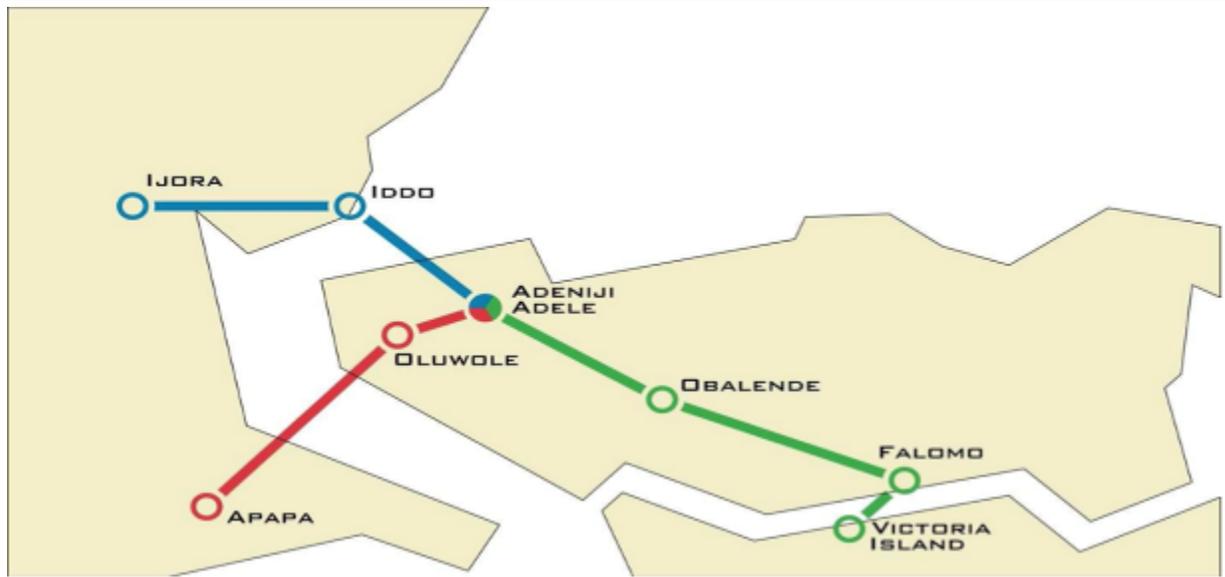
Lagos is a rapidly growing city, currently with over 17million inhabitants. The existing transport infrastructure has become capacity constrained with unacceptable levels of traffic congestion. This congestion results in its inhabitants spending as much as 6 hours per day commuting to-from their place of work, reduced commercial efficiencies which also hamper future economic growth and an overall reduction in the quality of life of its residents.

The Government of Lagos State and **Lagos Metropolitan Area Transport Authority (LAMATA)** addressed these issues with the publication of the Lagos Strategic Transportation Master Plan which includes the new LRT, Monorail and BRT transport corridors for implementation by 2012.

To further enhance the transportation system in Lagos, **ROPEWAYS TRANSPORT LIMITED** in conjunction with **Lagos State Government** and **Lagos Metropolitan Area Transport Authority (LAMATA)** intends to provide an Aerial Transport System (Cable Car) in the Lagos Metropolis. The Aerial Transport System will utilize the Tri-cable Detachable Grip (TDG) technology for mass transit of people and goods. The proposed Cable Transit System will run between Ijora, Victoria Island and Apapa, with interchange at Adeniji-Adele as indicated in the Map below. This will be constructed in the following three routes.

- Route 1 (or Blue Route): Ijora – Adeniji Adele
- Route 2 (or Red Route): Apapa – Adeniji Adele
- Route 3 (or Green Route): Adeniji Adele – Victoria Island

There are eight stations currently proposed for the three - line system: Ijora, Iddo, Adeniji Adele, Obalende, Falomo, Victoria Island, Apapa and Oluwole. The cable shall be supported with towers in 14 locations along the route.



The Proposed Cable Transit System Routes and Stations

The project is conceived out of the desire to reduce transport challenges in the State by complimenting the existing road and water transport systems and the planned rail transport systems within Lagos. In other words, the project is intended to provide a swift, modern and sustainable answer to Lagos's needs for mass transportation. The introduction of the Aerial Ropeways transport System is planned to decongest the roads of heavy vehicular traffic and improve the use of aerial travels. The African Development Bank is considering providing private sector financing in support of this project.

To realize the objectives of the Cable Transit Project, site preparation, construction and installation of the relevant facilities and amenities, operation and maintenance activities are necessary and shall be carried out.

Towards understanding and indeed appreciating the beneficial and negative impacts that could emanate from the proposed projects and associated activities, **ROPEWAYS TRANSPORT LIMITED** (ROPEWAYS), has assigned **MULTIPLE DEVELOPMENT SERVICES LIMITED** (MDS), a firm specialising in Health, Safety and Environmental Consultancy Services with the task of preparing an Environmental and Social Impact Assessment (ESIA). This is designed to assist in identifying and mitigating the impacts that could arise in the course of the project implementation.

The preparation of this ESIA is in compliance with the Federal Ministry of Environment (FMENV) Environmental Impact Assessment (EIA) Act 86 of 1992. It is also compliance with the African Development Bank (AfDB)'s environmental and social policies and guidelines as a project supported by her. One of the key requirements to achieving financial consideration for supported project with AfDB is the preparation of this ESIA and a Resettlement Action Plan (RAP). The RAP addresses potential adverse social impacts that might stem from displacement of and subsequent resettlement of people affected by the project, whereas the ESIA addresses other possible harmful social and environmental impacts of the project. The RAP was prepared *pari-passu* with this ESIA as a standalone document and disclosed separately.

