FEDERAL REPUBLIC OF NIGERIA

NIGERIA PRIVATIZATION SUPPORT PROJECT (NPSP)

ENVIRONMENTAL PRE-AUDITS OF PUBLIC ENTERPRISES
(SELECTION OF FACILITIES FOR FULL AUDITS)

SUBMITTED TO:

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LIST OF ACRONYMS:

AGM  Acting General Manager
AIDS  Acquired Immunodeficiency Syndrome
AIF  Audit Index Factors
AST  Aboveground Storage Tank
AVR  Automatic Voltage Reduction
BOD  Biological Oxygen Demand
BPE  Bureau of Public Enterprises
COD  Carbon Oxidation Demand
CO2  Carbon Dioxide
CO  Carbon Monoxide
DP  Decommissioning Plan
EAT  Environmental Audit Team
EDP  Enterprise Development Program
EET  Environmental Evaluation Team
EIA/S  Environmental Impact Assessment/Statement
EMP/S  Environmental Management Plan/System
FEPA  Federal Environmental Protection Agency
FGN  Federal Government of Nigeria
FRN  Federal Republic of Nigeria
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>GIS</td>
<td>Geographical Information System</td>
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<tr>
<td>GTC</td>
<td>Geomatric Technology Corporation</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Agency</td>
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<tr>
<td>IFR</td>
<td>Infrastructure Framework Report</td>
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<tr>
<td>ISO</td>
<td>International Standards Organization</td>
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<tr>
<td>MOE</td>
<td>Ministry of the Environment</td>
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<tr>
<td>MP</td>
<td>Monitoring Protocol</td>
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<tr>
<td>M-TEL</td>
<td>Nigerian Mobile Telecommunications Limited</td>
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<tr>
<td>NAL</td>
<td>Nigeria Airways Limited</td>
</tr>
<tr>
<td>NBC</td>
<td>Nigerian Broadcasting Commission</td>
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<tr>
<td>NCC</td>
<td>National Control Center, Oshogbo</td>
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<tr>
<td>NCC</td>
<td>Nigerian Communications Commission</td>
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<tr>
<td>NCP</td>
<td>National Council on Privatization</td>
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<tr>
<td>NEAP</td>
<td>National Environmental Action Plan</td>
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<tr>
<td>NEPA</td>
<td>National Electric Power Authority</td>
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<td>NET</td>
<td>Nigerian External Telecommunications</td>
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<td>NFMC</td>
<td>National Frequency Management Council</td>
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<td>NITEL</td>
<td>Nigerian Telecommunications Limited</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>Nox</td>
<td>Nitrous Oxide; Nitrogen Dioxide</td>
</tr>
<tr>
<td>NPSP</td>
<td>Nigeria Privatization Support Project</td>
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<tr>
<td>ODC</td>
<td>Other Direct Costs</td>
</tr>
<tr>
<td>O &amp; M</td>
<td>Operation and Maintenance</td>
</tr>
<tr>
<td>PCD</td>
<td>Project Concept Document</td>
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<tr>
<td>PE</td>
<td>Public Enterprise</td>
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<tr>
<td>PPD/E</td>
<td>Personal Protective Device/Equipment</td>
</tr>
<tr>
<td>PPM</td>
<td>Parts Per Million</td>
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<tr>
<td>PPSCP</td>
<td>Privatization and Private Sector Competitiveness Project</td>
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<td>PRCBP</td>
<td>Privatization and Reg. Capacity Bldg. Project (Cape Verde)</td>
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<td>Department of Posts &amp; Telecommunications</td>
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<td>Privatization and Utility Sector Reform Project (Uganda)</td>
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<td>SO2</td>
<td>Sulfur Dioxide</td>
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<td>State Owned Enterprises</td>
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<td>TAM</td>
<td>Turn-Around Maintenance</td>
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<tr>
<td>TOR</td>
<td>Terms of Reference</td>
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<td>TSRIC</td>
<td>Telecommunications Sector Reform Implementation Com.</td>
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<tr>
<td>TTL</td>
<td>Task Team Leader</td>
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<td>UNIDO</td>
<td>United Nations Industrial Development Agency</td>
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<tr>
<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
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<tr>
<td>UST</td>
<td>Underground Storage Tank</td>
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<tr>
<td>VOC</td>
<td>Volatile Organic Compounds</td>
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<tr>
<td>WB</td>
<td>The World Bank</td>
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<td>WHO</td>
<td>The World Health Organization</td>
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EXECUTIVE SUMMARY:

I. Preamble

1. Four key Public Enterprises (PEs) are being privatized under the *Nigeria Privatization Support Project (NPSP)* by the Federal Government of Nigeria (FGN) and financed by the International Development Agency (IDA) of The World Bank. The enterprises are: National Electric Power Authority (NEPA), Nigerian Telecommunications Limited (NITEL), Nigerian Mobile Telecommunications Limited (M-TEL), and Nigeria Airways Limited (NAL). Additional eighty-six (86) State-Owned Enterprises (SOE) that have been scheduled in the Public Enterprises (Privatization and Commercialization) Act No. 28 of 1999, were screened for probable environmental audit requirements on the basis of their activities.

2. The Bureau of Public Enterprises (BPE), and the Secretariat of the National Council on Privatization (NCP) under the Office of the Presidency of FGN are responsible for the privatization and commercialization processes of the PEs. As part of the divestiture processes, the environmental issues at the enterprises are being addressed during the project preparation by including environmental audits to analyze existing conditions at and around specific sites and facilities of the enterprises. Hence, this report is the result of environmental pre-audits carried out to rank and prioritize the facilities for the PEs with respect to those requiring comprehensive (Full) audit, partial audit and no audit.

3. The assignment was carried out in two phases: *phase I* involved review of all existing documentation and historical information, as well as, performing visual inspection of selected sites and facilities; and *phase II* comprised assessment of risks, prioritization of pollution concerns, and ranking of sites according to the need for auditing at divestiture. The report has been prepared for the BPE and the World Bank, Private Sector Development Department with Paul Ballard as the Task Team Leader. The Environmental Audit Team (EAT) that conducted the pre-audit assessment comprised Dr. Kobina Atobrah (Team Leader) and Malick A. K. John (Principal Environmental Engineer).

4. The enterprises for the pre-audit assessment were from the following sectors: power and energy utilities, telecommunications, and the (airline) transportation industry. The pre-audit was carried out to develop a prioritized list of concerns related to past and on-going activities in the privatization candidates; and a review of the capacity of the Bureau of Public Enterprises, as well as the Ministry of Environment (formerly Federal Environmental Protection Agency, FEPA), to monitor and enforce existing regulations as well as the capacity to execute remediation plans.

II. Environmental Setting:

5. The major environmental issues of concern in Nigeria include soil degradation, rapid deforestation, desertification, and droughts in the northern regions that are severely affecting marginal agricultural activities. Furthermore, constraints in the generation, transmission and distribution of electricity to the national grid from hydropower dams and gas-fired thermal plants are causing disruptions to the national economy. The national environmental issues and concerns
can be exacerbated through the privatization of public enterprises and the accelerated industrialization of Nigeria. Some of the immediate problems could be: the health impacts of pollution derived from inadequate water supply and shortage of electricity supply; air and noise pollution; poor sanitation, drainage and solid waste services and management; poor industrial hygiene; and poor industrial waste management.

6. In general, there is relatively low coverage and access to basic services such as water supply and sanitation, drainage, solid waste collection and disposal. For instance, controlled landfills, incineration and resource recovery facilities are few. Hence, the health and safety issues, including medical monitoring and providing appropriate industrial hygiene for workers, would be essential in minimizing the negative effects deriving from the environmental concerns affecting the country, including the prevention of HIV/AIDS exposure to the larger population.

III. Selection of Facilities for Environmental Audits:

7. Rankings of the Facilities belonging to the enterprises were undertaken based on the degree of risk to the environment emanating from the sites. The risk characterization was a process of estimating the probable incidence of adverse impacts to potential receptors under various exposure conditions, including an elaboration of uncertainties associated with such estimates. The ranking process applied in the pre-audit assessment involved the qualitative estimation of the potential risks and/or hazards due to activities at the Facilities.

