



SFG1931 REV

Nigeria Electricity Transmission Project (NETAP)

Environmental and Social Management Framework (ESMF)

Prepared by

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Acronyms

| | |
|--------------------|---|
| AGIS | Abuja Geographic Information System |
| APL | Adaptable Program Loan |
| CDP | Community Development Program |
| CEO | Chief Executive Officer |
| CLO | Community Liaison Officer |
| DisCo | Distribution Company |
| EA | Environmental Audit |
| EAD | Environmental Assessment Department |
| EF | Electric Field |
| ESIA | Environmental & Social Impact Assessment |
| EMF | Electromagnetic Field |
| ESMF | Environmental & Social Management Framework |
| ERSU | Environment, Resettlement and Social Unit |
| ESMP | Environmental and Social Management Plan |
| FEPA | Federal Environmental Protection Agency |
| FGN | Federal Government of Nigeria |
| FME _{env} | Federal Ministry of the Environment |
| GenCo | Generation Company |
| GHG | Green House Gas |
| IBRD | International Bank for Reconstruction and Development |
| IDA | International Development Association |
| IFC | International Finance Corporation |
| IUCN | International Union for the Conservation of Nature |
| JV | Joint Venture |
| MW | Mega Watts |
| MYTO | Multi-Year Tariff Order |
| NCP | National Council on Privatization |
| NESREA | National Environmental Standards & Regulations Enforcement Agency |
| NETAP | Nigeria Electricity Transmission Project |
| NEPA | National Electric Power Authority |
| NERC | National Electricity Regulatory Commission |
| NM | Nautical Mile |
| OPN | Operational Policy Note |
| TCN | Transmission Company of Nigeria |
| PHCN | Power Holding Company of Nigeria |
| PMU | Project Management Unit |
| RAP | Resettlement Action Plan |
| ROW | Right of Way |
| RPF | Resettlement Policy Framework |
| RTM | Regional Transmission Manager |
| GM T | General Manager Transmission |
| TTL | Task Team Leader |
| WBG | World Bank Group |
| WCM | Work Centre Manager |
| WHO | World Health Organization |

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Executive Summary

This Environmental and Social Management Framework (ESMF) is an assessment tool for the proposed Nigeria Electricity Transmission Project (NETAP). The NETAP by environmental screening is a category 'B' project requiring limited environmental and social analysis and preparation of management plans according to World Bank and Nigerian Government standards.¹ The likely impacts of this project are localized, and, because the works consist of rehabilitation and reinforcement at existing facilities of the Transmission Company of Nigeria (TCN), will not affect a large population or any natural habitat or sensitive ecosystems. The proposed NETAP will also provide targeted technical assistance and capacity building support to the FGN agencies to support the implementation of the Project.

Because the scope of the investments will not be known at the time of project appraisal, this ESMF therefore sets a framework aimed at assisting the proponents in preparing the appropriate, site-specific environmental and social safeguards instruments for each of the new investments as it is identified. For work at existing substations that may be included in this project, an environmental audit (EA) will be conducted as a first step in the implementation process to determine the physical state of the facilities, the issues involved in their rehabilitation from an impact management perspective, and the potential environmental and social impacts associated with the rehabilitation project.

Large-scale resettlement is not foreseen in NETAP, but a Resettlement Policy Framework (RPF) has been prepared and is disclosed as a separate document in case small amounts of land are required, for example to improve access to an existing substation.. Following the procedures set out in the RPF, a Resettlement Action Plan (RAP) will be prepared using the template as specified in the NETAP RPF if relocation or loss of assets or means of livelihood will be involved.

The TCN Environmental, Resettlement and Social Unit (ERSU) will serve as the utility's reviewer and monitor the ESMP Implementation. The ERSU would need to be trained and equipped to make up for gaps in capacity to carry out these functions.

¹ The screening criteria for the World Bank and The Federal Government of Nigeria for projects of this category are similar.

1 Introduction

1. **Nigeria is one of the world's largest oil exporters and is endowed with abundant domestic energy resources, including the eighth largest reserves of natural gas and significant untapped hydropower, single and double circuit thermal power plants and solar and mini hydro-power potential.** Despite these favourable conditions, access to energy services is low at about 35 percent of the population - this includes those connected to the electric grid (about 18 percent) as well as those relying on self-generation. Nearly 100 million citizens (about 65 percent) are left entirely without access to electricity - the second largest national deficit behind India. This power crisis is an obstacle to economic growth and has a negative impact on the everyday lives of Nigerians. The 2010 Nigeria Investment Climate Assessment stated that, on average, Nigerian businesses experienced 239 hours of power outages per month which accounted for nearly 7 percent of lost sales, and that 83 percent of them identify the lack of electricity as the biggest obstacle to doing business (compared to 14 percent of Indonesian and 28 percent of Kenyan businesses).

2. **In order to achieve tangible improvements in energy services, the Federal Government of Nigeria (FGN), over the past few years, has embarked on an ambitious reform program.** In 2009, the 'Roadmap for Power Sector Reform' outlined a series of comprehensive measures across the sector value chain with specific short, medium, and long term actions to expand supply and open the sector for private investment, while addressing the chronic sector issues hampering investment delivery. Under sustained political commitment, the Roadmap has been successful in: (i) unbundling and privatizing the vertically integrated sector; (ii) addressing broken institutional and regulatory systems; (iii) enhancing sector governance and accountability; (iv) establishing a new pricing regime (multi-year tariff order, MYTO); and (v) scaling up private sector investment in the sector.

Some of the key issues that underpin the reform program (discussed in further details in the sections below) are: (i) Transmission network rehabilitation and refurbishing existing facilities to restore the network to its rated capacity; (ii) reducing the high levels of aggregate technical, commercial, and collection (ATC&C) losses associated with transmission network; (iii) enhancing last-mile access to modern energy services to the masses; and (iv) ensuring long term financial viability of the sector. Together with commitment from the highest levels of the government, the sector would require continued support from various stakeholders in order to ensure greater overall efficiency in service delivery, to continue enhancing its transparency and oversight mechanisms, as well as to enhance its creditworthiness, reduce risk perception, and create a favourable investment climate for the private sector.

3. **Currently, the demand for electricity in Nigeria vastly outpaces supply.** Over the past decades, Nigeria's publicly owned and operated electricity system has been failing to meet Nigeria's power needs. In early 2013, the total available capacity was around 3,500 MW which was significantly below the suppressed demand estimated to exceed 6,000 MW. The demand in the Nigerian power sector is expected to continue to increase at around 10 percent per annum in the medium term, reaching 10,000 MW (medium growth rate scenario) to 14,000 MW (high growth scenario) by the year 2020.²

² Estimates based on Tractebel Load Demand Study of 2009.

4. Due to the measures undertaken as part of the reform program, the supply capacity is expected to reach at least 9,500 MW by 2020.³ The additional capacity is being developed by a mix of public financed and private sector led independent power projects (IPPs). FGN's National Integrated Power Plant Project (NIPP) is expected to commission around 1,000 MW of additional supply capacity a year during 2013-15. In addition, a strong pipeline of IPP developers is also actively working on various power plant projects across the country with some of the front-runner transactions having already signed power purchase agreements (PPAs) with the FGN.

5. Presently, the transmission network in Nigeria is not equipped to transmit the volume of power needed to meet the demand. The Transmission Company of Nigeria (TCN), which has remained as a public utility during the reforms, has been placed under a management contractor (Manitoba Hydro International) to support its capacity building and to improve the efficiency of the national grid operator whose technical losses are estimated to be in the range of 12 percent (MYTO estimate for transmission loss is 8 percent). FGN intends to combine TCN's reform with a major investment program which will increase the wheeling capacity of the network from the current 4,800 MW to about 13,000 MW by the year 2020,⁴ as well as to increase the network's reliability, stability, and efficiency.

6. TCN's Investment Plan (2014) has already identified several areas of critical investment - upgrades, refurbishments, and new installations - that are needed to modernize the transmission network, expand its capacity, and reduce losses. The investments, estimated at US\$8 billion, are categorized under three main pillars based on the main business units: (i) Transmission Services Provider (TSP) investments focus mainly on refurbishing existing facilities to restore the network to its original capacity, finishing projects that are in various stages of construction, and initiating the construction of over 100 new lines and sub-stations, and many new voltage control facilities; (ii) System Operator (SO) investments focus on restoration, improvement, and expansion of the telecom, supervisory control and data acquisition (SCADA) system, and related control systems; and (iii) Market Operator (MO) investments focus on automation and streamlining of business processes and information and communication technology (ICT), including other supporting infrastructure for meter data collection and settlements.

7. For the medium growth rate scenario (10,000 MW), investments in two zones of the country have been prioritized: North-West and South-West (including Lagos). Increasing economic activity in these geographic areas necessitates a higher capacity and more reliable power supply. These areas have a limited radial supply of 330 kV, making them especially vulnerable to service interruptions. The reinforcement of the Western corridor will increase the network supply capacity, providing voltage stability and reliability in the region. This investment will also reinforce the supply to Kano-Kaduna area and the international connection with West Africa Power Pool (WAPP) through Niger. Lagos, being the economic and demographical center of the country, is expected to face a drastic increase in terms of generating power capacity (1,500 to 2,700 MW) and load demand (1,300 to 3,300 MW) during the coming few years. Thus, numerous investments in new lines, substations and voltage control are identified in this area for compensating these drastic increases, ensuring a proper and reliable power supply.

³ WB estimates, FGN's target under the Power Sector Roadmap is 40,000 MW installed capacity by 2020.