II. OBJECTIVES OF THE ESIA

Environmental and Social Impact Assessment is one of the management tools used worldwide to ensure sustainable development and/or to ensure compliance with local, regional and international regulations relating to environmental protection and conservation.

In recognition of the need to balance development with environmental sustainability, this ESIA has been prepared. The assessment was designed to evaluate the consequences of the proposed project on the

environment. It is seen as an integral part of the planning process as it provides extensive documentation of the anticipated environmental and social impacts of the proposed project.

This Environmental and Social Impact Assessment provided the framework for gathering and documenting information and views on the environmental consequences of the proposed activities so that the importance of the impacts and the scope of enhancing, modifying and mitigating them are properly evaluated.

III. EXISTING POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORKS

In Nigeria, the power of regulation of all environmental matters is vested in the Federal Ministry of Environment (FMENV). In Part III of the now defunct Federal Environmental Protection Agency (FEPA) Act 88 of 1988, the State Governments are encouraged to set up “their own Environmental Protection Bodies for the purpose of maintaining good environmental quality in the area of related pollutants under their control.”

Nigeria subscribes to a number of International Regulations and Conventions relating to Environmental Protection. International Development Partners/Agencies such as the African Development Bank, IFC, World Bank and other financial organizations interested in development projects have sets of environmental categorizations, assessments and management standards, which must be complied with by project proponents before these institutions invest in them.

Thus, the duty and responsibility for environmental protection and management related to projects in various sectors of Nigerian economy are mandated under:

- Current Federal, State and Local and relevant acts, rules, regulations and standards, and the common law of the Federal Republic of Nigeria (FRN)
- International environmental agreements and treaties ratified by the Federal Republic of Nigeria
- Safeguard Policies of supporting/development partners

Below, an outline of some of the relevant regulatory instruments to this ESIA is given as they relate to the Federal, State and International arenas;

At the National level:

National Policy on Environment, 1989 (revised 1999), Economic Policy Framework, National Transport Policy (Draft), Environmental Impact Assessment (EIA) ACT 86, CAP E12, LFN 2004, Forestry Law CAP 55, 1994, Regulations Gazetted as supplementary to NESREA Act, Nigerian Urban and Regional Planning Law No 88 of 1992, National Guidelines for Environmental Audit in Nigeria, Guidelines and Standards for Environmental Pollution Control 1991, National Guidelines on Environmental Management Systems, Blueprint on Environmental Enforcement: A Citizens Guide, etc.

At State level:

Lagos State Ministry of Environment and Lagos State Environmental Protection Agency (LASEPA) Edict, Lagos State Waterfront Infrastructural Development Law 2009 (LAWID Law), Lagos Waste Disposal Board Edict, Lagos State Environmental law, 1994; Lagos State Sanitation Edict, 2004; The Lagos State Town and Country (Building Plan) Regulation, 1986; Lagos State Urban and Regional Planning Board Law, 1997; Lagos State Urban and Development Regional Planning and Development Law, 2005.

At International Level:

Conventions, Protocols and Treaties that promote the maintenance of a viable environment and achieving sustainable development endorsed by Nigeria such as Kyoto Protocol to the United Nations Convention on Climate Change, 1997, Framework Convention on Climate Change, 1992, *Aarhus, 1998, United Nations Guiding Principles on the Human Environment, and Agenda 21 – United Nations Conference on Environment and Development.* Voluntary International Standards such as Equator Principles and ISO26000, Guidance on Social Responsibility are Applicable.

At project support level:

The project integrated AfDB's environmental and social policies and guidelines, which establish the standards for conducting a comprehensive environmental and social assessment for a project of this

nature. As a private sector led project, the International Finance Corporation Performance Standards (IFC PS) January 1, 2012 are also applicable.

The principles inherent in the environmental and social standards of the AfDB and IFC are in tandem with the FMENV EIA procedures and processes. However, in the event of divergence between the two, FMENV, on one hand, and AfDB and IFC standards on the other hand, the most beneficial, environmentally and socially speaking, shall take precedence in the execution of the project and utilization of the ESIA instrument for project implementation.

IV. PROJECT JUSTIFICATION

The provision of transportation facilities is fundamentally important to the development of Nigeria as well as the well being of its inhabitants. Nigerian roads and other means of transportation need urgent attention. However, meeting this needs require that all modes of transportation be explored and expanded.

The proposed project stands to provide multiple benefits as outlined below:

- a. Reducing traffic jams on main roads and slashing commuting times
- b. Economic benefits to the Nation through levies and revenues for such projects;
- c. Economic benefits to employed personnel during construction and operation phases;
- d. Enhancement of Urban Regional Planning and Landscape features.
- e. Reducing transport poverty by facilitating the everyday life of millions of Lagos inhabitants
- f. Reducing the vehicular fuel consumption and in the process reduce vehicular emissions
- g. Will encourage foreign exchange earnings from the Clean Development Mechanism (CDM) under climate change
- h. Serves as a tourist attraction and Improvement of social standards of the people of the state.
- i. Promotes trading activities and create jobs (On completion, create opportunities for direct and indirect employment. In addition to direct employment at the airport, the project will require other services in engineering, spare parts, information technology and services, catering and cleaning, that will boost the local economy.
- j. Develop skills and build capacity in the surrounding location through international management expertise transfer during the construction and operation period.
- k. Higher income generation and revenue collection, economic transformation of the project area and accompanied amelioration of household livelihoods; emergence of small and medium enterprises;
- l. Attraction of national and regional businesses, investors, and a rise in tourism potential.
- m. The Project aligns with the AfDB's mandate to support modern infrastructure development in Africa as well as the government's priorities and strategy. Furthermore, it will enhance trade, economic growth and regional integration. The Project is economically and financially viable, and environmentally sound.
- n. The Project is in line with AfDB's Private Sector Operations Strategy as it promotes the participation of private investors in the financing of an infrastructure project in a low-income country.