8. The Facilities of the PEs were assigned scores on the basis of Audit Index Factors (AIF) which have been determined for the sites. The AIF was the degree of pollution potential for a Facility of an enterprise by which assessment for full audits could be determined. The Audit factors were incorporated into a relative ranking scheme that used a combination of weights and ratings to produce a numerical value called Audit Index. To obtain the number from each Audit factor that determined the index for the pollution potential, the weight was multiplied by the rating. The total of the numbers for individual Audit factors gave the Audit Index. Evaluation of the Audit Index with respect to the Facilities of the PEs provided the relative significance of each site with respect to pollution potential. The cumulative scores for each Facility were determined, and the site with the highest score assigned the most likely site to require a full audit to be undertaken. The ranking procedure is similar to the scoring process of the DRASTIC Index (Aller and Others, 1987; Atobrah and Others, 1989; Atobrah, 1990; Asante-Duah, 1993; and Asante-Duah and Others, 1996). The Audit Index gives a measure of whether a site is located in a generally sensitive or vulnerable area and has a significant pollution potential to the environment.

IV. Rating Components:

9. The criteria considered to have little impact on the environment were ranked by assigning the lowest rating of one (1), and the criteria with significant impact on the environment were assigned the highest rating of ten (10). The rating components for evaluating and characterizing the audit potential of a site were as follows:
• Type of Enterprise (i.e. activities at facilities);
• Air Emissions (i.e. impact on air quality);
• Wastewater (i.e. impact on surface water and groundwater receptors);
• Solid Waste (i.e. impact on the environment);
• Noise;
• Occupational Health and Safety Issues;
• Environmental Management and Regulatory Framework; and
• Level of Capacity Building, Training and Awareness.

V. **Weighting Components:**

10. Each *Audit* factor was assigned a relative weight ranging from one (1) to five (5); the least significant with a weight of 1 and the very significant with a weight of 5. For example, a factor such as ‘Air Emission’ is assigned a weight of 5 if the impact is very significant and a weight of 1 if the impact is of least significance. The weighting was assessed on the overall affects on pollution potential for the sites by considering *weighting components* such as:

- Depth to water;
- Soil and aquifer media;
- Topography;
- Impact on land-use and planning;
- Impact to wetlands and water bodies; and
- Impact on workers.

VI. **Results**

11. The Facilities of the PEs were ranked into categories of those that required full audits, those requiring partial audits and those requiring no audits, based on the cumulative Audit Index Factors (AIF) for the site.

The rankings were categorized as follows:

- Facilities with *Audit Index Factors* of cumulative scores above 140 were considered high risk and would require **full audits**;

- Facilities with *Audit Index Factors* of cumulative scores ranging from 100 – 140 were considered medium risk and would require **partial audits**;

- Facilities with *Audit Index Factors* of cumulative scores less than 100 were considered low risk and would require **no audits**.

12. Based on the field assessments and on the scores for the Audit Index Factors, the Facilities of the PEs have been ranked as follows:
A. Facilities Requiring Full (or Comprehensive) Audits:

- **NEPA FACILITIES:** All the Hydro Electric Power Stations, consisting of Kainji (192), Shiroro (154) and Jebba (144), as well as the Thermal (Gas-Fired) Power Stations of Afam Power Station (145), Delta Power Station, Ughelli (147), Lagos Power Station, Egbin (142), and Sapele Power Station (162).

- **NITEL FACILITIES:** The Facilities at Abuja (Wuse) (141), Benin City (149), Lagos Facilities (158), New Bussa (149).

- **THE NATIONAL CONTROL CENTER (NCC), OSHOGBO.**

B. Facilities Requiring Partial Audits:

- **NEPA FACILITIES:** Bulk Supply Substations at Kaduna (138) and Kano (136).

- **NITEL FACILITIES:** The Facilities located in and around Ajaokuta (114), Lokoja (114), Kaduna (124), Kano (131), and Sapele (122).

- **NIGERIA AIRWAYS LIMITED (NAL) FACILITIES:** Lagos Facilities (129), and Kano (133).

C. Facilities Requiring No Audits:

- **M-TEL FACILITIES:** Facilities located at Abuja (98), Lagos (99), Kaduna (95), and Kano (92).

- **NIGERIA AIRWAYS LIMITED (NAL) FACILITIES:** The facilities located at Abuja (90), Kaduna (80), and Benin City (80).

VII. Summary of Pre-Audit Findings:

13. In general, the significant environmental pre-audit findings for both the NEPA and NITEL facilities requiring comprehensive (full) audits commonly included the following: waste (used) oil getting into the downstream waters, no spill contingency plan for prevention and control, poor management of waste oil; solid wastes consisting of metal scraps from abandoned engines and vehicles, pile of discarded metal pieces and old rusted roofs for maintenance areas; poor management of estate for staff; no environmental management plan/system available for station, including lack of knowledge on regulatory framework, no liaison with Ministry of Environment, and no capacity building for environmental services and requirements.

14. The Kainji Hydro Power Station required a proper management and rehabilitation of the housing estates for the staff, and Jebba Power Station would need urgently a replacement of the Braithwaite water tank for upgrading the water supply system to the station.

15. The pre-audit findings for the Nigerian Airways Limited (NAL) facilities at Kano and Lagos
indicated: lack of knowledge on regulatory framework, no liaison with Ministry of Environment, and no capacity building for environmental services and requirements; handling of waste (used) oil was poor and inadequate, and no contingency plans for oil spill prevention and control; no enforcement of health and safety measures at work place.

16. Based on the activities at the National Control Center (NCC) at Oshogbo, comprehensive audit would be required to be undertaken, including the possibility of dismantling some equipment and an execution of a decommissioning plan.

17. Consultations: Consultation with stakeholders were carried out whenever possible during the field inspections of various facilities and sites across the country. There was a lack of knowledge about the privatization and commercialization processes currently being pursued by BPE at most of the facilities in the rural and urban areas. In general it was observed that at the NEPA and NITEL facilities inspected no new lands were required within the existing boundaries, and that resettlement of displaced persons have been taken care of long time ago.

18. Divestiture Guidelines: A ‘road map’ or guidelines, consisting of about fourteen (14) steps, have been proposed to assist the Bureau of Public Enterprises (BPE) in determining when to conduct environmental audits and decommissioning plans during the divestiture of privatization candidates. The steps include when to conduct various plans, such as contingent liabilities, sampling protocol, performance indicators, and environmental management. Also the steps show at what stage to develop terms of references (TOR) for environmental audits. Also guidelines for environmental auditing have been provided as ANNEXE A.

VIII. Decommissioning Plans

19. During the pre-audit assessment it was observed that both NEPA and NITEL, and possibly Nigeria Airways, would require decommissioning plans to dismantle, remove, and transport to safe disposal sites obsolete plants and equipment. The need for decommissioning plan must be evaluated during the full audits of the facilities. When the need is determined, the decommissioning plan must be conducted separately from the environmental audit, and must adhere to the World Bank regulations that demand a decommissioning plan (DP) with a full environmental assessment and properly carried out cost estimates.

IX. Statutory Framework:

20. The policy initiatives and underlining principles of FGN have been geared towards the framework of the country’s natural resource management policies for integrating environmental concerns into the private sector plans, programs and development actions. In 1989, the FGN formulated a National Policy on Environment that led to the establishment of the Federal Environmental Protection Agency (FEPA), through Decree No. 58 of 1988 as amended by Decree 59 of 1992 and further amended by Decree 14 of 1999 with the mandate for the overall responsibility towards ensuring a good quality environment for Nigeria. Since then FEPA has been absorbed into the Ministry of the Environment and no longer operates as a separate or independent agency.
21. It is generally recognized by FGN that standards, guidelines and statutes to protect the environment and support private sector participation must be set at levels at which no known or anticipated adverse human health effect would occur and which allows an adequate margin of safety. The guidelines and standards must be developed under the instructions and environmental assessment procedures described in the World Bank operational policy, bank procedures, good practices and safeguard policies (i.e. OP/BP/GP4.01). Until these standards are developed specifically for Nigeria, it would be advisable to adhere to the standards by the World Health Organization (WHO), European Union Standards, and the United States Environmental Protection Agency (USEPA).