⁴ WB estimates, TCN's target is 20,000 MW wheeling capacity by 2020.

8. **TCN and the distribution companies (DISCOs) are planning to scale-up efforts on system expansion and ATC&C loss reduction.** In addition to TCN's plans on efficiency improvement, loss reduction at the DISCO level is also critical to the success of the sector. At the initial stage of implementation of the reform program, while consumers have accepted that they will pay more for power, the revenues of DISCOs increased at a slower pace than foreseen due to continued poor revenue collection as well as lack of efficient governance. Many of these transitional challenges are expected to be addressed in the coming years. The ability of the new DISCO owners to deliver on their proposals on reducing ATC&C losses in the early years of the reform will be critical. The MYTO was based on estimates that the ATC&C losses are at 25.6 percent as of 2012 and set targets for these losses to be brought down to 13.4 percent by 2017. However, the new DISCO owners have challenged these figures arguing that the current levels of ATC&C losses are around 35 percent. The Nigerian Electricity Regulatory Commission (NERC) is in the process of independently quantifying and verifying losses. This verification will not only establish a revised baseline of losses but also loss reduction targets with a tariff regime (MYTO revisions) that leads to a financially sustainable sector. DISCO bidders were selected by the FGN on the basis of their plans for reducing ATC&C losses. Plans submitted by the individual DISCOs bidders to reduce losses formed a key element of the FGN's asset sale decision.

9. **The sector is currently under-recovering its revenues under the prevailing Market Interim Rules (also known as the Pre-Transitional Electricity Market).** Newly privatized DISCOs continue to pay, on average, about half of the MO invoices resulting in a cash shortage for all market participants, including TCN, which recovered about 60 percent of its wheeling charges in 2013. Studies are ongoing to ascertain the appropriate level of retail tariff that would make the sector whole. Similarly, the wheeling charge required to cover TCN's operating expenses and the long term cost of capital expenditures is being evaluated. As part of the financing efforts for the Investment Plan, TCN is in the process of submitting a tariff increase to NERC based on its financial projections for the period 2014-2017.

10. **As the reform program addresses many of the key structural issues for the power supply and grid network, in parallel, the FGN plans to launch a 'National Electrification Access Policy' (NEAP)** aimed at achieving enhanced electricity access by accelerating both grid and off-grid programs while employing appropriate policies and innovative technical solutions to reduce costs, improve reliability, and provide timely service to all households. The NEAP includes an ambitious target of achieving an access rate of 75 percent by 2020, with a particular focus on traditionally underserved rural population as well as rural institutions such as: schools, health centres, and administrative buildings. The key development challenge for Nigeria is posed by low access to electricity and a spatially dispersed population, combined with the high cost of standalone generation from expensive diesel fuel, and often poor service quality.

11. **FGN faces challenges in balancing investment costs, with the affordability concerns for new and existing users, while also improving the financial health of the sector on a sustained basis.** The historic problems of the Nigerian power sector can be attributed to a mutually reinforcing negative spiral of poor governance and accountability. The resultant inefficiency has led to underfunding of utilities and a dependence on recurrent government budget transfers to stay afloat. Consumers are forced to resort to self-generation at a high cost to themselves and the economy (about US\$30-50 cents per kWh as compared to the current grid based tariff of US\$0.13 per kWh). The lack of reliable supply and inefficiency of the sector not only has a direct fiscal impact on the FGN with sector losses amounting to over US\$80 million a month (2014), but it also has a broader macro-fiscal impact on the economy as a whole due to loss of productivity. A critical step towards realizing changes outlined in the Roadmap was the

establishment of an appropriate pricing mechanism, MYTO, to ensure the sector's financial viability. MYTO is based on a set of principles designed to reflect efficient and realistic cost levels for each of the generation, transmission, and distribution sectors, taking into account: (i) cost recovery and financial viability; (ii) signals for investment; (iii) allocation of risk; (iv) incentives for improving performance; (v) transparency/fairness; and (vi) social and political objectives. Cost-reflective end-user tariffs and 'life-line' mechanisms to protect the most vulnerable consumers are at the heart of the reform process.

12. Power generation is constrained by the inefficient exploitation of Nigeria's abundant natural gas resources. Natural gas can play a critical role in the primary energy portfolios of many African nations; however, a large percentage of the supply remains unused, is being re-injected back into wells, or flared, thereby resulting in wastage and causing adverse environmental side-effects.⁵ The investment and associated gas price required for stable gas supply to develop the Nigerian power sector is not keeping pace with demand which is also leaving a large portion of installed capacity as stranded assets. Unlocking the flow of Nigerian abundant cheap gas would not only benefit Nigeria, but West Africa as a whole. Nigeria is already a participant in the West Africa Power Pool (WAPP) and the West Africa Gas Pipeline (WAGP) - key infrastructure that can assist regional power trade.

13. FGN aims to develop a sustainable power sector by increasingly incorporating renewable energy technologies, such as solar power. Ongoing reforms are providing emerging opportunities for investments in large scale use of renewable energy technologies. Given the geographic location of Nigeria, there is a tremendous potential for both grid-connected and off-grid generation based on solar power. The FGN is looking to attract private sector investment and streamline renewable technologies, such as solar power, into the emerging power institutional landscape whilst also reducing and diversifying its dependence on hydrocarbon based power generation. The Nigerian Bulk Electricity Trading Plc. (NBET) and NERC have already been in discussions with several large-scale grid-connected solar IPP developers.

As part of its strategy, the Federal Government of Nigeria (FGN) has asked the Bank to support a Nigeria Electricity Transmission and Access Project (NETAP) that would support transmission network rehabilitation investments. NETAP will also finance specific programs to increase quantity, quality and access to the electricity network, particularly in the Northern areas of the country where economic activities have long suffered from the lack of affordable energy supply. Finally, NETAP will also provide targeted technical assistance and capacity building support to the FGN agencies to support the implementation of the Project.

Since the specific investments in NETAP are not known with certainty during this time the project is being prepared for presentation to the Bank's Board of Executive Directors, Bank environmental assessment policy requires the borrower to prepare an Environmental and Social Management Framework (ESMF) that is to establish a mechanism for assessment of the environmental and social impacts of all program investments, and to set out in general the mitigation, monitoring and institutional measures to be taken during implementation and operation of the program to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. This ESMF therefore provides the expected guidelines and defines the procedures whereby Environmental & Social Management Plans (ESMPs) will be

⁵ It is estimated that Nigeria currently flares around 1.4 billion cubic feet of gas a day - roughly equivalent to the entire volume of gas available to the domestic gas market.

prepared and implemented for each investment of the NETAP as may be required. This document is in compliance with Bank safeguards policies and the relevant Nigerian environmental policy guidelines, laws, and regulations.

Furthermore, the borrower has also prepared a Resettlement Policy Framework (RPF) to address the needs of those who might be affected in the unlikely case that an investment supported by NETAP causes the involuntary taking of land and other assets resulting in: (a) relocation or loss of shelter, (b) loss of assets or access to assets (c) loss of income sources or means of livelihoods, whether or not the affected person must move to another location. The RPF has been prepared as a separate, stand-alone document.

The borrower is further required to disclose both documents (the ESMF and the RPF) in-country as two separate draft documents so that they are accessible by the general public, local communities, potential project-affected groups, local NGOs and all other stakeholders. They will also be disclosed by the Bank at its InfoShop in Washington and in the Public Information Center of its field office in Abuja. The date for the disclosure of these documents will precede the date for appraisal of the investment program. Stakeholders must be consulted during preparation of the ESMF and RPF and must be given ample opportunity to review and comment on the drafts. The final versions of both documents will be disclosed at the same locations and will include summaries of the consultations, the comments and suggestions received, and their disposition.

2 Description of the Nigerian Environment

2.1 Bio-Physical Environment

The Federal Republic of Nigeria is located on the west coast of Africa and is bounded on the west by Benin Republic (with a boundary of about 773 km), on the north by Niger (with a boundary of 1,497 km), on the east by Chad and Cameroon (with a combined boundary of 1,777 km) and on the south by the Gulf of Guinea (853 km of coastline). It has a continental shelf of 200 m depth, an exclusive economic zone of 200 nautical miles (NM) and a territorial sea of 12 NM. Nigeria lies around latitude 10°00'N and Longitude 8°00'E and has a total area of 923,768 km².

It consists of four major natural zones: a 60-km wide coastal band in the south indented by lagoons and by the immense Niger River Delta; a stretch of high forest-covered mountains (Shebshi Mountains) rising to heights of about 2,042 m above sea level in the west; the Jos Plateau (1,200 m) in the centre; the Highlands along the eastern border, south of the Benue River; and the plain of Sokoto and the Lake Chad Basin in the north, which forms part of the Sahel region, and is semi desert. The highest point in Nigeria is Chappal Waddi at 2,419 m (7,936 feet). The River Niger traverses the country from the northwest, meets the River Benue at Lokoja in the central part of the country before draining into the Atlantic in a deltaic fashion.

Nigeria is divided into three main climatic regions: the tropical rain forest region covering the southern part of the country with an annual rainfall of around 2,000 mm (80 inches), the near desert region covering the far north of the country with an annual rainfall around 500 mm (20 inches) and the savannah region with annual rains around 1,000 mm (40 inches) and covering the central portion of the country.