V. PROJECT ALTERNATIVES

The project alternatives are considered in the light of the current situation of Lagos transportation. The density of Lagos population, the inadequate extent of road space, the land use characteristics and the absence of a mass transit system, combined with inadequate or poorly executed developmental plans and encroachment of road space, have given rise to numerous transportation problems in Lagos metropolis. These include increased traffic congestion, worsening state of disrepair of roads, deteriorating physical attractiveness and comfort of road-based public transport, sky rocketing transport fares, absence of effective rail and water mass transit, rising levels of road accidents and increasing rates of traffic related emission and atmospheric pollution and the growing menace of motorcycle (*okada*) and tricycle transports.

The Plate below typifies the traffic gridlock in the State.



Traffic gridlock in the State

V.I. No Development / No Project Option / Alternative Transport Modes

In this scenario, Ropeways Transport Limited will abandon its plan to construct and operate the Aerial Lagos Cable Cars transport system under the proposed LCCT Project. This scenario implies that road transportation will continue being the major means of transportation in Lagos State. It is notable that water transportation is fairly used while rail transport barely exists. While it is evident that the roads in Lagos are highly congested even with the introduction of BRT system and ferry services, the high emissions from the vehicles and the resulting negative impacts cannot be overlooked.

Lagos is a rapidly growing megacity with over 16 million inhabitants. Population projections estimate that it will soon become the world's third largest urban agglomeration in the near future. The existing roadway infrastructure is reaching a near breaking point as it is choked with unbearable levels of traffic congestion. The lack of urban transport options and network inefficiencies result in some commuters spending up to six hours of their workday in gridlock. This situation hampers economic development within the city and negatively impacts the quality of life of its residents.

Rail as a viable option for public transportation in Lagos is limited to the routes along the Iddo – Alagbado axis where the Nigeria Railway Corporation's single track operates. This has proved inadequate given the physical limitation to the areas where rail tracks exists and also the few numbers of rail cars available, which ensures that the limited cabs are usually over-crowded whenever available thus posing problems of passenger safety.

To address this problem, a recent Transportation Master Plan for Lagos State was drafted and several Light Rail Transit (LRT), Bus Rapid Transit (BRT) and ferry routes were proposed for implementation by 2012. However, funding issues and road construction delays have postponed some of these projects. As such, the public transport network is expected to remain relatively undeveloped in the short to medium term. There is significant demand for a safe and reliable urban transportation system in Lagos State.

V.II. Project Development Option

The alternative is to expand the current transportation options in Lagos State with the Cable Cars transit system for improved transportation. The project option of construction in the sites identified and analyzed as planned with incorporation of all necessary environmental, social and economic values from the project onset is the best alternative adopted. The introduction of the Aerial Ropeways Transportation System will decongest roads of a high number of vehicles, reduce air emissions associated with vehicular movements and improve on passengers travel time while also improving the Lagos landscape features.

V.III. Alternative Sites Analysis

At project conceptualization, about 11 possible Station site locations were selected and studied and their benefits and drawbacks were examined in detail in terms of engineering feasibility, technology analysis, practicality of construction and operational requirements, costs, landscape, visual and environmental impacts.

These locations include: Ijora, Iddo, Idumota, Apapa / Liverpool, CMS, Adeniji Adele, Obalende, Keffi, TBS, Falomo and Eko Hotel. However, the selection of specific sites within these locations has been challenging due to problems associated with land acquisition as some of the locations are owned by the State / Federal Government or Private individuals. Nevertheless, after due negotiations and consultations with the relevant stakeholders – Individuals and State / Federal Departments, 8 Primary sites have been established and are: Ijora, Iddo, Apapa, Oluwole, Adeniji Adele, Obalende, Falomo and Victoria Island. Of these, 6 are Government owned property.

In summary, the selected alternative appears to be the most optimal, which takes into consideration the needs of the people and an economically profitable scenario. While it is expected that certain negative biophysical and socio-economic impacts will be expressed by the project, it is certain that if adequate measures are put in place to mitigate the negative impacts of the project, it would result in overall net positive impacts on both the local and national economies.

VI. DESCRIPTION OF THE PROJECT ENVIRONMENT

A strategic approach was adopted in establishing the environmental baseline status of the study area. This involved obtaining the environmental characteristics through project site-specific characteristics through field data gathering exercise (observation, onsite measurements and sample collection) as well as laboratory analysis of collected samples.

Biophysically, the climate of the project area is humid tropics (i.e. semi-hot equatorial). It is controlled by latitudinal locations, prevailing (seasonal) winds and nearness to the Atlantic Ocean. There are two dominant air masses, namely: the dry northeasterly Tropical Continental (cT) from across the Sahara, north of the West African region, and The wet southwesterly Tropical Maritime (mT) from across the Atlantic Ocean in the south. Separating the two air masses is an Inter Tropical Convergence Zone (ITCZ), often referred to as *Inter-tropical Discontinuity (ITD)* or *Inter-tropical Front (ITF)*. The front oscillates with the apparent location of the sun towards the north and south of the equator thereby accounting for the dominant seasons of the area. Marginal alterations are also recorded due to other landform characteristics, especially the dominant ocean currents, configuration of surrounding shoreline and the generally flat topography of the region.