22. **Legal Framework on Liabilities:** The Bureau of Public Enterprises (BPE) must work closely with the Ministry of the Environment (MOE) to ascertain who assumes the responsibilities for environmental liabilities at the PEs. For instance, do the liabilities fall on the new owners or on the former owners? It appears the laws of Nigeria are silent on these issues, and hence both BPE and MOE should work jointly in order to determine the appropriate law(s) covering environmental liabilities with respect to: privatization policy, due diligence, and indemnification, so that there would be a clear understanding of who is liable for contamination, both past, current and in the future, i.e. during and after divestiture.

23. **Monitoring Protocols:** There were lack of standards for monitoring environmental parameters, i.e. measuring physico-chemical and microbial parameters for water quality and air quality for Nigeria. As a result, the enterprises have been conducting *self-monitoring* using standards that were not consistent. An *Environmental Advisor* must be hired to and be made responsible for determining and preparing guidelines and environmental performance indicators that are *measurable* for monitoring sites and facilities of the PEs. The performance indicators can serve as the instrument for responding to any potential environmental hazard that may occur as a result of activities by the enterprises. Furthermore, the *Environmental Advisor*, on behalf of BPE, can liaise with the MOE to set up a monitoring and accountability protocol that would require either monthly, quarterly or yearly reporting from the PEs with respect to addressing significant mitigation measures and meeting the environmental management challenges of the facilities.

**X. Cost Estimates for Conducting Audits:**

24. The overall costs for conducting the necessary and appropriate elements of the Environmental Auditing Programs for Privatization are not to exceed one million, two hundred and fifty thousand dollars (i.e. US$1,250,000.00).

The cost estimates can be broken into:

- cost for comprehensive audits for NEPA facilities – US$425,000.00;
- cost for comprehensive audits for NITEL facilities – US$200,000.00;
- cost for comprehensive audits for NCC, Oshogbo (also for NEPA) – US$75,000.00;
• cost for partial audits for NEPA facilities – US$100,000.00;
• cost for partial audits for NITEL facilities – US$100,000.00;
• cost for partial audits for NIGERIA AIRWAYS facilities – US$100,000.00;
• cost for hiring Environmental Advisor for BPE – US$250,000.00;

XI. Recommendation:

25. Based on the environmental pre-audits conducted for the four key public enterprises in Nigeria, it is recommended that comprehensive (full) audits be undertaken for the following facilities:

National Electric Power Authority (NEPA):
- The Hydro Power Stations located at Jebba, Kainji and Shiroro;
- The Thermal (Gas-Fired) Power Stations located at Afam, Delta (Ughelli), Lagos (Egbin), and Sapele.

Nigerian Telecommunications Limited (NITEL):
- Facilities located at Abuja, Benin City, Lagos and New Bussa.

National Control Center (NCC):
- Facilities located at Oshogbo

26. Partial audits must be carried out for the following facilities:

National Electric Power Authority (NEPA):
- The Bulk Supply Substations located at Kaduna and Kano, as well as other major bulk supply substations in the country;

Nigerian Telecommunications Limited (NITEL):
- Facilities located at Ajaokuta, Lokoja, Kaduna, Kano and Sapele/Benin City area.

Nigeria Airways Limited (NAL):
- Facilities located at Lagos and Kano airports.

27. No audits should be required for the facilities belonging to M-TEL and the facilities for Nigeria Airways located at Abuja, Kaduna and Benin City. Furthermore, it should be assumed that the other facilities belonging to NEPA and NITEL, particularly in the rural areas, would not require any audits at this time, based on a random ‘drive through’ observations during the site visits across the country.

28. Decommissioning Plans: It is recommended that undertaking actual decommissioning plans for each site must be evaluated and the costs be determined during the comprehensive audits.

29. Legal Framework and Contingent Liabilities: It is recommended that the former owners
bear the liabilities of past actions before they hand over to the private sector, or the cost for remediation/mitigation measures must be deducted out of the privatization cost.

30. **Guidelines and Environmental Performance Indicators:** The Environmental Advisor to BPE must liaise with The Ministry of the Environment (MOE) and be responsible for determining and preparing guidelines and environmental performance indicators which are measurable for monitoring sites and facilities of the enterprises being privatized, or have already been privatized.

It is recommended that the allocated amount (US$250,000.00) must be provided to hire the Environmental Advisor for a three year period.

Furthermore, it is recommended that the Environmental Advisor should liaise with the MOE and set up a monitoring and accountability protocol that would require either monthly, quarterly or annual reports with respect to addressing significant mitigation measures and meeting the environmental management demands due to the activities and operations of the enterprises. The monitoring protocol would require working in partnership with the leading agencies, such as The Ministry of Agriculture, non-governmental organizations NGOs), community-based organizations (CBOs), and other relevant government institutions.

31. **Guidelines for Environmental Management in Divestiture:** As part of the divestiture of public enterprises, the 'road map' or guidelines proposed should be used in conjunction with the guidelines for environmental auditing (ANNEXE A) by the Environmental Advisor of BPE to assist in preparing due diligence, and in supporting the integration of environmental management within the divestiture processes for the current and future privatization candidates.

32. **Training:** It is recommended that the Environmental Advisor should assess and recommend effective training for the senior management of all the privatization candidates as part of capacity building requirements in the divestiture processes. The training could consist of workshops or seminars, with the initial training provided by a qualified local environmental management firm supported by international consultants.

33. **Environmental Management Systems/Plans:** Each enterprise must have on its premise a Senior Official responsible for environmental management activities, and liaise with both the Environmental Advisor of BPE and the MOE on environmental laws and regulations pertaining to the activities of the enterprise and participate in training and be part of the capacity building for environmental management.

34. The Environmental Advisor must coordinate and support the development of contingency plans that link city/urban contingency plans with that of the privatization candidates. Furthermore, it is recommended that the enterprises develop and incorporate environmental management systems/plans (EMS/P) into its management structure. The EMS/P must include elements such as:

- execution of environmental monitoring programs for the enterprises;
- knowledge and compliance with applicable environmental laws and regulations;
- conduct occasional drills to alert the staff and workers on how to react and operate in cases of emergencies;
- conduct training and awareness programs as part of good management practices.
while promoting capacity building within the enterprise;
- develop the capacity to execute coherent sampling and monitoring programs as part of remediation plans; and
- carry out medical monitoring, while including HIV/AIDS awareness programs.

35. *Period of Performance:* The comprehensive and partial environmental audits of the enterprises must be completed prior to the divestiture of each enterprise. However, the implementation of the audit action plans and decommissioning plans must be negotiated with the appropriate interested partners as part of the full divestiture of each enterprise. This means that the execution of any proposed audit action plans need not be completed prior to negotiations. The implementation schedules can be determined during the negotiation of the loans in the privatization process.
1. INTRODUCTION:

1.1 Background:

This report is an environmental pre-audit assessment of four (4) Public Enterprises (PEs) in the Federal Republic of Nigeria that are being privatized under the *Nigerian Privatization Support Project (NPSP)* by the Federal Government of Nigeria (FGN). The pre-audit is part of the processes for the privatization and commercialization of State-owned enterprises, and is being conducted by the Bureau of Public Enterprises (BPE) and the Secretariat of the National Council on Privatization (NCP) under the Office of the Presidency of the FGN. The report has been prepared for the BPE and the World Bank, Private Sector Development Department with Paul Ballard as the Task Team Leader, TTL.

The Government of Nigeria has decided that it will transform its role from owner, financier and operator of PEs to that of policy maker and regulator for the provision of public services. The goal is to create an enabling environment for the provision of infrastructure services that improves corporate governance and promotes private sector participation in the telecommunications, power and air transport sector to stimulate social development and economic growth.

The assignment was carried out in two phases: *phase I* involved review of all existing documentation and historical information, as well as, performing visual inspection of as many facilities as possible across the country; *phase II* comprised assessment of risks, prioritization of pollution concerns, and ranking of facilities according to the need for comprehensive (full) audits, partial audits and no audits at divestiture.

1.2 Listings

As indicated in the Terms of Reference (TOR, see Appendix) the four key enterprises for the pre-audit assessment were:

- National Electric Power Authority (NEPA)
- Nigerian Telecommunications Limited (NITEL)
- Nigerian Mobile Telecommunications Limited (M-TEL)
- Nigeria Airways Limited (NAL)

The Lagos State Water System was dropped from the original list because of an on-going discussion on the nature and scope of divestiture of the enterprise.