2.2 Vegetation

The vegetation of Nigeria is of four main types: Savannah, Forest and Montane. The savannah vegetation stretches from the central parts of Nigeria to the extreme northern parts. It is divided into marginal – *Sahel* – (in the northeastern borders), short grass – *Sudan* – savannah (stretching from upper western borders to the northwestern borders) and woodland and tall grass – *Guinea* – savannah (lying below the short grass savannah and covering the central states and parts of the eastern region of the country). The tropical forest vegetation covers the remaining southern portion of the country and is divided into three types: rain forest (with tall trees), fresh water swamp (consisting of both fresh and salt water swamps) and mangrove forest (made up of mangrove vegetation).

2.3 Political Geography and Population

The Federal Republic of Nigeria is made up of thirty-six states with a federal capital territory of Abuja. Each state is ruled by an elected governor and is assisted by a deputy. It is subdivided into local government areas, each headed by an elected Local Government Chairman. The country as a whole is ruled by a democratically elected President and assisted by a Vice President.

The 2006 national population census put the population of Nigeria at 140 million, the most populous in Africa. Of this number, 68.3 m are women, while 71.7 m are men. The population growth rate is 2.4%. In general, Nigeria has a young population with a median age of 18.7 years.

Nigeria has more than 250 ethnic groups, with varying languages and customs, creating a country of rich ethnic diversity. The largest ethnic groups are the Fulani/Hausa, Yoruba, and Igbo, accounting for 68% of population, while the Edo, Ijaw (10%), Kanuri, Ibibio, Epira Nupe and Tiv comprise 27%; other minorities make up the remaining 7%.

Despite its vast government revenue from the mining of petroleum, Nigeria is beset by a number of societal problems. Some of these problems are listed below.

There is evidence that the key health indicators have either stagnated or declined. Life expectancy is 48.5 years for females and 47.2 years for males. The infant mortality rate is 94 per 1,000 live births. About 52% of under-five deaths are associated with malnutrition. The maternal mortality rate of 800 per 100,000 live births is one of the highest in the world.

Disease prevalence rates include malaria, 919/100,000; dysentery, 386/100,000; pneumonia, 146/100,000; and measles, 89/100,000. The national median prevalence rate of HIV is 5.8%. Over 40 million Nigerians are exposed to Onchocerciasis; and about 120,000 have gone blind from the disease. Schistosomiasis is prevalent in rural areas which lack potable water, and control of the infection has been limited by the high cost of the drug of choice.

2.4 Natural Resources and Land Use

2.4.1 Agricultural Resources

Nigeria has abundant human and natural resources. Agriculture used to be the mainstay of the economy before the discovery of crude oil. Cocoa, rubber and kola nut are cultivated in the southwestern region in commercial quantities for export. Oil palm is cultivated in the southeastern parts of the country, and processed into palm oil and packaged for export. The northern parts of the country were known for groundnut and cotton production. With the production of crude oil, however, and the onset of, much agricultural production has declined.

2.4.2 Biodiversity

Nigeria is an important centre for biodiversity. It is widely believed that the areas surrounding Calabar in Cross River State contain the world's largest diversity of butterflies. The drill monkey is only found in the wild in Southeast Nigeria and neighboring Cameroon.

The total number of higher plant species in Nigeria is 4,715 (of which 119 are threatened). For mammals, the total number of species is 274 (27 threatened), and for breeding birds the total known species is 286 (9 threatened).

Nigeria has over 1,000 protected areas (nature reserves, wilderness areas, national parks), covering a total 5.5 million ha. The total land area under protection represents 6% of the total land area. Under categories I and II (the highest level of protection) Nigeria has 2.5 million ha.

2.4.3 Mineral Resources

There are varieties of mineral resources found throughout the country; some are of great economic significance, while others are in small quantities. Most of these minerals occur near the soil surface and do not require specialized equipment for extraction. The schist belt of the country stretches from the northwest to the southwest, and hosts the gold deposits of the country.

The occurrence is moderate, but is mined by locals for commercial benefits. Typical sites are in Ilesha in Ekiti State.

The north-central part of Nigeria is home to precious stones like amethyst, garnet, tourmaline, aquamarine, and emerald. These gemstones are mostly found in Nasarawa and Plateau States and are mined in commercial quantities for export. Jos, in Plateau State, used to export tin worldwide, but large-scale commercial mining of this metal is no longer in progress.

Nigeria has an abundant deposit of limestone, found mainly along the Benue trough with significant deposits in Gombe and Enugu states. These two states have cement factories to serve both local and international markets. There are also occurrences of gypsum in Gombe State.

2.4.4 Energy Resources

2.4.4.1 Oil and Gas

Nigeria's oil reserves are located in the Niger Delta (both onshore and offshore). Proven reserves of petroleum stand at 17.9 billion barrels, sufficient for 24 more years of production at current levels (around 2 million barrels per day - or 3% of world production). Proven reserves of natural gas amount to 182 *tcf* (approximately 1,000 times the volume of oil reserves).

2.4.4.2 Hydro Power

The hydroelectric power stations are located in the north-central part of the country on the River Niger at Shiroro, Kainji and Jebba and have installed capacities of 600 MW, 720 MW and 540 MW respectively. These hydroelectric plants generate below their installed capacities producing an average of 111 MW, 283 MW and 225 MW respectively. There are prospects of other hydroelectric power sources Makurdi, Katsina-Allah, Zungeru and in the Mambila Plateau, Adamawa State. Other mini hydroelectric plants are being constructed to serve small communities off the national grid in a few places around the country.

2.4.4.3 Coal

There are abundant coal reserves in Enugu, Kogi and Gombe. The National Electricity Regulatory Commission (NERC) recently awarded licenses to some private firms to establish coal-fired power plants in Enugu. When these plants come on stream they will add to the total available power in the country and improve power supply. Studies are presently ongoing to establish the viability of running coal-fired power plants in other parts of the country where coal is found in commercial quantities.

2.4.4.4 Solar

Nigeria has a lot of potentials for solar energy particularly in the Northern part of the Country. As stated above NERC has awarded licenses to some private firms to undergo solar energy conversion in some Northern states and when these plans come on stream will decongest the grid and serve this part of the states without having to wait for the power from the grid.

3.0 World Bank Safeguard Policies

The World Bank has given increasing attention to the assessment of environmental impact of investment projects and requires environmental assessments for all projects it is to finance. Its ten safeguards policies, aimed at preventing and mitigating undue harm to people and their environment in the development process, also provide a platform for the participation of stakeholders in project design and implementation. The ten safeguard policies are:

1. *Environmental Assessment (OP/BP 4.01)*
2. *Forests (OP/BP 4.36)*
3. *Involuntary Resettlement (OP/BP 4.12)*
4. *Indigenous Peoples (OP/BP 4.10)*
5. *Safety of Dams (OP/BP 4.37)*
6. *Pest Management (OP 4.09)*
7. *Physical Cultural Resources (OP/BP 4.11)*
8. *Natural Habitats (OP/BP 4.04)*
9. *Projects in Disputed Areas (OP/BP 7.60)*
10. *Projects on International Waterways (OP 7.50)*

In this project, only the two safeguard policies mentioned below are triggered, through the rehabilitation of substation, electric power transmission and distribution infrastructure.

3.1 OP/BP 4.01: Environmental Assessment

The NETAP is rated a category ‘B’ project applying the Bank screening procedures as a project for which “impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than for Category A projects.” environmental assessment is required, but OP 4.01 states that “the scope of EA for a Category B project may vary from project to project, but it is narrower than for Category A projects and full ESIA’s are normally not required. However, because the specific NETAP investments are not known at this time, the OP/BP 4.01 requirement is initially met through the preparation of this ESMF. It sets out the applicable environmental management policies and regulations of the Federal Government of Nigeria (FGN) and the World Bank Group (WBG) and defines how they will be applied in the preparation and implementation of the individual investments assessments. Typically the first step is screening to determine what level of environmental assessment and thus what type of instrument is appropriate. For NETAP, there are three possibilities: a site-specific Environmental & Social Management Plan (ESMP) for investments in Category B or II, with more limited potential impacts but still requiring some environmental or social impact studies; a generic ESMP for investment with impacts that do not vary from site to site and are managed through standard practice no matter where they are located; and an Environmental Audit for investments involving rehabilitation of existing facilities where there may be significant environmental, social, health or safety conditions that need to be addressed. Impact monitoring plans will be integral parts of the ESMPs and Audits.

3.2 OP/BP 4.12: Involuntary Resettlement

The Bank policy on involuntary resettlement takes care of situations where people will lose property, means of livelihood or experience a change in their standard of living as a result of the implementation of a Bank financed project. This policy provides the guidance for the mode and schedule for payment of all compensations and recommends that due consultations be made with

all stake holders of the project before, during and after project implementation with special attention to disadvantaged groups (women, children and the disabled) within the population.

NETAP might require the acquisition of small amounts of land to improve access to substations and could also involve moving encroachers out of rights of way for existing transmission lines that are being reinforced. Since the specific investment locations and land acquisition needs are not known, the framework approach is also used to establish the procedures for compliance with OP/BP 4.12. The Resettlement Policy Framework (RPF) for this project has been prepared and is disclosed as a separate document.

3.3 Environmental, Health and Safety Guidelines

The International Finance Corporation (IFC) issued its new *Environmental, Health and Safety Guidelines* in 2007. They include general guidelines that are applicable to all projects as well as sector-specific guidelines for electricity transmission and distribution projects.

4 Nigeria Regulatory Framework

Several laws and regulations apply to the energy sector in Nigeria. These include local laws as well as international treaties, acts and conventions. In this section, an overview of the laws that relate to the NETAP is given.