Rainfall (i.e. amount and distribution) is the single most important element for defining the climatic seasons in the tropics where the project corridor is located characterized by two dominant seasons; *the wet and the dry seasons*.

With regard to air quality, the result of ambient air quality measurement around the project area showed that NO₂, VOC, H₂S and SO_x were below equipment detection limit (<0.00ppm) in all the sampling locations. At the stations monitored, noise levels ranged from 49.8dB to 71.8 dB

The soils are very deep, moderately well drained. They have grayish-brown, loamy sand surface underlain by dark yellowish-brown to very pale brown loamy sand subsoils. The soil reaction in the topsoil is strongly acid (pH 5.0- 5.8), and the exchangeable cations are moderate for Ca, Mg and Na but low for K. In the subsoil, the soil reaction is very strongly acid (pH 5.2 – 5.3) with moderate exchangeable Ca, Mg and Na but low for K.

With regard to fauna and flora, the natural habitats of Lagos have been modified extensively including the coastal swamp and mangroves, and freshwater swamp forests and lowland rainforest. Fauna and flora were hardly found in the site locations. With regard to hydrobiology, the macrobenthic abundance and composition at the study stations were low.

Geologically, the project area falls within the Dahomey sedimentary basin, a basin known to have resulted from events associated with the break-up of Gondwana and subsequent opening of the southern Atlantic.

Deposition was in a fault-controlled depression, bounded by faults and other tectonic structures of the Romanche Fault Zone on the west, and by the Benin Hinge line, also a major fault structure, on the east. Sediment thickness in the basin, which extends from Accra/Ghana to the Okitipupa Ridge, where it is separated from the Niger Delta, increases from north to south and from east to west within Nigeria.

Socioeconomically, Lagos is a rapidly growing megacity with over 10 million inhabitants. Population projections estimate that it will soon become the world's third largest urban agglomeration in the near future. The existing roadway infrastructure is reaching a near breaking point as it is choked with unbearable levels of traffic congestion. The lack of urban transport options and network inefficiencies result in some commuters spending up to six hours of their workday in gridlock. This situation hampers economic development within the city and negatively impacts the quality of life of its residents.

The Lagos Metropolitan Area is responsible for over 50% of Nigeria's industrial and commercial establishment while accounting for over 70% of the country's manufacturing activities. Population densities upwards of 34,000 persons per km² exist in the CBD. The substantial growth in the state is characterized by densification of the centre core and ribbon development along the main transportation corridor. The situation is expected to deteriorate further due to a limited road network and carriage resulting in perpetual congestion on the main as well as arterial roads within the city.

VII. PUBLIC CONSULTATIONS AND PUBLIC DISCLOSURE

Public participation in the ESIA included consultations and communications. Consultation included a two-way process in which ideas about the project and concerns of stakeholders and the project designers were shared and considered mutually by affected populations and other stakeholders. Communication included the dissemination of information from the project proponent to the concerned public about the project and any other relevant issues. The following is a summary of the PAPs and other stakeholders:

- All identified stakeholders and affected persons showed signs of being fully aware of the project.
- Majority of the stakeholders are largely awaiting the effective commencement and completion of the project.
- The local Government officials welcomed the idea
- It is a welcome development as it will ease off the traffic problem in Lagos
- Most union leaders expressed appreciation for the project and will very much liked to be carried along in the overall project planning and execution as it affects their various locations.
- It is a good project and we welcome fresh idea/initiatives but we however advise the station be constructed in a manner that adverts can be done on them
- It is a good project and we are interested in how we will be affected.
- Employment of those to the displaced and youth from surrounding the communities will add colour to the project.
- What are the carbon impacts this project will have on the environment?
- How about the safety? Since power is not stable how do we run this kind of technology?

A Stakeholder Engagement Plan has been developed geared towards a robust stakeholder's involvement in the development and implementation throughout the life cycle of the project.

With regard to Public disclosure, the ESIA is expected to be disclosed in-country at designated locations as directed by the Federal Ministry of Environment to the general public and in the Bank website for review and comment before it is approved by the Bank.

VIII. POTENTIAL IMPACTS

The transport sector has played a strategic role in the socio-economic development of Lagos. It is envisaged that the proposed project will further strengthened the socio-environmental benefits that have accrued over the year.

Positively, the project is envisaged to have a range of positive environmental and social impacts. Some of these are a function of the objectives of the project, while others are a function of the way in which the project is designed to meet its objectives. Generally, the potential beneficial impacts include: improved transportation, economic benefits, employment generation, poverty reduction, social services, travel and transport, enhanced gender opportunities, fuel economy, reduced pollution, access to opportunities by the urban poor, reduced cost of transportation among commuters, employment opportunities, improved land

use, visual aesthetics, revenue to the government, Reduction in Pollutants and Greenhouse Gases, foreign exchange earnings from the Clean Development Mechanism (CDM) under climate change, support of AfDB's mandate vision on modern infrastructure development in Africa, etc.

Conversely, the proposed development, unfortunately, is also likely to exert negative impacts on the social and physical environment within which it is executed. These impacts can be divided into two, namely:

- Short-term construction related impacts such as environmental impacts on air quality, noise and vibration, waste generation, disruption of traffic, displacement of persons in project locations (already captured fully in the RAP) and health and safety impacts. Unless good construction management practices are followed, construction activities can cause serious environmental pollution, environmental degradation and health and safety concerns to both workers and the public.
- Long-term and permanent activities of the operation phase leading to recurring but avoidable impacts which consist mainly of waste generation, accident, air quality degradation in the event of use of diesel generators, and noise.