Additional listing component was to screen *eighty-six (86) Public Enterprises* that have been scheduled in the Public Enterprises (Privatization and Commercialization) Act No. 28 of 1999.
Other listing component of the pre-audit was to strengthen the Ministry of the Environment (formerly Federal Environmental Protection Agency, FEPA) for supporting the PE divestiture.

1.3 The Nature and Scope of Support:

The proposed privatization support for the project included the following components:

- strengthening of the overall institutional and policy framework for PE divestiture, including streamlining of procedures for divestiture execution, capacity building in BPE and NCP, and strengthening of coordination between sector reforms and privatization; and adoption of consistent overall policy for PE retrenchment;
- implementation of electricity sector unbundling, restructuring, legal and regulatory reform and NEPA divestiture, aimed at major improvements in service delivery, efficiency and access for private business and the general population, and expanded, more reliable investment and supply through competitive private sector entry and operation;
- implementation of telecommunications sector liberalization, and regulatory reform, and privatization of the two major state-owned carriers, NITEL and M-Tel, aimed at major expansion in connectivity through private investment and entry of new private operators, improved service quality and more affordable tariffs, due to competition and market liberalization;
- implementation of air transport sector restructuring, through privatization of Nigeria Airways Limited (NAL), in context of adoption of phased program for sector liberalization, aimed at improved reliability, safety and efficiency of international air transport services, and expanded opportunities for private entry and competition;

1.4 Meetings and Activities:

Several meetings were held with the Senior Officials of the Bureau of Public Enterprises (BPE) that included the Director of Operations, Mr. Tijjani M. Abdullahi and the Deputy Director, Alhaji A. Adesokan. Also the meetings included Mr. Paul Ballard, the Task Team Leader of the World Bank and his associate, Ms. Shenhua Wang.

The meeting agreed upon the following tasks to be included in the general assignment for the pre-audit assessment:

- consultation with stakeholders would be carried out whenever possible during the field inspections of various facilities and sites across the country;
- screening of all the enterprises on the list for privatization (eighty-six PEs) would be carried out based on their activities and their potential impact on the environment. The screening would group the enterprises into those requiring comprehensive audits, partial audits, and no audits;
- guidelines would be proposed to show a road map that would enable the BPE determine the environmental requirements of the future privatization candidates.
Meetings were also held with the Managing Directors and Senior Officials of the enterprises, as well as, with the Directors and Senior Officials of the Ministry of the Environment (including the former FEPA). The field assessments for the environmental pre-audits were conducted during the months of November and December 2000, with a visit to as many sites as possible in the northern and southern regions of Nigeria. These sites were selected strategically to cover a random sample of facilities for each enterprise. The exercises focused on determining which of the facilities of the enterprises required full audits to be undertaken. In arriving at the selection criteria, a system involving the rankings of the Facilities using Audit Index Factors was developed for the PEs. The methodology worked very well, and was found to be consistent with similar ranking formats by the United States Environmental Protection Agency (US. EPA) and other recognized authorities (see the reference used for the report).

This report has been prepared by an Environmental Audit Team (EAT) comprised Dr. Kobina Atobrah (Team Leader), and Malick A. K. John (Principal Environmental Engineer). The team worked closely with the Deputy Director for Operations, Alhaji A. Adesokan, and a senior staff, Mr. Abdullahi R. Imam of BPE, particularly in obtaining the necessary and appropriate letters authorizing the visits to the facilities of the four enterprises.

2. PROJECT OBJECTIVES

The primary objective of the project was to carry out an environmental pre-audit of the four key public enterprises listed for divestiture and to develop a ranking that determined the need for a comprehensive (full) audit, partial audit or no audit before divestiture.

In addition, the objectives included determining the environmental conditions of the enterprises and determine the probable mitigation measures that may be required for the enterprises. The goal is to use the pre-audit report to providing the necessary information for internal planning before divestiture and for external reporting, as well as, indicating the ‘road map’ for determining the environmental liabilities and audit studies for future privatization candidates.

Furthermore, the objectives included the review of the national environmental legislation and administrative framework and capacity for enforcement and compliance, in conjunction with the relevant safeguard policies of the World Bank Group.

3.0 ENVIRONMENTAL SETTING

3.1 Initial Conditions

The Federal Republic of Nigeria is bounded by Cameroon to the east, Chad to the northeast, Niger to the north, Benin to the west, and the Atlantic Ocean to the south. Until 1991, the capital was the largest city, Lagos, on the southwestern coast; at that time the new city of Abuja, in the country’s interior, became the capital. Nigeria has a federal form of government and is divided into 36 states and a federal capital territory.

Nigeria covers an area of 923,768 sq. km (356,669 sq. mi). The country measures about 1,200 km (about 750 mi) from east to west and about 1,050 km (about 650 mi) from north to south.
The topography ranges from lowlands along the coast and in the lower Niger Valley to high plateaus in the north and mountains along the eastern border.

The broad, mostly level valleys of the Niger and Benue rivers form Nigeria’s largest physical region. The Niger enters the country from the northwest, the Benue from the northeast and they join at the city of Lokoja in the south central region and continue south, where they empty into the Atlantic at the Niger Delta. Together, they form the shape of a ‘Y’. The ecology varies from tropical forest in the south to dry savanna in the far north, yielding a diverse mix of plant and animal life.

The population of Nigeria is 101,232,251 (July 1995 est.), half under the age of 15, and the growth rate is about 3.16% (1995 est.). There are three main ethnic divisions made up as follows: Hausa and Fulani (north), Yoruba (southwest), and Iagos (southeast). The gross domestic product (GDP) of Nigeria is $48.2 billion (1998 est.) and the real GDP growth rate is 4.2% (1999 est.) with agriculture 54%, industry 19%, government 15% and services 12%.

The electric generation capacity of Nigeria is 5.9 giga-watts (1997 est.) and electricity generation for the country is 13.575 billion kilowatt-hours (1997 est.). The total energy consumption is 1.0 quadrillion (1998 est.) which is only 0.3% of the world total energy consumption, and per capita energy consumption (1998 est.) is 9.0 million Btu (versus United States value of 350.7 million Btu). The energy-related carbon emissions (1998 est.) is 27.1 million metric tons of carbon (0.4% of world carbon emissions).

Nigeria is party to major international environmental agreements including: Conventions on Biodiversity, Climate Change, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Marine Life Conservation, Nuclear Test Ban, Ozone Layer Protection and Whaling.

3.2 National Policy on the Environment:

The Federal Government of Nigeria (FGN) has taken a number of steps to address various environmental problems in the country. In 1989, the FGN formulated a National Policy on Environment that led to the establishment of the Federal Environmental Protection Agency (FEPA), through Decree No. 58 of 1988 as amended by Decree 59 of 1992 and further amended by Decree 14 of 1999 with the mandate for the overall responsibility towards ensuring a good quality environment for Nigeria. Since then FEPA has been absorbed into the Ministry of the Environment and no longer operates as a separate or independent agency.

In addition, the Environmental Impact Assessment (EIA) Decree No. 86 of 1992 was promulgated. As a result, EIA Sectoral Guidelines for major sectors of the economy and EIA procedural guidelines have been developed and are operational. After a decade, the National Policy on Environment has been updated and revised in 1999 with a number of complementary policies, strategies and management approaches that ensure, among other factors, that the environmental monitoring and auditing of existing major development projects are routinely carried out", as well as, ensuring a mandatory environmental audit of all major existing energy projects.
3.3 Environmental Concerns:

The major environmental issues of concern in Nigeria include soil degradation, rapid deforestation, desertification, and droughts in the northern regions that are severely affecting marginal agricultural activities.

Since Nigeria is a major oil producing country with about estimated proven oil reserves of 22.5 billion barrels (1999 est.) there are potential pollution problems associated with the onshore and shallow offshore exploration and production activities, particularly in the Niger Delta region. Nigeria’s four refineries have a combined nameplate capacity of over 438,750 bbl/day, but problems including sabotage, fire, poor management and lack of turn-around maintenance (TAM) have sharply decreased actual output, thereby causing significant lines at petrol filling stations throughout the country. Also, it has been reported in the national press that petroleum product smuggling for resale to neighboring countries (Nigerian prices are highly subsidized) has exacerbated the country’s fuel shortage.