4.1 Environmental Impact Assessment Act (Decree 86) of 1992

The Environmental Impact Assessment Act was established in 1992 as Decree 86. This decree requires that all projects be screened using the procedure stated in the Act to determine the kind of assessment to be carried out for the project. Under the ESMF, the Nigerian screening procedure will be applied to each individual investment that is proposed for a guarantee or financing under the NETAP, in a manner acceptable to the Bank.

The screening procedure outlined by the Federal Environmental Protection Agency (FEPA) in 1995 categorizes projects as follows:

- Category I - Projects in this category have wide scale, significant impacts and require full ESIA's
- Category II - The projects in this category require only a partial environmental assessment with focus on mitigation measures. The impacts are restricted to the project area.
- Category III - The Federal Ministry of Environment prepares the environmental Impact Statement because the project impacts mainly positively on the environment.

This Act addresses issues highlighted in the Bank's policies especially as they concern protected areas, endangered species, international waters, areas under dispute, areas of historic/archaeological importance, cultural property, and forest areas (especially mangrove forests and rainforests).

Examples of projects under the various categories are:

Category I - Power plants of more than 10 MW, nuclear generation, combined thermal cycle plants, hydroelectric power plants, and large scale transmission lines. Also included in this category are projects in sensitive areas such as: coral reefs, mangrove swamps, small islands, tropical rain forests, areas with erosion prone soils, mountain slopes, semi arid zones, wetlands of national and international significance, natural conservation areas, areas which harbor protected and endangered species, areas of unique scenery, areas of particular scientific importance, areas of historic or archaeological interest, areas of importance to threatened ethnic groups.

Category II - Small scale transmission lines, mini hydroelectric power plants, renewable energy development projects, telecom facilities, road rehabilitation, any form of quarrying or mining

Category III - recreation parks and gardens, institutional development, health programs, environmental awareness, family health programs.

None of the investments under NETAP are on the list of project types for which the Act makes preparation of an ESIA mandatory. Some may fall into Category 2, which would require review by FMEnv, but many will not.

The Federal Ministry of Environment is responsible for final reviews of all Environmental & Social Impact Assessment reports. This is done by the Environmental Impact Assessment Division. All ESIA reports are displayed at selected locations and at the project site to enable stakeholders to comment and make input. Due consultation with the stakeholders is done while the ESIA is being reviewed. This division is also responsible for setting environmental standards and monitoring on behalf of government to ensure compliance.

4.2 Pollution Standards

The Federal Government has a number of legislations and guidelines to control pollution. Some of these are:

S.I.8 National Environmental protection (Effluent Limitation) Regulations, 1991 - standards for industrial discharge into public air or waters

S.I.9 National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 1991: provides numerical Industries and effluent and emission quality (except noise).

Guidelines and Standards for Environmental Pollution Control in Nigeria, 1991: - Ambient noise standards.

Nigerian Regulatory Standards

Air Quality

| Particulates (ug/m ³) | Black smoke (ug/m ³) | CO (mg/m ³) | NOx (ug/m ³) | SO _x (ug/m ³) | Lead (ug/m ³) | Hydrocarbons (ug/m ³) |
|-----------------------------------|----------------------------------|---|---|--|---------------------------|---|
| 1 hour: 600 Daily: 250 | Annual mean: 40 – 60 | 1-hr mean: 30 8-hr mean: 22.8 Daily average: 11.4 | NO₂ 1-hr mean: 400 8-hr mean: 150 NOx Daily average: 75 – 113 (or 0.04 - 0.06 ppm) | 1-hr mean: 350 Daily average: 260 (or 0.1 ppm) Annual mean: 40-60. | Annual average: 0.5 - 1 | Non-methane hydrocarbon / Total hydrocarbon / Volatile Organic Compounds Daily average: 160 (or 0.06 ppm) |

DPR Standards – Air Quality

| Copper | Cadmium | Nickel | Manganese | Arsenic | Mercury | Benzene | Petrochemicals |
|---|---|---|-----------------------------------|---|--|-----------------------------------|-------------------------|
| 20 mg/m ³ (from stationary source) | 40 mg/m ³ (from stationary source) | 20 mg/m ³ (from stationary source) | 20 kg/hr (from stationary source) | 20 – 100 mg/m ³ (from stationary source) | 1 - 230 mg/m ³ (from stationary source) | 24 kg/hr (from stationary source) | 1,500 ug/m ³ |

Water Quality

| pH | TEMP (deg C) | DO (mg/l) | BOD (mg/l) | Total Suspended Solids (mg/l) | Hydrocarbon (mg/l) | Sulfate (mg/l) | Iron (mg/l) | Copper (mg/l) | Cadmium (mg/l) | Nickel (ug/l) |
|---------------------------------|--------------------------|---|--|--|------------------------------------|----------------|---------------------------------|---------------------------------|----------------|---------------------------------|
| 6.5 - 8.5 (treated waste-water) | 40 (treated waste-water) | 5 mg/l (treated waste-water), 4-5 (sanitary wastewater) | 10 mg/l (treated waste-water), 30 (sanitary wastewater, nearshore), 45 (sanitary wastewater, offshore) | 30 (treated waste-water) 45 (sanitary wastewater, nearshore). Offshore - no limit. | 20 mg/l oil and grease in effluent | 500 | 20 (discharge to surface water) | <1 (discharge to surface water) | 0.01 mg/l | <1 (discharge to surface water) |

Water Quality (cont'd)

| Manganese (mg/l) | Nitrate (mg/l) | Phosphate (mg/l) | Zinc (mg/l) | Chromium (ug/l) | Total Hydrocarbon (mg/l) | Oil and Grease (mg/l) | Total Dissolved Solids (TDS) (mg/l) | Arsenic (mg/l) | Mercury (mg/l) | Benzene (mg/l) |
|--------------------------------|----------------|------------------|-------------|-----------------|------------------------------|-----------------------|-------------------------------------|----------------|-----------------------------------|----------------|
| 5 (discharge to surface water) | 20 | 5 | 1 | 30 ug/l (FMEH) | 10 mg/l (treated wastewater) | 20 mg/l in effluent | 2000 (treated wastewater). | 0.1 | 0.05 (discharge to surface water) | 0.3 |

Soil Quality

| Total petrogenic hydrocarbon (TPH) | Limit for oil and grease contamination on land |
|------------------------------------|--|
| 10 ppm | 20 ppm |

4.3 Land use Act of 1978 (amended in 1990)

The Land Use Act addresses all matters relating to land acquisition and resettlement. This Act vests all land on the Governor of each state to hold in trust for the general public. The Governor exercises control over all urban land while non-urban land is in the control of the Local Government Authority. According to this Act, statutory rights of occupancy are granted by the Governor and customary rights of occupancy are granted by the local government authority. Land administration is usually handled by the ministry of lands in the various states. Lands in the Federal Capital Territory are managed by the Federal Capital Development Authority (FCDA) but the Abuja Geographic Information System (AGIS) is the custodian of all land data in the FCT.

Based on the provisions of this Act the Governor can revoke statutory rights of occupancy in the interest of the general public. NEPA (PHCN) used to have power to acquire land for power projects but this power was lost to the reforms that brought about the implementation of the Power Sector Reform Act of 2005. TCN now has to acquire land like every other individual or organization as provided by law and adequate compensation now has to be paid where resettlement issues are involved. The RPF covers land acquisition in detail.

4.4 International Conventions and Treaties Ratified by Nigeria

Nigeria has ratified a number of international conventions pertinent to land administration, environmental protection and human rights. The awareness on climate change and global warming has impacted positively on the FGN and Nigeria is also a party to many Conventions and Treaties on climate change and global warming. Some of these conventions are:

- Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention) 2001
- ILO 2001(R164, C155) Workplace Health & safety/Workplace hazards
- Gulf of Guinea Large Marine Ecosystem Project (GOG-LME) 1999
- United Nations (UN) Convention on Biological Diversity 1994
- International Oil Pollution Compensation Fund 1992 (IOPC Fund), London, 1992
- UN Framework Convention on Climate Change, 1992
- Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel Convention) 1989
- Montreal Protocol on Substances that Deplete the Ozone Layer
- Vienna Convention on the Ozone Layer 1985
- UN Convention on the Law of the Sea (UNCLOS), Montego Bay, 1982
- Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) 1981
- Protocol Concerning Cooperation in Combating Pollution in Cases of Emergency in the West and Central African Region, 1981
- Convention Concerning the Protection of the World Cultural and National Heritage (World Heritage Convention), Paris, 1975
- Convention on the Prevention of Marine Pollution By Dumping of Wastes and Other Matter, 1972 (amended 1992)
- African Convention on Conservation of Nature and Natural Resources, 1968
- Turtles of the Atlantic Coast of Africa, 1999

5 Description of the Nigeria Energy Sector

5.1 Reforms in the Energy Sector

The Federal Government of Nigeria has made several efforts aimed at overhauling the electricity sector. The most significant of these is the enactment of the Power Sector Reform Act (2005) which unbundled NEPA (PHCN) into eighteen separate companies, brought in private sector participation, additional investments in generation projects through the National Integrated Power Project (NIPP) with an estimated 2,700 MW to be added to the national grid, established a regulatory agency to act as watchdog of the electricity sector (e.g. NERC). The rural Electrification Agency was also set up to enhance rural access to electricity. The government also developed renewable energy blueprints to source alternative off-grid sources of power.