During the decommissioning phase, the likely impacts include:

- Physical disturbance arising from equipment removal techniques
- Soil erosion resulting from improper reinstatement of excavated soil
- Air quality degradation and noise generation in the course of excavation to remove entrenched equipment and the breaking down of buildings/structures
- Hazards/risks and accidents
- Waste management problems
- Social misfit/miscreants taking over the site

VIII.I. Irreversible Changes

The only irreversible change identified is the relocation of persons from their original place of business. This impact will be addressed through monetary compensation that will allow those impacted to find alternative locations. No other significant long-term losses of significant resources are anticipated with the project. The project will not generate nor lead to other significant demands on natural resources of the immediate or surrounding area nor disturb archaeological sites.

VIII.II. Cumulative /Secondary Impacts

Cumulative impacts are changes to the environment that shall be caused by the proposed project activities in combination with other past, present and future human activities.

Cumulative impacts arising from this cable transportation project will be minimal because of the large distance from one station to the other and from one tower to the other. The operation mechanism and the use of the latest technology in terms of environmental conservation will lead to minimal level of cumulative impacts bearing in mind the baseline status of the various locations.

VIII.III. Environmental justice

This project transmission will serve the entire public and are not meant for a particular section of the society. No particular neighborhood would be affected by the physical environmental impacts differently than another.

IX. MITIGATION MEASURES

The impacts identified were assessed with concomitant 'mitigative' measures developed. The mitigation measures are activities aimed at reducing the severity, avoiding or controlling the project impacts and where possible enhance environmental quality through the designed alternatives, scheduling or other means. The mitigation measures are in the form of avoidance (alternative action taken to avoid impact), compensatory payment of money or replacement in kind for losses or recreation of lost/damaged asset or resources.

The measures proposed are specific, measurable, achievable and relevant to the proposed project and time based (SMART). The measures also took into account the environmental laws in Nigeria, and internationally and the principles of sustainable development and best available technology as outlined in Chapter 6.

IX.I. Safety Management

With regard to safety management, the Doppelmayr control system is based on a fail-safe system, which will satisfy the requirements for the highest safety standard for the control systems. To enhance safety management, the electric controls are designed, manufactured and assembled by Doppelmayr for the following equipment: main drive, evacuation drive, tensioning unit, over voltage protection, service and emergency brakes, launching/conveying system, communication system between stations, anti-collision, speed control, wind speed and wind direction indicators, derailment indication system for tower, automatic storage and feeding of cabins onto the line, cabin identification, grip force check, whole system with 24v battery back-up, 1 remote control panel for each station mounted outside of operator hut, fault indicators for launching/conveying, all control circuits, brake system, hydraulic unit, all safety devices and/or controls function during evacuation operation, grounding rod, telephones and electric main drive primarily used for normal operations with a diesel hydrostatic evacuation drive is used independently in case of a failure of the main drive.

IX.II. Negative Residual Impact after mitigation

Residual Effects can be considered as those that remain significant following the application of mitigation measures, although they are likely to have been reduced in magnitude as a result of the mitigation measure implemented.

During construction, after administration of the mitigation measures only **noise level was** found to remain moderately negative. Construction, which will last for about 24 months, is one-off event. Thus the noise will cease after this period. No residual impacts were identified during operation except best practice is neglected,

IX.III. Environment and Social Mitigation Principles

For the anticipated potential negative impacts, the ESIA has provided mitigation principles for preventing, minimizing or managing various environmental and social impacts as an integral part of projects planning and management.

Specifically, to ensure effective management of all identified safeguard issues; the ESIA provides an idea of clauses that should be incorporated into contracts with construction companies. Examples include: Construction contracts should (select or develop guidelines and procedures to be applied to each facet of the construction—site clearing, construction, drainage, fuel and material usage, quarry site management, construction camp and work site operating procedures, including worker safety and Include incentives for adhering to guidelines and penalties for violating them), maintenance agreements, etc.

X. ESMP IMPLEMENTATION AND MANAGEMENT

The Environmental & Social management Plan (ESMP) stands to provide a framework for systematic managing of the responsibilities associated with managing the identified impacts with a view to ensuring environmental friendliness of the proposed project. The successful implementation of the ESIA depends on the commitment of the sector and related institutions, and the capacity within the institutions to apply or use the framework effectively, and the appropriate and functional institutional arrangements, among others. Hence these key ESIA areas relevant to its successful implementation were included in the ESIA, namely: institutional arrangements, capacity building, and environmental / social monitoring.

X.I. Safeguard Implementation Responsibilities

The roles and responsibilities of these levels of institutions are outlined in the Table A.