Nigeria contains an estimated 124 trillion cubic feet (Tcf) of proven natural gas reserves (10th largest in the world). Due to a lack of gas utilization infrastructure, about 75% of the gas produced is flared and about 12% is injected to enhance oil recovery. The flaring of the natural gas is causing major environmental pollution problems within the affected areas in the Niger Delta region. Therefore, the challenge is to achieve zero flaring of the natural gas within the next ten years. The newly proposed West African gas Pipeline Project may alleviate the current problems associated with the flares.

The current national environmental issues and concerns of Nigeria are very similar to those of its neighbors, i.e. Cameroon and Benin. These include: overpopulation and movement of refugees into its borders, notably from Niger and Chad; draining of wetlands for agricultural use; soil erosion; overgrazing; and the continuing spread of HIV-AIDS related problems and malaria.

The industrialization of Nigeria is being accelerated through the privatization of public enterprises. This could give rise to critical and most immediate problems such as:

- the health impacts of pollution derived from inadequate water supply and shortage of electricity supply;
- poor sanitation, drainage and solid waste services;
- poor urban and industrial waste management;
- air pollution;
- noise pollution.

In general, there is relatively low coverage and access to basic services such as electricity, water supply and sanitation, drainage, and solid waste collection. For instance, controlled landfills, incineration and resource recovery facilities are few. Hence, health and safety issues, including medical monitoring and providing appropriate industrial hygiene for workers, would be very necessary in order to minimize the negative effects deriving from the environmental concerns affecting the country.
4. RANKING

In order to determine which of the Facilities of the PEs required a full and comprehensive audit to be undertaken, rankings have been carried out of the facilities based on risk characterization. The risk characterization is a process of estimating the probable incidence of adverse impacts to potential receptors under various exposure conditions, including an elaboration of uncertainties associated with such estimates. The ranking process applied in this assessment involves the qualitative estimation of the potential risks and/or hazards due to activities at the Facilities of the PEs.

An adequate characterization of risks and hazards at a potentially contaminated site allows for a comprehensive (full) environmental audit to be performed during which the site remediation process can be better focused, and cleanup criteria can be developed based on the 'acceptable' level of risks to potential receptors. Furthermore, during the comprehensive audits the greatest risk can be identified and the site mitigation measures selected to address those issues.

The ranking procedure was similar to the scoring using the DRASTIC Index (Aller and Others, 1987; Atobrah, 1990; Atobrah and Others, 1989), and was based on risk characterization of hazardous wastes (Asante-Duah, 1993; Asante-Duah and Others, 1996). The ranking approach provided indication on whether the site was located in a generally sensitive or vulnerable area and has a significant pollution potential to the environment.

4.1 The Environmental Pre-Audit Evaluation Criteria:

The facilities of the enterprises were assigned scores on the basis of the Audit Index Factors (AIF) developed for the various sites. The AIF is a degree of pollution potential for a facility by which assessment for comprehensive audits can be determined. The criteria considered to have little impact on the environment were ranked by assigning the lowest score of one (1), and the criteria with significant impact on the environment were assigned the highest score of ten (10). The scores for each facility were then summed and the site with the highest score assigned the most likely site to have full audit to be undertaken.

4.1.1 Rating Components:

The rating components for evaluating and characterizing the audit potential of a site were as follows:

- Type of Enterprise (i.e. activities at facilities and sites)
- Emissions and Air Quality
- Wastewater (i.e. impact on surface water and groundwater receptors)
- Waste Oil and Spill Control Measures
- Solid Waste
- Noise
- Occupational Health and Safety Issues
The audit evaluation factors were assigned rating components ranging from one (1) to ten (10); with the least significant rated as 1 and the very significant rated as 10. The Audit Factors were incorporated into a relative ranking scheme that used a combination of weights and ratings to produce a numerical value called Audit Index.

4.1.2 Weighting Components:

The weighting was assessed on the overall affects on pollution potential for the sites and facilities by considering the weighting components as follows:

- Depth to water;
- Soil and aquifer media;
- Topography;
- Impact on land-use and planning;
- Impact on wetlands and water bodies; and
- Impact on workers

Each audit factor was assigned a relative weight ranging from one (1) to five (5); the least significant with a weight of 1 and the very significant with a weight of 5. For example, a rating component such as ‘Air Emission’ was assigned a weight of 5 if the impact to the environment was very significant and a weight of 1 if the impact to the environment was of least significance.

To obtain the number for each Audit Index Factor (AIF) that determined the degree of the pollution potential, the weight was multiplied by the rating. The total of the product for individual Audit Factor gave the Audit Index. Evaluation of the Audit Index for the Facilities of the PEs provided the relative significance of each facility or site with respect to the pollution potential.

Based on the cumulative Audit Index Factors derived for the different sites, the Facilities of the PEs have been ranked into categories of those that required comprehensive (full) audits, those that required partial audits and those that did not need any audits to be undertaken at this moment.

The rankings were categorized as follows:

- Facilities with Audit Index Factors of cumulative scores above 140 were considered as **high risk** that would require **comprehensive (full) audits**;
- Facilities with Audit Index Factors of cumulative scores ranging from 100 – 140 were considered as **medium risk** and would require **partial audits**;
Facilities with Audit Index Factors of cumulative scores less than 100 were considered as low risk and would require no audits.

5. RESULTS OF RANKING

Based on the cumulative scores for the Audit Index Factors, the facilities of the PEs have been ranked as follows:

5.1 Facilities Requiring Full (or Comprehensive) Audits:

5.1.1 NEPA FACILITIES:

a). Hydro Electric Power Stations:

i. Jebba Power Station (144);
ii. Kainji Power Station (192);
iii. Shiroro Power Station (154);

b). Thermal (Gas-Fired) Plants:

iv. Afam Power Station (145);
v. Delta Power Station, Ughelli (147);
vi. Lagos Power Station, Egbin (142);
vii. Sapele Power Station (162);

5.1.2 NITEL Facilities:

o Abuja (Wuse) Facilities (141);
o Benin City (149);
o Lagos Facilities (158);
o New Bussa (149)

5.1.3 The National Control Center (NCC), Oshogbo.
5.2 Facilities Requiring Partial Audits:

5.2.1 NEPA Facilities:

Bulk Supply Substations:

- Kaduna (138);
- Kano (136);

5.2.2 NITEL Facilities:

- Ajaokuta (114);
- Lokoja (114);
- Kaduna (124);
- Kano (131);
- Sapele (122);

5.2.3 NIGERIA AIRWAYS LIMITED (NAL) Facilities:

- Lagos Facilities (129);
- Kano (133)
5.3 Facilities Requiring No Audits:

5.3.1 M-TEL Facilities:

- Abuja (98);
- Lagos (99);
- Kaduna (95);
- Kano (92)

5.3.2 NIGERIA AIRWAYS LIMITED (NAL) Facilities:

- Abuja (90);
- Kaduna (80);
- Benin City (80)
6.0 SECTOR ANALYSIS

6.1 Electricity Utility:

As indicated on EXHIBIT below the Hydro Power Stations for NEPA provided the cumulative scores for the Audit Index Factors (AIF), ranging from 154 to 192. These facilities would require full environmental audits to be undertaken.

The Thermal Plants, which were all gas-fired, had cumulative scores for AIF ranging from 142 to 162. With exception of Sapele Power Station (with AIF 162), these scores were relatively lower than the Hydro Plants. Nonetheless, facilities for the Thermal Plants would require full environmental audits to be undertaken.