These efforts were rewarded PHCN with increased revenue collection from about N 2.8 billion to about N 7.7 billion, improved reliability of supply, reduced system losses and resulted in an overall increase in the number of metered customers from about 40% of the population to 67%. There is still a wide gap between the total energy generated (about 2,200 MW in 2008) and the estimated demand (about 10,700 MW) and most of the policies needed to regulate the sector are still developing. The sector also has inadequate transmission and distribution infrastructure to cope with the anticipated additional generated capacity and demand. The Banks effort in bridging this gap in Nigeria through NTDP, NEDP, NEGIP and now NETAP is most commendable.

5.2 Sector Institutions

5.2.1 Federal Ministry of Power

The Federal Ministry of Power was established to oversee the power sector.

5.2.2 National Electricity Regulatory Commission (NERC)

The National Electricity Regulatory Commission was established by the implementation of the Power Sector Reform Act (2005). NERC, by this Act is charged with the responsibility of regulating the activities of the electric power sector. As part of its functions, the commission is to set rules and regulations and also enforce them. NERC also issues licenses and ensures compliance with market rules and other operating guidelines. The commission is headed by a chairman and is assisted by a vice-chairman together with other commissioners.

5.2.3 Transmission Company of Nigeria (TCN)

TCN is the only successor company under PHCN. PHCN formerly called NEPA, used to be the sole electricity utility in Nigeria responsible for electric power generation, transmission and distribution. The change in name to PHCN was effected by the implementation of the Power Sector Reform Act (2005). This Act unbundled NEPA into six generating companies (GenCos), eleven distribution companies (DisCos) and one Transmission Company of Nigeria (TCN). These companies were initially government-owned parastatals but all except TCN have been privatized. The transmission company of Nigeria is responsible for the transmission of electric power from the generating stations to the Discos through the national grid. This company is responsible for maintaining the national grid and wheeling energy to the distribution companies. The Transmission Company is headed by a CEO with head office in Abuja. The CEO oversees eight transmission regions (Lagos, Benin, Enugu, Port Harcourt, Osogbo, Shiroro, Kaduna & Bauchi), each headed by a Regional Transmission Manager (RTM) and thirty-five transmission substations/work centers, each headed by a Work Centre Manager (WCM). The WCM is responsible for the day-to-day running of the transmission substation but reports to the RTM who also reports to headquarters.

TCN has an environment department (ERSU-TCN) which was set up as part of the investments under NTDP. They are responsible for ensuring compliance with environmental regulations in TCN such as environmental assessment and management of projects sites health and safety. The present TCN management has updated the unit to full Health, safety & Environment during their restructuring process in 2013. However, the HSE unit lacks capacity in terms of staff strength and training.

5.2.4 Rural Electrification Agency

This agency was established by the Power Sector Reform Act to regulate the expansion of electricity to rural areas. This is in view of the fact that the various distribution business units will eventually become individual companies and there will be need for a body to act as an umpire to set rules and enforce compliance in rural electrification. This agency is funded through ‘Rural Energy Fund’.

5.2.5 State Ministries

At the State levels, the state ministries for environment are responsible for all environmental issues (see also section 9.2) that concern their indigenes. There are ministries for youth and social development that handle social issues pertaining to welfare. These work in collaboration with the ministries for land and survey to handle issues pertaining to resettlement and land acquisition.

5.2.6 Distribution Companies (DisCos)

The unbundling of NEPA initially gave birth to eleven distribution companies corresponding to the eleven distribution zones in the country (a new zone has been calved out of Lagos). These distribution companies also have some degree of autonomy and at present are government parastatals that are expected to become privately owned. The distribution companies purchase power from Gencos and sell it to the consumers. It is expected that as time goes on and especially with projects being supported by the Bank, the DisCos will have their Environmental Units to manage the environmental and social issue involved with their operations. Such issues might equally be outsourced out if it is the general opinion that such related issues are not core areas in the DisCos operations.

5.2.7 Other Sector Institutions/Policies

5.2.7.1 The Electric Power Implementation Committee (EPIC)

This committee was established by the National Council on Privatization (NCP) to carry out the synchronization, coordination and monitoring of all activities leading to restructuring and privatization of the electric power sector. The duties of EPIC include: formulation of blueprints for the reformation of the electric power sector; formulation and review of policies aimed at entrenching a vibrant and transparent power sector; source for sustainable private sector involvement in the power sector; and supervise the activities of all government agencies involved in the activities leading to the final privatization of NEPA.

5.2.7.2 National Electric Power Policy

In March 2001 the Federal Government approved an Electric Power Policy put together by EPIC to serve as a guide for the power sector reform process. This policy divides the reform process into Transition stage (coming on stream of Project Implementation Plans (PIPs), Emergency Power Providers (EPPs), restructuring and unbundling of NEPA and privatization of selected DisCos), Medium Stage (post privatization of NEPA – energy trading between GenCos, TCN

and DisCos) and Long Run (competitive market and competitive pricing of energy to ensure the sustainability of investments by private sector. All Generating, Transmission and Distribution companies are expected to be fully privately owned as time goes on).

6 NETAP Investment Project Description

A. Concept

The proposed Nigeria Electricity Transmission Project (NETAP) would channel concessional public financing to critical parts of the supply chain which are unlikely to be fully financed from private sources. It complements private investments and investments from the FNG's own resources. The proposed project would support investments to rehabilitate and reinforce existing substations and transmission lines in the transmission network. The proposed NETAP will also provide targeted technical assistance and capacity building support to the FGN agencies to support the implementation of the Project.

B. Description of Project Components

Component 1: Transmission Network Improvement (US\$284 million). NETAP will finance investments selected from the assets identified in Package 1 of the TCN Investment Plan. Subcomponent 1(a) will finance investments for brownfield sub-stations, as well as associated equipment and costs of implementation, in order to expand the grid capacity to 10,000 MW and to provide reliability to the system. Subcomponent 1(b) will finance the upgrading of two specific transmission lines.

(a) ***Sub-Component 1(a): Upgrading and reinforcing substation (US\$272 million).*** IBRD support will finance investments grouped by geographic locations to reduce interdependence and increase efficiency in implementation. Specific target zones include: (i) the North and Center, reinforcing Kaduna-Kano-FCT Axis; (ii) the South-West including the Lagos network; (iii) the South reinforcing the Delta area network; and (iv) the North East with reinforcement of capacities in this area. Support would be geared towards underpinning key potential 'growth poles' in the country for access enhancement and job growth.

(b) ***Sub-Component 1(b): Transmission lines reinforcement (US\$12 million).*** NETAP will finance transmission reinforcement to improve the power delivery and network reliability on the 132 kV transmission grid in Kwara State, with a 50 MW of wheeling capacity increase.

Component 2: Grid Management (US\$50 million). Complementary to the TSP investments under Components 1, this component will support improvements to efficient management of the increased national grid infrastructure. Support would be provided for a subset of investments identified in the TCN Investment Plan for the SO and the MO, supporting the development of an independent system operator (ISO), such as: integrated operation of the power system, restoration and expansion of the SCADA system, and tele-communication equipment.

Component 3: Capacity Building and Technical Assistance (US\$30 million). This Component will support much needed capacity building and technical assistance activities at key sector institutions and other relevant stakeholders in order to ensure that the implementation of reform program is successfully carried out. The support provided under this Component will not only assist in implementation of the investments identified under NETAP, but will benefit the sector as a whole with the overall goal of scaling-up energy access in Nigeria. Capacity building and TA activities will be identified during project preparation to be complimentary to ongoing support from other donors. This will also include support for review of various public private partnership (PPP) arrangements, including build, own, operate, and transfer (BOOT) type arrangements to leverage the use of public funds.

7 Safeguards Preparation, Review and Approval Process

This section describes the environmental and social management procedure that will form part of the preparation for due diligence on prospective investments for NETAP support. Compliance with this procedure will constitute part of the evaluation methodology for proposals. This procedure incorporates guidelines and requirements from the Federal Ministry of Environment of Nigeria and the World Bank's OP 4.01. The steps in the process are project screening, environmental studies and document preparation, ESIA review and approval, and oversight of implementation. Stakeholder consultation is an integral part of the preparation process, and public disclosure and comment are necessary prior to the decision to approve or reject a proposed investment on the basis of environmental and social information.

Screening; The screening decision has three parts: (a) the assignment of the environmental assessment category, (b) the determination of the safeguards instrument(s) that should be prepared, and (c) the identification of applicable safeguards policies.

a) The first step is to assign an Environmental Category for the investment. The proponent should propose the category, using the criteria discussed below. The ERSU of the Project Management Unit (PMU), in conjunction with the Federal Ministry of Environment, will review and confirm or modify the category, based on the description of the proposed activity and findings from field visits. Most investments in NETAP are likely going to fall into World Bank Category B, and FGN Category 2 or less, depending on the type and scale of the activity, environmental and social conditions in the affected area and location. In case the categorization is split, the more stringent category will apply. Table 1 below provides guidance for screening based on the scale and type of project and the potential impacts that can be envisioned

Table 1: Likely NETAP Investment Types, Major Environmental and Social Concerns and Probable Category

| Project Type | Potential Environmental and Social Concerns | Environmental Category |
|---|--|--|
| | | Safeguards Instrument |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Upgrading of existing Transmission and Distribution lines | Resettlement of affected settlers, damage to habitat and infrastructure by construction vehicles, temporary disruption of business | B/II Site-specific or generic ESMP |
| Reinforcement or upgrading of existing substations | Minimal impacts; may be “legacy” issues of environment, safety or health | B/II Generic ESMP; preliminary audit if appropriate |

b) The second step is a decision on the safeguards instrument(s) that are necessary. Table 1 above provides an indication, but in many cases the decision depends, as noted there, on the scale and location of the project. ***The proponent of an investment is encouraged to propose the safeguards instrument, but PMU will review and confirm.*** FME_{env} and the Bank should be consulted when there are questions of EA category or appropriate safeguards instrument.