S/No	Category	Roles
	ROPEWAYS As the implementing authority, has the mandate to:	- Implementing agency has the mandate to ensure effective implementation and compliance of all socio-environmental requirements

Table A: Safeguard Responsibilities

S/No	Category	Roles
	Federal Government MDAs (Federal Ministry of Environment and her agencies (Such as NESREA)	<ul style="list-style-type: none"> - Lead role -provision of advice on screening, scoping, review of draft EA/ESMP report (in liaison with State Ministry of Environment), receiving comments from stakeholders, public hearing of the project proposals, and convening a technical decision-making panel, Project categorization for EA, Applicable standards, Environmental and social liability investigations, Monitoring and evaluation process and criteria.
	State Government MDAs (Ministry of Lands, Survey and Urban Development, Ministry of Environment, etc. Other MDAs	<ul style="list-style-type: none"> - Compliance overseer at State Level, on matters of Land Acquisition and compensation and other resettlement issues, - Come in as and when relevant areas or resources under their jurisdiction or management are likely to be affected by or implicated sub-projects. - They participate in the EA processes and in project decision-making that helps prevent or minimize impacts and to mitigate them. These institutions may also be required to issue a consent or approval for an aspect of a project; allow an area to be included in a project; or allow impact to a certain extent or impose restrictions or conditions, monitoring responsibility or supervisory oversight
	AfDB	<ul style="list-style-type: none"> - Assess implementation - Recommend additional measures for strengthening the management framework and implementation performance.
	PMU Safeguards Unit	<ul style="list-style-type: none"> - Liaise closely with Ministry of Environment in preparing a coordinated response on the environmental and social aspects of project development.
	Local government	<ul style="list-style-type: none"> - Liaising with the PMU to verify adequacy of resettlement location and provide approval for such sites, Providing additional resettlement area if the designated locations are not adequate, Provide necessary infrastructures in relocated areas, engage and encourage carrying out comprehensive and practical awareness campaign for the proposed sub-projects, amongst the various relevant grass roots interest groups.
	Trade Union/CSOs/ CDA	<ul style="list-style-type: none"> - Assisting in their respective ways to ensure effective response actions, Conducting scientific researches alongside government groups to evolve and devise sustainable environmental strategies and rehabilitation techniques, Organizing, coordinating and ensuring safe use of volunteers in a response action, and actually identifying where these volunteers can best render services effectively & Providing wide support assistance helpful in management planning, institutional/governance issues and other livelihood related matter, Project impacts and mitigation measure, Awareness campaigns
	The General Public	<ul style="list-style-type: none"> - Same as above

X.II. Measures for Strengthening Organizational Capability

The HSE Unit of Ropeways shall ensure that all identified members of the implementation team are trained prior and during implementation of ESMP. To enhance the respective roles and collaboration of the relevant stakeholders, areas of capacity building have been identified in the ESIA such as

environmental management planning; monitoring and environmental audit; annual environmental report preparation and other reporting requirements; public participation techniques; etc.

X.III. Environmental & Social Monitoring Plan

The 'mitigation and monitoring plan' to both monitor and evaluate the implementation of mitigation measures and the project performance on environmental and social baseline conditions has been included as an integral part of the ESIA which is outlined in the Table B.

Table B: Environmental & Social Monitoring Plan

Component	Location	Parameters	Frequency	Monitoring	Cost*		Responsibility	
					Construction	Operation	Construction Phase	Operations Phase
Project stage: Design and Construction								
ENVIRONMENTAL ASPECTS								
Top soil	All construction Sites and top soil Stockpiles.	Visual inspection of: <ul style="list-style-type: none"> Disturbed areas for top soil erosion Top soil stockpiles for erosion. 	Monthly with Selected areas Inspected after heavy Rainfall events at the discretion of the Environmental Manager	To minimize the loss of topsoil.			EPC Contractor Sign off by RTL Supervisor Regulator	
	All chemical and waste storage areas	Visual inspection of areas for spills and leaks which might impact top soil quality and ultimately potentially groundwater	Monthly	To avoid soil and surface water and groundwater contamination.			EPC Contractor Sign off by RTL Supervisor Regulator	
Surface water	At all construction sites in vicinity of surface water courses	Chemical analysis of outfalls from wastewater treatment systems that discharge to surface water.	Start-up of activities involving works near and at watercourses Monthly during construction	To minimize the risk of pollution of surface water To avoid affections to flow and sedimentation patterns. To avoid health risks to residents.			EPC Contractor Sign off by RTL Supervisor Regulator	

Air Quality - Dust	At all 8no Station and 14no Tower sites and along the ropeways alignment corridor	Visual checking of dust emissions from construction sites. Air monitoring procedures will be implemented at sensitive receptors	Monthly during construction works involving earth movements. Increased frequency during dry season.	Minimization of particulate Air pollution.			EPC Contractor Sign off by RTL Supervisor Regulator	
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Component	Location	Parameters	Frequency	Monitoring	Cost*		Responsibility	
					Construction	Operation	construction Phase	Operations Phase
Project stage: Design and Construction								
ENVIRONMENTAL ASPECTS								
Air Quality – Combustion Gases Noise	At all 8no Station and 14no Tower sites and along the ropeways alignment corridor	Visual checking of gas emissions for signs of incomplete emissions Air monitoring procedures will be implemented at Sensitive receptors	Monthly during Construction works	Meeting air quality standards and minimizing impacts to Workers and neighboring sensitive receptors			EPC Contractor Sign off by RTL Supervisor Audits by Environmental Inspector from Lagos State Environmental Protection Agency (LASEPA)	
	At all 8no Station and 14no Tower sites and along the ropeways alignment corridor	Measurement of noise levels at sensitive receptors	At start up and then monthly	To minimize noise pollution from construction activities			EPC Contractor Sign off by RTL Supervisor Regulator (LASEPA)	

Landscape	At all 8no Station and 14no Tower sites and along the ropeways alignment corridor	Visual assessment of landscape impact	At start up and then monthly	To ensure that landscaping is effectively managed and minimize temporary visual impacts during construction			EPC Contractor Sign off by RTL Supervisor Audits by Regulator	
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Table B: Environmental & Social Monitoring Plan, cont'd