Other NEPA facilities, such as the Bulk Supply Substations at Kaduna and Kano, indicated modest AIF cumulative scores of 136 to 138, and would require that partial audits be undertaken.
NEPA: HYDRO POWER FA

JEBBA KAINJI SHIRORO
6.2 Telecommunication Utilities:

The telecommunication sector comprised the two major state-owned carriers, NITEL and M-TEL. As indicated on EXHIBIT below the facilities for NITEL, in comparison to M-TEL, indicated high cumulative scores for the AIF between 141 to 158. Therefore, the NITEL facilities required comprehensive audits to be undertaken, whereas the M-TEL facilities, showing AIF scores of less than 100, do not require any audits at this time to be undertaken. Other NITEL facilities indicated modest cumulative scores ranging from 14 to 131, and would require partial audits to be undertaken.
NITEL FACILITIES FA

AIF SCORE

160
140
120
100
80
60
40
20
0

ABUJA (WUSE) BENIN CITY LAGOS NEW BUSSA
6.3 Transportation Industry:

The international air transport services by Nigeria Airways Limited (NAL) provided scores for the AIF of less than 140 (i.e. from 129 to 133). The cumulative scores were relatively moderate and the facilities at Kano and Lagos Airports would require partial audits to be undertaken. The other facilities at Abuja, Kaduna and Benin City indicated low values for the AIF and would not require any audits to be undertaken at this time. EXHIBIT below indicates the general distribution of the AIF for those sites inspected.
7.0 DESCRIPTION OF KEY PRE-AUDIT FINDINGS

7.1 NATIONAL ELECTRIC POWER AUTHORITY (NEPA) Facilities:

The National Electric Power Authority (NEPA) had at the time of the pre-audit assessment, seven generating stations consisting of three (3) hydro and four (4) thermal (gas-fired) facilities. The hydro power stations were: Kainji, Jebba and Shiroro; and the gas-fired thermal plants were: Afam, Delta (Ughelli), Lagos (Egbin), and Sapele. The present capacity requirement for Nigeria from both hydro- and thermal- power stations was 4600 MW. However, during the pre-audit assessment the total capacity dropped from 2600 MW to 1600 MW.

In addition, NEPA had other facilities such as Bulk Supply Substations, Transmission Lines and Distribution Systems, as well as, The National Control Center (NCC) located at Oshogbo. The NCC was responsible for maintaining the good quality of power supply by keeping system voltages to specifications for the country in order to meet the demand of the average consumer in load availability in the system while ensuring the supply in every facet of the grid network for Nigeria. Also, the NCC was to maintain economic loading of generators in order to reduce production cost, and to enhance system security and reliability.

The key pre-audit findings were as follows:

A. HYDRO POWER STATIONS:

1 Kainji Hydro Power Station:

Background and Initial Conditions:

Kainji Power Station is a hydroelectric dam on the Niger River located in Niger State of Nigeria. Four generating units were commissioned in 1968, with two in 1976 and the last two in 1978. The power station had about 400MW by January 1st 2000, although by the time of the pre-audit (December, 2000) the capacity had been reduced considerably since most of the generating units required maintenance and rehabilitation. For instance, none of the eight turbines of the dam was serviceable during the site visit, and one turbine had been the cause of flooding at the plant few days prior to the mission.

Key Pre-Audit Findings:

The significant findings were:

Waste (Used) Oil: Waste oil and oil spills from the turbines were found floating into the reservoir. No contingency plans were available for spill prevention and control. A significant amount of oil/lubricant spills was observed at the bays of the four proposed new turbines. These spills were found washed downstream to the reservoir at Jebba.
Water Quality: There was visibly high turbidity of the water downstream. There was no monitoring program related to the environment, such as, sampling for physico-chemical or microbial parameters of the lake waters or downstream waters.

Estate Management: The estates of the power station for the staff were more or less in the final stages of decay, the buildings have been erected essentially for the original Construction crews of the dam as temporary quarters and subsequently allocated as permanent residences. The conditions of sanitation were poor and potable water supply was a problem. The state of the buildings and services called for a very detailed study as to whether NEPA should continue maintaining or replacing the entire outfit.

Environmental Management (Including Regulatory Framework, Capacity Building): There was very little environmental management system or plan in place for the power station. The liaison between the Federal ministry of Environment (formerly FEPA) and the station was weak, and there was little knowledge on the regulatory framework with respect to environmental management that could guide the activities of the station. Furthermore, there was no senior personnel directly responsible for environmental management of the station, and hence the need for capacity building in that regard.

Health and Safety Issues: The power station takes the safety of the workers and visitors very seriously. Hard hats are provided to all workers and visitors, however, some of the workers were seen not to use the personal protection equipment, such as ear muffs/plugs, and goggles at all times inside the plant.

Solid Waste: Metal scraps from abandoned and old vehicles were found at the maintenance yard. There was poor collection of household wastes at the estates, resulting in illegal dumps on the properties.

Decommissioning of Equipment and Materials: Several pieces of equipment would need to be dismantled and transported to safe disposal sites, including obsolete engines, machines, old and abandoned vehicles, batteries, etc.

Summary of Findings:

The significant environmental pre-audit findings included the following: waste (used) oil getting into the downstream waters, with no spill contingency plan for prevention and control, and poor management of waste oil; solid wastes consisting of metal scraps from abandoned engines and vehicles, pile of discarded metal pieces and old rusted roofs for maintenance areas; poor management of estate for staff; no environmental management plan/system available for station, including lack of knowledge on regulatory framework, no liaison with Ministry of Environment, and no capacity building for environmental services and requirements. The score for the environmental Audit Index Factors was 192, which placed the station in the highest risk category and would therefore require a full (comprehensive) audit to be undertaken.

2. Jebba Hydro Power Station:

Background and Initial Conditions:
The Jebba Hydro Power Station is located downstream of the Kainji Hydro Power Station, along the Niger River in Kwara State of Nigeria. The power station has six (6) generating units that were commissioned in 1968. The dam, the reservoir and the estates were managed far better than the other NEPA facilities in terms of infrastructure and operations, as well as estate management.

The water supply system comprised two pumps at the reservoir intake and four pumps at the treatment plant. The equipment though serviceable had very little life left in them.

Key Pre-Audit Findings:

**Estate Management:** The station has two camps. The water supply tank/reservoir that served these camps was severely damaged because it was on the verge of being burst and fractured. The panels forming the walls of the tank were corroded badly and should be replaced. Vast amount of water was spewing out of the tank (of the Braithwaite type). The present system should be replenished from boreholes and a new Braithwaite tank should be installed.

**Water Hyacinth:** Floating weeds were seen far from the powerhouse and the bridge at the station. According to the security personnel at the site and the Assistant General Manager, the water hyacinth is still a major problem even though their presence is minimized at this period of the year, i.e. towards the end of the rainy season. Some clumps may, therefore, grow in the head pond area beyond the dam where the water current is lower than elsewhere. The weeds were likely to be *eichornia crassipes*, *salvinia molesta* and/or *pistia stratiotes* which as a group are commonly known as water hyacinth, water fern, lettuce, kariba weed or water celery.

**Environmental Management:** Although a senior personnel has been assigned to be responsible for the environmental management of the station, there was no consistent environmental management system or plan being adhered to at the facilities. Also, there was little contact and no liaison between the national Ministry of Environment (formerly FEPA) and the management of the station. There was no capacity building for environmental management within the facilities.

**Health and Safety Issues:** The facility complied with the standard industrial hygiene codes. Occasionally, some of the workers were seen without ear muffs/plugs and eye goggles inside the plant when needed.

Summary of Findings:

The key findings included: disruption of the potable water supply to the two camps of the Jebba station for the staff and workers as a result of fractured water tank/reservoir; possible proliferation of water hyacinth at the head pond area of the dam; mediocre environmental management of the station that needed to be improved and turned into a coherent and consistent plan or system. The score for the environmental Audit Index Factor (AIF) was 144, making the station qualify for a full (comprehensive) audit.

3 Shiroro Hydro Power Station:

**Background and Initial Conditions:**
The station is located in Niger State of Nigeria on the Shiroro Gorge along the Kaduna River. The station has four generating units that were commissioned as follows: one (1) in 1989 and three (3) in 1990. Only two of the turbines were operational during the visit to the station. Water hyacinth was of no consequence at this site.

**Key Pre-Audit Findings:**

*Waste (Used) Oil:* Waste oil and lubricants at the station were collected into sumps, treated and re-cycled. However, no contingency plans existed for spill prevention and control to mitigate any potential losses of fuel.

*Water Quality:* There was no sampling and monitoring of physico-chemical and microbial parameters at the station. Waste (used) water from the station was discharged directly into the downstream water.

*Environmental Management:* There was no coherent and consistent environmental management plan or system for the power station. There was very little interaction or liaison with the national Ministry of Environment regarding the regulatory framework/guidelines for environmental management. Also, there was no capacity building for environmental management and no training has been provided in years for anything related to environmental management.