Rehabilitation of existing facilities will require environmental audits. Two levels of audit are commonly used – a preliminary audit to identify obvious problems for consideration at the feasibility study stage and to determine the scope of a detailed audit, which is the other level. The preliminary audit may be sufficient for relatively uncomplicated facilities without major problems, such as substations. A detailed audit includes an action plan for the remedial work. If the rehabilitation work is extensive, involving delivery, installation, and disposal of major pieces of equipment, an ESMP will also be necessary.

Any investment involving land acquisition will trigger OP 4.12 and will likely need proponents to prepare an abbreviated or full RAP in addition to environmental impact management documents. The RPF for NETAP and governs the preparation and implementation of RAPs.

c) The third step is to determine which of the Bank’s safeguards policies that are triggered in general for NETAP may be triggered by the particular investment and what is required to comply with each triggered policy. This determination is subject to review by PMU and the Bank. Further information on these policies is available on the Bank’s website, www.worldbank.org.

□ Annex 3 contains information to help the potential operators determine which of the following Bank safeguard policies may be triggered by their investment;

1. Environmental Assessment (OP4.01, BP 4.01, and GP 4.01) (Always Applies)
2. Involuntary Resettlement (OP/BP 4.12)

NB: If any of the Bank safeguards policies are triggered by an investment, the operator will modify the design, implementation, operation, maintenance and decommissioning phases to ensure that the investment satisfies the requirements of that particular policy.

Preparation of Environmental & Social Impact Assessment (ESIA) and Environmental & Social Management Plan (ESMP)

Preparation of the applicable safeguards instrument is the responsibility of the investment proponent/sponsor, in this case, TCN. For reinforcement or upgrading of existing transmission lines and stations that require site-specific ESMPs, proponents will oversee ESMP preparation by engaging Consultants.

ESMPs must cover the minimum content specified in Article 4 of the Decree as well as in OP 4.01.

Environmental Audits: Where a project involving significant retrofitting or upgrading of an existing facility is being considered, an environmental audit should be carried out as part of the preparation for the upgrading, and this audit can provide the main documentation necessary for the environmental assessment. (All other relevant requirements of OP 4.01 must also be taken into consideration, particularly in relation to consultations, which is not usually part of the audit.)

In an industrial context, the overall objective of an audit is to understand the scale and sources of the pollution problems at a facility or in a defined area and to set out the options available for dealing with those problems. There is often a staged process of investigation in which each stage is narrower in scope but more detailed than the preceding one. An initial assessment – a “preliminary audit” as planned for NETAP -- can be relatively quick, drawing on readily available sources, including site interviews, and providing an overview of the actual or suspected sources of pollutants and the extent of their impact. This overview can be carried out during project definition or at a scoping stage and provides a basis for further detailed investigations or for defining priorities for action. A useful function of the initial assessment is to describe data availability and needs and to indicate where site sampling and monitoring might be cost-effective.

A full site audit is detailed, requiring careful site inspections (perhaps including sampling and testing) and review of past and present production processes, as well as pollution emissions and control measures. **The audit should also clarify the legal and regulatory framework, licensing agreements, corporate policies, and management structures and priorities that affect the environmental performance of the plant. In many cases, relevant technical and environmental standards for performance may be ill defined or may not exist, and professional judgments will have to be made as to the appropriate benchmarks.** However, it is essential that the standards or emissions limits proposed for the plants to be clearly defined and that the rationale for their selection be given. If full new plant requirements appear unachievable with the current plant, the audit should address what might be acceptable as realistic interim requirements.

The audit should provide a list of recommended actions, in terms of increasing cost-effectiveness in addressing the critical environmental issues. This list should include interim and long-term targets and a timetable for achieving them, together with an indication of the investments and other resources (human, information, and so on) that would be required. More details on audits are available in the World Bank Group *Environmental, Health and Safety Guidelines*.

Public Disclosure and Consultation: According to Nigerian law and World Bank OP4.01, public consultation is required as part of the ESIA and/or ESMP process. Section □Annex 1 below has a summary of consultations undertaken under NETAP so far,

.

For NETAP, safeguards work on investments entails an initial consultation of affected populations and interested NGOs as well as relevant agencies of federal, state and local governments, to inform them about the proposed activity and solicit recommendations, questions and concerns to be addressed in environmental and social assessment. Once drafts of safeguards documents are completed, they must be disclosed. Both Nigeria and the Bank require public disclosure of ESIA's, ESMPs, and RAPs. The Bank's requirements are the most detailed and, to comply with them, safeguards documents for NETAP investments will be disclosed in the same way as the ESMF and RPF – that is, at public locations in the area affected by the project as well as in appropriate State and Federal agencies, and at the Public Information Center at the World Bank office in Abuja and the InfoShop at Bank Headquarters in Washington. It is a policy of the Bank that consultations and disclosure should be in form and language accessible to the stakeholders, and that consultation should continue throughout project implementation. Proceedings and results of consultations are to be summarized in the final versions of safeguards documents.

All stakeholders, other agencies, NGOs, should be afforded the opportunity to review and comment on the documents disclosed. Following a time period adequate for the review of those documents, which for NETAP is defined as 30 calendar days for Category B investments, a second consultation is required, after which final comments are received and final documents are prepared and disclosed.

The provision for public participation in the Nigerian EIA decree gives the public the right to comment after the submission of a draft final ESIA report, where they can comment within 21 working days. However they do not have an opportunity to comment on the screening report of any of the projects subjected to full ESIA. There have been an improvement in awareness of the right to public participation that is embedded in the FMEnv administered EIA legislation. Concerned stakeholders will be informed through disclosure of this ESMF that they have broader rights and opportunities under the World Bank procedures to be consulted on NETAP investments in addition to the 21-day comment period that applies in FMENV processing.

Nothing in this discussion of consultation and disclosure is meant to preclude more frequent consultation between interested stakeholders and investment proponents or their consultants. In fact, ongoing consultation is desirable and encouraged, either formally or informally. This has proven to be particularly valuable in establishing effective relationships with communities surrounding power plants and substations in Nigeria.

Safeguards Review and Approval:

The review process for investments that only require ESMPs is simpler than that for full ESIAAs, as it does not involve FMEnv. The first reviewer will be PMU, via the ERSU. The Bank will review a representative number of ESMPs for Category B. Investments would also have to be reviewed and cleared by the Bank, to ensure compliance with its safeguards policies. Bank prior review will be suspended if the initial ESMPs are of good quality, and the Bank will thereafter review implementation of completed ESMPs as part of project supervision.

The Importance of ESMP Implementation: The key to ensuring the sustainability of the NETAP lies in the planning and implementation of the ESMP. *Therefore the ESMP MUST be included in the Bidding documents and contracts with penalties for non-compliance in all physical investments under NETAP. If this is not done most of the potential risks highlighted in this document will become real causes for concern.*

To mitigate this risk the ERSU of PMU must be equipped to prepare and implement specific ESMPs for the various investments in transmission and distribution investments as they arise. The ERSU would adopt a monthly site visit to ensure strict compliance with ESMPs.

The ERSU will conduct an audit of each facility to be constructed under the NETAP at least once in its lifetime, and the facility management should be encouraged to gear up towards ISO 14001 and OHSAS 18001 certification of their facilities.

8 Potential Impacts of NETAP

This section addresses the typical environmental and social impacts and the corresponding typical mitigation measures for the types of activities likely to be supported by NETAP. The information on impacts and mitigation measures is presented in two tables for reinforcement of transmission lines and Table 3 for rehabilitation of existing substations. The tables are not intended to be exhaustive in content but rather to indicate in general the scope of ESIA's and ESMPs for NETAP-supported investments. It is entirely possible that additional impacts will be identified during impact assessment studies or audit preparation and will require additional mitigation measures.

Table 2 Typical Impacts and Mitigation Measures for Transmission Line Reinforcement

| Project Activities / Environmental Aspects | Potential and Associated Impacts | Mitigation Measures |
|--|--|--|
| | | <ul style="list-style-type: none"> • |
| Clearance of ROW | Relocation of encroachers | <ul style="list-style-type: none"> • • Prepare and implement RAP in accordance with RPF |
| | Accumulation of brush and debris | <ul style="list-style-type: none"> • Use appropriate disposal techniques; prohibit burning |
| | Dust and soil erosion | <ul style="list-style-type: none"> • Install erosion and sedimentation controls; periodic sprinkling for dust control |
| Cable Stringing | Soil / groundwater contamination from accidental fuel/engine oil spill refueling | <ul style="list-style-type: none"> • train personnel in safe fuel handling • use drip pans to contain any spills during refueling activities |
| | Onsite noise and vibration effects on the workers | <ul style="list-style-type: none"> • maintain all work equipment at optimal operating condition • enforce use of PPEs |
| | Disturbance by noise and vibration in surrounding communities | <ul style="list-style-type: none"> • maintain all work equipment at optimal operating condition • monitor noise levels at sensitive receptors (residential areas, schools, hospitals) • work through community liaison officers to agree on working hours and to respond promptly to complaints |
| | Risk of accidents to life and property | <ul style="list-style-type: none"> • Set and enforce speed limits • Mandatory driver training • Use warning signs and, where necessary, personnel to direct traffic • Train and equip workers in safety while working at heights and working with high voltage |
| | Damage to roads and other infrastructure caused by transit of heavy trucks | <ul style="list-style-type: none"> • Routine inspection, and prompt repair of any damage road and blind spot |
| Transmission operation line | Exposure to electromagnetic fields | <ul style="list-style-type: none"> • Prevent encroachment and enforce restrictions on activities in ROW |
| | Risk of electrocution, injury or property damage | <ul style="list-style-type: none"> • Post warning signs and design towers to prevent access to conductors by unauthorized personnel |
| Transmission maintenance line | | <ul style="list-style-type: none"> • |
| | Accumulation of brush and debris | <ul style="list-style-type: none"> • Use appropriate disposal techniques; prohibit burning |
| | Soil / groundwater contamination from accidental fuel/engine oil spill refueling | <ul style="list-style-type: none"> • Sponsor shall train personnel in safe fuel handling • Sponsor shall use drip pans to contain any spills during refueling activities |
| | Risk of accidents to life and property | <ul style="list-style-type: none"> • Set and enforce speed limits • Mandatory driver training • Use warning signs and, where necessary, personnel to direct traffic |