Component	Location	Parameters	Frequency	Monitoring	Cost*		Responsibility	
					Construction	Operation	Construction Phase	Operations Phase
SOCIAL ASPECTS								
Resettlement Community Health & Safety	Each Project Affected Person	Assess each Project Affected Person to ensure that the resettlement has been undertaken in compliance with RAP, and AfDB's guidelines on Involuntary Displacement and Resettlement in Development Projects, has been done in accordance with RAP. Complaints from residents Through the grievance Mechanism	As detailed in RAP	To ensure that the RAP have been undertaken effectively.			RTL	
	Communities adjacent to the construction sites	Safety barriers and signage. Monitoring of Community health and safety educational program to ensure that it is effective. Monitoring accidents and near misses. Complaints from residents through the grievance mechanism.	Prior to the start of the construction phase Daily checking of construction sites boundaries	Mitigating health and safety risks to residents			RTL	

Resettle ment	Each Project Affected Person	Assess each Project Affected Person to ensure that the resettlement has been undertaken in compliance with RAP, and AfDB's guidelines on Involuntary Displacement and Resettlement in Development Projects, has been done in accordance with RAP. Complaints from residents through the grievance mechanism	As detailed in RAP	To ensure that the RAP have been undertaken effectively.			RTL	
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Comp onent	Locati on	Parameters	Frequenc y	Monitoring	Cost*		Responsi bility	
					C onstr uction	O pe ratio n	con str uction Ph ase	Op era tions Ph ase

SOCIAL ASPECTS

Resettle ment Commu nity Health & Safety	Each Project Affected Person	Assess each Project Affected Person to ensure that the resettlement has been undertaken in compliance with RAP, and AfDB's guidelines	As detailed in RAP	To ensure that the RAP have been undertaken effectively.			RTL	
	Communit ies adjacent to the constructi on sites	Safety barriers and signage. Monitoring of Community health and safety educational program to ensure that it is effective. Monitoring accidents and near misses. Complaints from residents through the grievance mechanism.	Prior to the start of the construction phase Daily checking of construction sites boundaries	Mitigating health and safety risks to residents			RTL	

Resettle ment	Each Project Affected Person	Assess each Project Affected Person to ensure that the resettlement has been undertaken in compliance with RAP, and AfDB's guidelines on Involuntary Displacement and Resettlement in Development Projects, has been done in accordance with RAP. Complaints from residents through the grievance mechanism	As detailed in RAP	To ensure that the RAP have been undertaken effectively.			RTL	
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Comp onent	Locati on	Parameters	Frequency	Monitori ng	Cost*		Responsibilit y	
					C onstruction	Op eration	constru ction Phase	Op eration s Phase
SOCIAL ASPECTS								
Occupati onal health and safety measure s for workers	At the constructi on Sites	Monitoring compliance with applicable standards and national legislation for worker PPE and safety equipment	Before the start of the project activities Every working day	To avoid occupational injuries and / or professional illnesses			EPC Contract or Regulato r for OH&S issues	
Local employ ment	At the constructi on sites	Monitoring of number of locals employed on the project.	Before the commencement of construction works. Monthly during the construction period.	Ensuring local communities benefit from employment opportunitie s			EPC Contract or	

Project stage: Operation

ENVIRONMENTAL ASPECTS

Air Quality – Combustion Gases	Areas with sensitive residential receptors and at stations	Checking emissions of Gas Engines at stations. Air monitoring procedures will be implemented at stations and along sensitive receptors	Before operational activities and periodically during operations	Meeting air quality standards and minimizing impacts to passengers and neighbouring sensitive receptors				RT L
Noise	Areas with sensitive Receptors along all three routes of the alignment	Day and night measurement of noise levels at sensitive receptors	Before operational activities and twice a year during operation	Meeting noise quality standards				RT L

Component	Location	Parameters	Frequency	Monitoring	Cost*		Responsibility	
					Construction	Operation	Construction Phase	Operations Phase

SOCIAL ASPECTS

Stakeholder Engagement	Along ropeways corridor	<p>The number and types of Stakeholder engagement Activities should be monitored and reported on – activities need to be processed and analyzed. Monitoring to be done through following activities: how many public meetings were held, how many people attended, what issues were discussed, what were the comments/ grievances about, how will they be addressed, etc. The number and types of grievances received should also be monitored and reported on. This should also involve processing and analysis, for example: categorization of grievances (those related to land acquisition, economic displacement, health and safety, construction nuisances, community impacts, etc.), Average time to respond, Outstanding grievances etc</p>	Regular monitoring on monthly base	To allow and provide full engagement of stakeholders during all phases of the Project			<p>RTL</p> <p>Sign off by FMEnv</p> <p>And Audits by Lagos Local Government</p>
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Component	Location	Parameters	Frequency	Monitoring	Cost*	Responsibility
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ment	ion		Frequency	ing	C o n s t r u c t i o n	O p e r a t i o n	c o n s t r u c t i o n P h a s e	Operat i o n s P h a s e
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SOCIAL ASPECTS

L a n d A c q u i s i t i o n, I n v o l u n t a r y R e s e t t l e m e n t & E c o n o m i c D i s p l a c e m e n t	RTL/ FMENV offices, Legal and property Offices/ on site	Activities related to land acquisition should be recorded in an appropriate manner to allow for data processing, monitoring and reporting, for example: number of Project Affected Persons / households / Businesses affected, type of impact - Temporary or permanent land acquisition, type of compensation packages Or assistance provided, Identified and assisted Vulnerable groups, number of negotiated settlements, number of court or administrative appeals, etc.)	Regular monitoring On monthly base	To assure that Project Affected Persons / households / Businesses are receiving Necessary support in restoring Their life and standards from temporary and permanent Land take				RTL
S o c i a l M o n i t o r i n g	Contractors (Operator, FM and E,O&M) offices	Record the number of job vacancies resulting from the Project and the number of vacancies taken up by residents of affected local communities.	Every three months	To assure proper Management of Local Recruitment plan				RTL