*Health and Safety Issues:* There was no conscious effort in addressing health and safety issues, such as worker safety and protection against bodily harm. The standard personal protective equipment (PPE) of hard hats, ear plugs, boots, and goggles were provided to the workers on routine basis, however, no supervision was provided to make sure the PPE were used properly and at all times when required.

**Summary of Findings:**

The key findings included: upstream activities of the farmers and fishermen, including precious stone prospectors, could create interference into the operations of the station; no contingency plans for the management of waste oil and spills; no pollution controls for wastewater effluent to the downstream water; and no environmental management plan/system for the station. Environmental *Audit Index Factor (AIF) score was 154,* placing the facility in the highest risk category and would require a full (comprehensive) audit.

**B. THERMAL (GAS-FIRED) STATIONS:**

Site inspections were carried out at Sapele and Lagos (Egbin) Power Stations. Both the Afam and Ughelli stations were assessed based on information obtained at Sapele and Egbin, and partially based on senior officials who have worked at these places before.

The pre-audit findings for those sites visited were as follows:

1. Sapele Power Station:

**Background and Initial Conditions:**
The Station is located in Ogorode, Delta State of Nigeria. The Station uses gas-fired turbines to generate electricity. Six of the turbines (of 120 MW each) were commissioned in 1987 and four (of 75 MW each) were commissioned in 1991. There was no monitoring of noise levels within the plant. Thermal/heat radiation is of concern throughout the plant.

**Key Pre-Audit Findings:**

**Waste (Used) Oil:** Oil/lubricants were used in compressors and turbines at the plant. The waste or used oil from the facilities were collected into sumps and water/oil separators, pre-treated and re-cycled. There were occasional spills and escape into the canal near by. No contingency plans existed for spill prevention and control measures.

**Wastewater:** Effluent water, mostly from the condensers, was discharged into a relatively long canal in order to let the temperatures cool down before entering downstream water of the Ethiope River that is a tributary of the Benin River. The water quality of the canal was not monitored at a consistent level. For instance, there was no monitoring of physico-chemical and microbial parameters of the water entering the river.

**Estate Management:** A substantial part of the senior staff residences, including the Acting General Manager’s house, is directly below the high-tension transmission lines. This could lead to a major hazard due to the electromagnetic effects from the lines and should be discouraged.

**Environmental Management:** There was no coherent and consistent environmental management plan or system for the power station. There was very little interaction or liaison with the national Ministry of Environment regarding the regulatory framework/ guidelines for environmental management. There was no capacity building for environmental management at the station.

**Health and Safety Issues:** Standard order issues of personal protective equipment (PPE) such as boots, hard hats, goggles and ear muffs were provided to the workers at the station, but there was no supervision of their proper use at the right locations and at the right times when required.

**Summary of Findings:**

The key pre-audit findings included: thermal/heat radiation was a major concern within the plant; noise levels required to be monitored; water quality parameters, consisting of temperature, physico-chemical and microbial parameters, should be monitored before effluent discharge from canal into the Ethiope River; environmental management should be incorporated to management good practices; and residential quarters underneath the transmission lines should be re-allocated or demolished.

2 Lagos (Egbin) Power Station:

**Background and Initial Conditions:**

The Station is located in the outskirts of Lagos at Egbin, Lagos State. The Station is the largest thermal power station in the country. There were six turbines of 220 MW each, with two turbines commissioned in 1985, two in 1986 and the last two in 1987.
Key Pre-Audit Findings:

Waste (Used) Oil: There was no contingency plan for oil spill prevention and control measures at the facility. The waste oil was collected and re-cycled, although some amount escaped and mixed with wastewater to become the effluent from the plant.

Wastewater and Water Quality: There was no monitoring of the physico-chemical and microbial parameters, including temperatures, of the water entering the canal at the plant. A new installation is in the works for additional gas-fired turbines by Enron (of Texas, USA) near the plant, and an environmental assessment of possible impacts has been proposed.

Environmental Management: There was no coherent and consistent environmental management plan or system for the power station. There was very little interaction or liaison with the national Ministry of Environment regarding the regulatory framework/ guidelines for environmental management. There was no in-house training or capacity building for environmental management provided at the power station.

Health and Safety Issues: There was no conscious effort in addressing health and safety issues, such as worker safety and protection against bodily harm. The standard personal protective equipment (PPE) of hard hats, ear plugs, boots, and goggles were provided to the workers on routine basis, however, no supervision was provided to make sure the PPE were used properly and at all times when required.

Summary of Findings:

The key pre-audit findings included: water quality parameters, consisting of temperature, physico-chemical and microbial parameters, should be monitored before effluent discharge from canal into the bay, especially with the coming on board of the proposed new facility by Enron nearby; thermal/heat radiation was a major concern within the plant; noise levels required to be monitored; environmental management should be incorporated into the management good practices for the station.

7.2 NIGERIAN TELECOMMUNICATIONS LIMITED (NITEL)

General Background and Initial Conditions:

NITEL has been divided into six zones, namely: Lagos Zone with headquarters in Lagos; Central Zone with headquarters in Abuja; South West Zone with headquarters in Ibadan; South East Zone with headquarters in Enugu; North East Zone with headquarters in Bauchi and North West Zone with headquarters in Kaduna. Each State of the Federation of Nigeria and the Federal Capital represents a Territory. Lagos is however structured into 3 territories. The Corporate Headquarters are located in Abuja.

NITEL has about 800,000 telephone lines and about 13,000 telex lines in the network. The digital system was introduced into the network in 1990, and the existing capacity has about
450,000 digital lines. Also, NITEL has introduced relatively new services such as Internet Service and On-Line Billing, as well as, Audio Mail Service and Network Paging Service.

The Central Zone of NITEL with the bulk of the facilities located at Wuse, Abuja, was the most modern and was typical of the problems encountered nationwide. The zone had about 43 telephone exchanges, out of which 22 were digital and the rest were analogue. The total installed capacity of the exchanges had about 93,552 lines with 15,268 being analogue and 78,284 being digital lines. About 65% of the total installed capacity was utilized as at October 2000. Furthermore, about 554 machines were installed in various locations in the zone, with over 76% (419) pay phones were functioning and 24% (135) were faulty due to faulty spare parts and lines.

Key Pre-Audit Findings:

Since the facilities for the enterprise were numerous (see EXHIBIT 1), only selected areas were chosen for inspection throughout the country. The facilities inspected were located in the following areas: Abuja (Wuse), Benin City, Lagos, New Bussa, Ajaokuta, Lokoja, Kaduna, Kano, Sapele, and some rural areas.

The pre-audit findings were common to the areas, and are described as follows:

Solid Waste Management and Decommissioning of Equipment: Discarded materials and equipment, such as underground cables and wires, were found at some locations. Analogue equipment not in use and other obsolete instruments were found at the facilities. It was reported that there could be old cross bar exchanges at few locations that would require to be decommissioned. The storage and warehouses contained discarded equipment and materials, including assortment of batteries, plugs, telecom devices, etc. that needed to be disposed off properly.

Environmental Management (Including Capacity Building and Regulatory Framework): No personnel (or senior staff) had been assigned with the responsibility for environmental management at the facilities. There was no coherent and integrated environmental management plan or system for the activities pertaining to environmental management, including viable and executable contingency plans. The liaison between the management and the Ministry of the Environment (formerly FEPA) was non-existent. Furthermore, there was a lack of awareness on the environmental laws, regulations and guidelines by the management of the enterprise, and hence, the regulatory framework for environmental management was virtually non-existent at the facilities. There was no sufficient training or awareness workshops or seminars on environmental management provided to the staff and workers of the PE.

Emission and Air Quality: The ventilation in some of the rooms was found to be inadequate. There was not enough air circulation and the air conditioners were not functioning properly. Therefore, the humidity was relatively high making the room temperature above normal and could impact the delicate instruments and equipment.

Health and Safety Issues: Workers were encouraged to make use of personal protective equipment (PPE) such as boots, hard hats, gloves and goggles. Workers laying cables and working on transmission lines and towers were supposed to wear protective clothing but did not have good supervision to enforce the discipline.
Waste Oil and Spill Control/Prevention: Spill contingency plans were unavailable for containing oil spills (including diesel oil and petroleum) for the zone. Generators were used constantly and oil/lubricants for the equipment were sometimes spilled on the floors and the areas where the generators were located.