Table 3 Typical Impacts and Mitigation Measures for Rehabilitation of Existing Substations

| Project Activities / Environmental Aspects | Potential and Associated Impacts | Mitigation Measures |
|---|---|--|
| Environmental Management Plan and Health and Safety Plan do not exist or are not being implemented. | Workplace health and safety risks are not being adequately managed | <ul style="list-style-type: none"> • Develop and/or implement ESMP and HSE Plans • Correct substandard conditions requiring urgent attention • Develop and implement and action plan to correct other deficiencies • Identify and Empower (or recruit) responsible individuals to manage health, safety and environment at the facility • Start or restart awareness training |
| | Effluent, emission and noise standards are not being complied with. Ambient conditions in the area exceed standards. | |
| | Solid waste management is substandard, with abandoned equipment and accumulations of trash and litter widespread. | |
| | Spills and leaks have contaminated soil, structures, and possibly groundwater | |
| Environmental and health and safety monitoring is not being conducted | No database by which to judge compliance with standards in the workplace, or in effluent and emissions | <ul style="list-style-type: none"> • Formulate and/or implement monitoring plans • Repair or obtain monitoring equipment • Identify and Empower (or recruit) responsible individuals to manage monitoring program |
| | No database to discern effects on ambient conditions | |
| Immediate and severe health and safety risks exist in the workplace | Workers exposed to hazardous substances such as asbestos, PCB contamination | <ul style="list-style-type: none"> • Restrict access and provide protective equipment until condition is abated |
| | Workers exposed to high noise levels, poor ventilation or lighting, etc. | <ul style="list-style-type: none"> • Correct conditions • enforce use of correct PPEs |
| | Workers exposed to risk of electrocution because of old or poorly-maintained equipment, lack of safety procedures | <ul style="list-style-type: none"> • post warning signs and restrict access until condition can be abated • institute or reinstate "lock-out and tag-out" and similar procedures |
| Hazardous substance contamination | Workers exposed to risk | <ul style="list-style-type: none"> • Obtain expert advice in developing a remediation plan • Implement the plan • In the interim, contain the contamination and restrict access to contaminated areas • Test local water supplies and, if affected, provide alternative sources |
| | Contamination has or may spread off-site through air, surface or groundwater, or improper disposal | |
| Inadequate security provisions for the facility | <ul style="list-style-type: none"> • Social conflict between the facility and the surrounding community • Vandalism or sabotage • Risk of electrocution or injury from contact with high-voltage equipment | <ul style="list-style-type: none"> • Establish effective, ongoing community relations program • Install fences and other security features around all dangerous or vulnerable facilities • Post warning signs • Employ security personnel, ideally from local area |

Environmental and Social Management Framework (ESMF) for NETAP

| Project Activities / Environmental Aspects | Potential and Associated Impacts | Mitigation Measures |
|--|--|--|
| Waste Management | <ul style="list-style-type: none"> • Groundwater contamination • Soil contamination • Health Hazard • Air pollution • Visual Impact | <ul style="list-style-type: none"> • Development and implement an effective site waste management plan. |

9 Institutional Capacity for Environmental Management

9.1 ERSU Skills and Gaps

The Environment, Resettlement and Social Unit (ERSU) was established within the Project Management Unit (PMU) of TCN to ensure compliance with national and international environmental regulations and with the Bank's safeguard policies. The staff includes environmental and social specialists. ERSU has a proven track record of satisfactory preparation of ESIA, ESMPs, and/or Environmental Audits for transmission and distribution system investments following the framework approach. Three Bank supported projects in the sector implemented by the PMU – the Nigerian Transmission Development Project (NTDP), the National Energy Development Project (NEDP) and Nigerian Electricity and Gas Improvement Project (NEGIP) – have ESMFs. The NEDP and NEGIP also have RPF, and ERSU has also prepared the terms of reference for the first RAP that was used in the NEDP. ERSU has been responsible for formulating the TCN environmental policy, the TCN environmental policy and, its "HIV/AIDS Work Place Policy".

ERSU was initially created to oversee transmission projects. It has extended its capability to environmental monitoring of HVDS projects under the NEDP. The ERSU has acquired skills in resettlement operations, environmental management, environmental audit, HIV/AIDS awareness and general project management. Capacity within the ERSU has improved significantly over the years with the unit conducting impact assessments for sub-projects under various Bank assisted power projects. The most recent effort of the unit in this regard is the preparation of the ESMF and RPF for this project with the assistance of Bank safeguards staff.

Under NETAP, its role will include oversight functions in compliance with the ESMF and RPF. The ERSU will also help project implementers with all environmental, resettlement and social issues as well as with project monitoring and reporting on environmental and socio-economic matters. Direct regulatory oversight will be provided by the Federal Ministry of Environment, which is the permit-issuing authority in Nigeria. ERSU will be monitoring to keep PMU and the Bank informed on safeguards performance. For this purpose, it is recommended that they receive additional training to cover environmental and social aspects of electric power transmission, off-grid power generation and electricity access under NETAP, Bank policies and operations, and issues of global warming, climate change, biodiversity conservation and ecosystem management. The ERSU will appreciate if the Bank could facilitate interactions with other safeguards teams on similar World Bank funded projects from other countries to enhance knowledge sharing and better understanding of the Bank's safeguards policies.

TCN has a Health Safety and Environment Division (HSE) established a ERSU that is responsible for ensuring compliance with environmental, resettlement and social regulations throughout the system, during construction and operation. The ERSU comprises of consists of 12 staff in headquarters and one in each of the eight transmission regions. The ERSU in the TCN is responsible for carrying out environmental assessments of projects to be embarked upon by TCN while the ERSU of PMU concentrates on World Bank Assisted projects. Under NETAP, the ERSU PMU will collaborate with TCN ERSU for monitoring the implementation of Safeguards.

Federal Ministry of Environment (FMEnv)

The Federal Ministry of Environment is the agency of FGN responsible for setting policy guidelines on environmental issues and ensuring compliance with national environmental

standards. They have different departments with field offices in every region of the country. The department has three main divisions:

- The Environmental Assessment Division – This division is responsible for review of ESIA of all new projects. The environmental regulations of the federal government require that environmental assessments be carried out for different categories of projects as stated in the Environmental Impact Assessment Act (1986). This division ensures that the required level of assessment is complied with depending on the kind of project and the degree of impact on the environment. The division also ensures that various review mechanisms for an EIA are properly applied, with emphasis on the participation of the stakeholders. For existing facilities, the Act requires that periodic (every three years) environmental audits be conducted and the reports of such audits reviewed by the ministry. They are responsible for issuance of environmental certificates and permits.

National Environmental Standards and Regulations Enforcement Agency (NESREA)

- The Standards and Monitoring Division – This division sets environmental standards and also monitors compliance with such standards e.g. water quality, air emission, pollution standards etc. The standards monitoring division requests data of relevant emissions and discharges from various establishments and checks for compliance or defaults to apply necessary sanctions.

The Federal Ministry of Environment (FMEnv) has the mandate to provide overall policy guidance for environmental management across the country at all levels of government, including ESIA issues. However, it faces some implementation issues, summarized below:

- The World Bank, through the PMU, had earlier made some efforts towards improving the capacity of the FMEnv to improve its capacity under NEGIP. Within this particular intervention, monitoring vehicles were procured for the Department of Environmental Assessment, established a website for the Department to enhance data monitoring and sharing digitalized most of its environmental assessment reports that hitherto in hard copies.
- Under NETAP the staff of the Department of Environmental Assessment, Federal Ministry of Environment will be trained on Environmental Regulations Enforcement (UNESCO-IHE).

9.2 Relationship between the Federal Government and States

The relationship between the federal government and states is the subject of ongoing debate in Nigeria. Under democratic rule, state governments have become much more powerful compared to under previous military regimes

States and Local Government Councils (LGCs) are encouraged to set up their own environmental protection agencies. There are however, numerous differences between states in terms of institutional arrangements for environmental management. In some states such as Adamawa, there is a Ministry of Environment and a self accounting EPA that reports to the Commissioner of Environment. In others, such as Cross River, the EPA is subsumed within the State Ministry of Environment.

Individual ESIA preparers under NETAP should refer to local state laws and regulations and assess the institutional arrangements and capacity in the relevant state(s) while carrying out environmental and social assessment.