	8no Ropeways stations	Monitoring effects on population by reporting on a number of question for the impairments and improvements of the life from project realization and specific problem identified by local residents.	On each three Months	To assure that the project realization will improve life of The residents				RTL
Component	Location	Parameters	Frequency	Monitoring	Cost*		Responsibility	
					Construction	Operation	Construction Phase	Operations Phase
SOCIAL ASPECTS								
Labour & Workforce Monitoring	On the Ropeways Scheme	Monitoring of protection measures for preventing workers accidents during operational phase, worker and labour inspections and disputes	Regularly on daily Basis	To assure that all required Standards are fulfilled				RTL
		Monitoring the safety of workers (alcohol testing)	Regularly on daily Basis	To prevent workers accidents				RTL
Community health and Safety educational Program developed for The ropeways operation	On the Ropeways Scheme	Checking that the program is prepared and implemented. Visual monitoring of their implementation through media and other education forms.	Regular monitoring On monthly base	To avoid accidents that may occur during the operation of ropeways				R T L / FME nv

X.IV. Budget

To effectively implement the environmental and social management measures suggested as part of the ESMP, necessary budgetary provisions shall be made by ROPEWAYS for the project components.

Tentative budget for each of the project shall include the environmental management costs other than the good engineering practices, cost of environmental and resettlement monitoring. All administrative costs for implementing the ESMP shall be budgeted for as part of the costing as presented in Table C.

Table C: ESMP Implementation Schedule for the Stations and Towers

S / N	Activity Description	Responsible	Pre - Construction	Construction						Post Construction (Operation)	Budget (N)
1.1	Disclosure of Environmental Assessment Report	RTL	■								5,000,000.00
2.2	Allocating Budget for ESMP	RTL	■								0
3.3	Appointing Support Staff for ESMP	Contractor	■								10,000,000.00
4.4	Review and Approval of Contractor's ESMP and Safety Plan	RTL	■	■	■						3,500,000.00
5.5	Finalizing site and layout plan of construction plan	Contractor		■	■						0
6.6	Finalization of Borrow and Excavation Areas	Contractor		■	■						0
7.7	Implementation of Mitigation Measures	Contractor		■	■	■	■	■	■		35,000,000.00
8.8	Supervising ESMP Implementation	Contractor/RTL		■	■	■	■	■	■		5,000,000.00
9.9	Environmental Auditing	RTL/ HSE Consultant			■			■	■		15,000,000.00

X.V. RECORD KEEPING

Good records are the paper trail that will prove that the ESMP is working as intended. Keeping records of inspection of maintenance program for mitigation measures, training program, etc. will be useful to demonstrate that the ESMP is being complied with or not. The type of records from the various management and monitoring program include:

- Completed forms, checklists and maintenance logs
- Identified problems and corrective actions undertaken
- Monitoring data / results

Some other types of records will also be valuable for assisting with the implementation and review of the ESMP such as:

- Incident forms (especially pollution incidents and response, accidents, etc.)
- Internal and external communications regarding the ESMP (e.g. with waste management)
- Results of internal or external assessments and compliance visits.

Quarterly reports on the ESMP implementation shall be submitted to the AfDB.

X.V1. CONCLUSION

The study has indicated that the establishment of the proposed project will not severely and negatively impacts the existing environmental, social and health as well as safe conditions of the people, locally, nationally or internationally.

The proposed project is most desirable because of the obvious environmental, health cum socio-economic benefits. These far out-weigh the negative impacts that could arise in the course of implementation.

Potential impacts of sufficient magnitude that could interrupt the execution of the project were not detected. Although some negative impacts may potentially occur due to the activities associated with the proposed project adequate and SMART measures have been provided to address them.

Mitigation measures and management plans have been suggested and developed for the negative impacts.

Appropriate institutional framework shall be set up to implement the mitigation measures recommended while the proposed monitoring programmes shall be set in motion as soon as possible.

Based on the following considerations, the project can be adjudged to have high sustainability likelihood.

- The personal commitment and interest of the Executive Governor and indeed the Government of Lagos State to solving the traffic problems of Lagos, as part of efforts towards turning Lagos into a megacity;
- The implementation Agency of the Lagos State Government, LAMATA who have already shown high level of commitment in solving the transportation problems of the state with successful implementation of the Bus Rapid Transit (BRT) which confirms the sustenance of the planned project;
- The overarching desire of the average Lagosian, to ease traffic in the metropolis, which will guarantee their support for the project;
- An estimated seven million daily commuters utilize the severely overcrowded road spaces. The absence of the public sector in providing transit services has led to the domination of the private sector in providing mobility to Lagosians. Most travel is conducted via road transport as the rail and ferry networks are highly undeveloped and underutilized;
- The globally acknowledged technical competence of Doppelmayr GmbH and the Civil Works Contractors prequalified for the execution of the scheme provides assurance of the quality of the project;
- The LCCT Project is being driven by the Private Sector with privately sourced funds, guarantees that it will be professionally managed for the sustenance of the original vision and economic viability that encouraged the provision of private funds in support of it.