10 Consultations on the ESMF for the NETAP

This ESMF is subject to the same consultation and disclosure requirements that are described in Section 7 for the individualESIAs and ESMPs. The only difference is that because specific investment locations are not known, affected communities cannot be identified. Consultation is thus conducted at the national level with representation from stakeholder groups. Disclosure is at the national level but also in states and local government areas where NETAP activities are likely to occur. The ESMF will be available to all interested parties via the Bank’s InfoShop (www.worldbank.org/infoshop) and the website that will be established for the project.

10.1 Initial Consultation

Consultations on the impact of NETAP shall be conducted at various locations, regions and at national level. The stakeholders shall include: NGOs, CBOs, community groups and various government agencies. The outcome of these consultations shall be properly documented and forwarded to the Bank.

10.2 Consultation on the Draft ESMF

A consultation on the draft ESMF will be held at the expiration of the mandatory 120-day comment period in Abuja.

Annex 1. Consultations

Annex 2. Cost of Implementing the ESMF for NETAP

Below is the estimated cost of implementing the recommendations of this ESMF. This covers the costs for preparing the various safeguard documents (ESIAs, ESMPs Monitoring plans), monitoring/supervision, procurement of monitoring vehicles, PPEs and basic field equipment (Digital Cameras, Hand-held GPS, stakeholder consultations, disclosure of safeguards documents).

| S/N | Item | Remark | Cost (USD) |
|-----|---|--|---------------------|
| 1 | Administrative costs | Procurement of office equipment, digital cameras, Hand-held GPS devices (with appropriate GPS software), procurement of maps, satellite images. | 2,500,000.00 |
| 2 | Consultancy | Site-specific ESMPs (10) | 500,000.00 |
| | | Sub-Total | 3,000,000.00 |
| 3 | Operational and Maintenance Cost | Consultations with stakeholders, stakeholders sensitization workshops, meetings, fuelling and maintenance of field vehicles, community liaison, Monitoring and site inspection and production of reports, procurement of two (2no.) 4x4 monitoring vehicles. | 400,000.00 |
| 4 | Capacity building and Training for ERSU | Training on Environmental Monitoring/Modelling (UNESCO-IHE), Environmental Planning (UNESCO-IHE), climate change (UNESCO-IHE), Pollution Abatement & Control (UNESCO-IHE), Occupational Health and Safety, Environmental Regulations Enforcement, Environmental Economies and additional skills required to evaluate Transmission Lines and Substations Environment. | 400,000.00 |
| | | Provision of basic sampling tools for ERSU-PMU | 200,000.00 |
| 5 | Capacity Building and Training for ERSU-TCN | Training in ESIA, Environmental Audit, and Environmental Management Workshops for ERSU staff in TCN Provision of basic sampling tools for ERSU-TCN. | 400,000.00 |
| | | Capacity building and Training for Federal Ministry of Environment staff (EA-Department). | 200,000.00 |
| | | | 400,000.00 |

TOTAL

US\$ 5,000,000.00

NOTE: THE FUNDS ALLOCATED FOR ENSURING COMPLIANCE WITH WORLD BANK SAFEGUARDS POLICIES, AS STATED IN THE TABLE ABOVE MUST BE USED STRICTLY FOR THE PURPOSES STATED IN THIS TABLE.

Annex 3. Safeguards Tables

The tables below provide guide to determining which Bank safeguard policies are triggered.

Table 2: Verification of Safeguards Policies triggered by investments

| |
|---|
| Environmental Assessment (OP 4.01) |
| Summary: The Bank requires environmental impact assessment (ESIA) of sub-projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable. The environmental assessment is a process that is conducted to identify the negative impacts that a project may have on aspects of the biophysical and social environment. It analyses the impacts of project alternatives, and provides mitigation measures to be undertaken to eliminate or minimize the impacts identified. |
| Objective: To identify potential impacts that a project may have on the environment and to provide mitigation to eliminate or minimize these impacts. |
| The investment operator automatically complies with this policy by complying with the measures described in this ESMF. Preparation of ESIA's including ESMPs are required for Category A and B investments, and only an ESMP is required for Category C investments. |

| Involuntary Resettlement (OP 4.12) | |
|---|---|
| <p>Summary: Bank experience indicates that involuntary resettlement under development projects, if left unmitigated, often gives rise to severe economic, social and environmental risks: production systems are dismantled; people face impoverishment when their production assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. Where people are forced into resettling as a result of a Bank project or a component of the project that may be under other financial arrangements, the Bank requires that those who are affected are treated in such a way so as way as to minimize their disruption and to compensate for their losses. The borrower will be responsible for preparing, implementing, and monitoring a resettlement plan, a resettlement policy framework, or a process framework, as appropriate, that conforms to the policy. The NETAP is preparing a RPF which the operator is supposed to comply with should his investment trigger this policy.</p> | |
| <p>Objective: Involuntary resettlement will be avoided where feasible, or minimized. Where resettlement is required, resettlement activities will be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them to levels prevailing prior to the beginning of project implementation.</p> | |
| Questions: | Actions: |
| i) Is there any land acquisition resettling in loss of access, restriction or denial of access to that acquired land? | <p>If the answer to one or more of the questions is yes, then a resettlement action plan (RAP) consistent with the disclosed RPF is to be prepared by the operator. Depending upon the significance of the impacts (e.g. minor or less than 200 resettled) an abbreviated resettlement plan would be required only). The plans will ensure that: i) people are informed of the their options and rights pertaining to resettlement; ii) they are consulted and given feasible resettlement alternatives; iii) they are provided prompt and full compensation for losses incurred. If physical relocation is required the plan will: i) provide assistance during relocation; ii) be provided with housing, housing sites, or agricultural sites; iii) offered support after resettlement; iv) provided with development assistance, monitored and granted access to grievance redress mechanisms.</p> <p>Resettlement planning includes early screening, scoping of key issues, the choice of resettlement instrument, and the information required to prepare the resettlement component. To prepare the plan the borrower will draw upon appropriate social, technical, and legal expertise and on relevant community based organizations and NGOs.</p> |
| ii) Will the taking of land result in relocation or loss of shelter? | |
| iii) Will the taking of land result in a loss of assets or access to assets? | |
| iv) Will the taking of land result in the loss of income sources or means of livelihood? | |
| Other comments: | |
| i) At the Government's request the Bank may provide technical, legal and financial support for resettlement planning and for institutional capacity strengthening as this relates to resettlement planning and implementation. | |
| ii) The full cost of resettlement activities to achieve the objectives of the project is included in the total costs of the investment to be paid for by the operator. | |
| iii) The borrower is responsible for adequate monitoring and evaluation of the activities set forth in the resettlement instrument (i.e. RAP). | |

Annex 4. Guidelines for the preparation of ESMP

The preparation of an ESMP should include the following key sections (see also www.worldbank.org):

1. Summary of Impacts: Anticipated adverse environmental impacts should be identified and summarized as well as their relationship to social impacts and the appropriate mitigation measures.
2. Description of Mitigation measures: The mitigation measures proposed for the various impacts should be described in relation to the corresponding impacts while stating the conditions under which they are required. Adequate description of the consultations should be done and justified.
3. Description of monitoring program: A detailed monitoring program should be described in the ESMP, listing environmental performance indicators and their link with impacts and mitigation measures. The ESMP should also describe the parameters to be measured, methods to be used, sampling location and frequency of measurements, detection limits and a clear definition of thresholds that indicate the need for corrective measures. Monitoring and supervision schedules should be clearly stated and agreed with the Bank to ensure timely detection of needs for remedial action and also provide information on the level of compliance with ESMP in accordance with Bank safeguards. These arrangements must be clearly stated in the project implementation/operations manual to reinforce project supervision.
4. Legal requirements and bidding/contract documents: The ESMP should be incorporated in all legal documents to enforce compliance by all contractors participating in the project. The ESMP should be summarized and incorporated in the bidding and contract documents.
5. Institutional arrangements: The ESMP should clearly state who is responsible for monitoring, execution of remedial action and the reporting order and format to allow for a defined channel of information flow. It should also recommend institutional strengthening for relevant agencies and the funding authorities for the various activities.
6. Capacity Development and Training: To support timely and effective implementation of environmental project components and mitigation measures, the ESMP draws on the EA's assessment of the existence, role, and capability of environmental units on site or at the agency and ministry level.³ If necessary, the ESMP recommends the establishment or expansion of such units, and the training of staff, to allow implementation of EA recommendations. Specifically, the ESMP provides a specific description of institutional arrangements i.e. who is responsible for carrying out the mitigation and monitoring measures (e.g., for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). To strengthen environmental management capability in the agencies responsible for implementation, most ESMPs cover one or more of the following additional topics: (a) technical assistance programs, (b) procurement of equipment and supplies, and (c) organizational changes.
7. Implementation Schedule: The frequency, timing and duration of mitigation measures and monitoring should be stated in the implementation schedule. Links between mitigation measures and development of relevant institutions and legal requirements of the project should be stated.
8. Reporting: The order of information flow as it concerns monitoring reports should be clearly defined. The relevant officers to receive these reports should be those who have authorities to

facilitate implementation of the results of the monitoring. These reports should also be communicated to the Bank via media to be agreed and specified in the ESMP. Adequate arrangements should be made by the Bank to facilitate the circulation of the ESMP through the selected means.

9. Cost estimate: The cost of carrying out monitoring and implementation of the mitigation measures at the various stages of the project should be integrated into the total cost of the project and factored into financial negotiations. These costs should include administrative, design and consultancy, operational and maintenance costs – resulting with meeting required standards and project design.