Summary of Findings:

The key findings included: Lack of contingency plans for oil spill control and protection measures; inadequate solid waste management including disposal (decommissioning) of obsolete equipment, such as batteries, old cross bar exchanges; abandoned or discarded analogue equipment and materials; absence of coherent and consistent environmental management plan/system; weak contacts with the Ministry of the Environment; lack of knowledge on regulatory framework; no capacity building program for environmental management; and poor supervision of worker health and safety issues.

The scores for the environmental Audit Index Factors were as follows: Abuja (141), Benin City (149), Lagos (158), and New Bussa (149). These scores were high and the facilities would be required to undertake full (comprehensive) audits. Other facilities would require partial audits based on the scores for the AIF. These were: Ajaokuta (114), Lokoja (114), Kaduna (124), Kano (131), and Sapele (122).

7.3 NIGERIAN MOBILE TELECOMMUNICATIONS LIMITED (M-TEL)

Background and Initial Conditions:

The Nigerian Mobile Telecommunications Limited (M-Tel) was established in January, 1996 and incorporated on 21st May, 1996 as a commercial public enterprise. M-Tel operates TACS network to provide services in 18 States and plans to extend services to all States of the country by using digital cellular service (GSM) systems. The facilities of M-Tel were located at the cellular network of the country as follows: Service Area I – Lagos; Area II – Enugu; Area III – Abuja; and Area IV – Jos. Most of the original facilities belonged to NITEL and M-Tel has been “piggy backing” on NITEL facilities nationwide.

M-TEL was in the process of implementing a National Cellular Network Rehabilitation and Expansion to provide additional 10,000 lines in Lagos and also extend services to the omitted parts of the South West, South East, South South, North Central, North West and provide services to the North East. Furthermore, the enterprise was in the implementation of Area III (Abuja) network by rehabilitating the infrastructure and replacing the 5,000 lines Mobile Switching Center (MSC) with a 75,000 lines MSC. Finally, M-TEL has plans to introducing the Digital Cellular Service (GSM) to provide 400,000 lines and cover all State capitals, highways and commercial centers in Phase I (2000-2002).

Pre-Audit Findings:

The M-TEL facilities did not require any environmental audits at this time. This situation might change when the enterprise embarks on the ambitious expansion programs planned for the future.
At the minimum, an environmental management plan/system (EMP/S) should be developed and instituted in-house to address any future environmental problems and issues.

7.4 NIGERIA AIRWAYS LIMITED (NAL):

Background and Initial Conditions:

Nigeria Airways is currently undergoing drastic re-structuring and as a result, all its equipment is down. The few offices operating in the country were at low level of service. Site inspections for the pre-audit assessment were conducted at Kano, Kaduna, Lagos, Abuja, and Benin City.

Key Pre-Audit Findings:

It was determined that the facilities at Kano Airport and Lagos Airport required partial audits to be undertaken. No audits were required to be undertaken for the facilities in Abuja, Benin City, and Kaduna.

The observations below were common to both facilities in Kano and Lagos. These were as follows:

Waste (Used) Oil: Waste or used oil from the maintenance operations and from the rehabilitation of equipment were poorly collected and hardly re-cycled. At Kano the waste oil were simply allowed to drain into the sewers at the airport. There was no contingency plans for oil spill prevention and control measures. Generators were used constantly and oil/lubricants for the equipment were sometimes spilled on the floors and the areas where the generators were located.

Health and Safety Issues: Workers were encouraged to make use of personal protective equipment (PPE) such as boots, hard hats, gloves and goggles. Workers on maintenance equipment were supposed to wear protective clothing but did not have good supervision to enforce the discipline.

Environmental Management (Including Capacity Building and Regulatory Framework): No personnel had been assigned with the responsibility for environmental management at the facilities. There was no coherent and integrated environmental management plan or system for the activities pertaining to environmental management, including viable and executable contingency plans. The liaison between the management and the Ministry of the Environment (formerly FEPA) was non-existent. There was a lack of awareness on the environmental laws, regulations and guidelines by the management of the enterprise, and hence, the regulatory framework for environmental management was virtually non-existent at the facilities. There was no capacity building and no sufficient training or awareness workshops or seminars on environmental management provided to the staff and workers of the PE.

Summary of Findings:

The main findings included: lack of contingency plans for oil spill control and protection measures; inadequate solid waste management including disposal (decommissioning) of obsolete
equipment, such as batteries, engines, vehicles; absence of coherent and consistent environmental management plan/system; weak contacts with the Ministry of the Environment; lack of knowledge on regulatory framework; no capacity building program for environmental management; and poor supervision of worker health and safety issues.

7.5 NATIONAL CONTROL CENTER, OSHOGBO:

Background and Initial Conditions:

The National Control Center (NCC) located at Oshogbo is responsible for maintaining the good quality of power supply by keeping system voltages to specifications for the country. The goal of the specifications was to meet the demand of the average consumer in load availability in the system while ensuring the supply in every facet of the grid network for Nigeria. Also, the NCC was to maintain economic loading of generators in order to reduce production cost, and to enhance system security and reliability.

Furthermore, the NCC was to organize and release generators and transmission equipment for maintenance purposes in schedule manner to avert breakdown while in service.

Potential Pre-Audit Findings:

Although there was no time during the pre-audit mission to inspect the NCC site at Oshogbo, the review and evaluation of the necessary information indicated the following militating constraints:

There was insufficient generation to cope with the national power demand since generation is very low. Many key equipment mal-functioned on regular basis, such as the Automatic Voltage Regulation (A.V.R.s), and the Governor Systems in Kainji Power Station generators have broken down.

Other problems were that of Transmission Lines that trip every dry season time due to bush burning. This posed a serious threat to system stability and to Generator health and life span. Furthermore, it was disclosed that the Kainji Kaplan Units and Delta Black Stating Units needed to be quickly restored with their Governors. There was lack of system monitoring facility at the NCC. Most of the equipment was bad, old and obsolete, and needed to be decommissioned. There was no single measure and meter functioning. It appeared the digital frequency counter was the only working meter for frequency control, and for ordering emergency load shedding to save the system from collapse. The 330kV transmission lines must be cleared always of fouling trees and agents and protected from bush burners.

Although the environmental Audit Index Factors for the site were not determined, the facility at NCC should undergo comprehensive (full) audit, since the site was a sensitive area to the power generation of Nigeria.
8. SCREENING OF OTHER PUBLIC ENTERPRISES

The current Privatization program by BPE envisages the full or partial divestment of interest in about eighty-six (86) Public Enterprises in which the Federal Government owns minority or controlling interest. These enterprises have been scheduled in the public Enterprises (Privatization and Commercialization) Act No. 28 of 1999 and are reproduced below.

The eighty-six (86) public enterprises have been screened as to whether environmental audits were to be conducted as part of the commercialization and privatization processes. No site visits were conducted and the preliminary screening was based on the nature and scope of the activities carried out by the enterprises.

The probable results of the preliminary screening were as follows:

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<tr>
<th>No.</th>
<th>PARASTATALS</th>
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<tbody>
<tr>
<td>1.</td>
<td>National Parks Board</td>
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<tr>
<td>2.</td>
<td>Ore-Irele Oil Palm Co., Ltd.</td>
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</tr>
<tr>
<td>3.</td>
<td>Ihechiowa Oil Palm Co., Ltd</td>
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</tr>
<tr>
<td>4.</td>
<td>Ayip Eku Oil Palm Co., Ltd</td>
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<td>5.</td>
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<td>6.</td>
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<tr>
<td>7.</td>
<td>Festac 77 Hotel Ltd</td>
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<td>8.</td>
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<td>9</td>
<td>Tafawa Balewa Square Investments Ltd</td>
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<td>Nigerian Social Insurance Trust Fund</td>
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<td>Nicon Insurance Ltd.</td>
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<tr>
<td>12</td>
<td>Nigerian Reinsurance Company Ltd.</td>
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<td>13</td>
<td>Nigerian Bank for Commerce and Industry</td>
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<tr>
<td>14</td>
<td>Assurance Bank Limited (former Arab Bank)</td>
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<tr>
<td>15</td>
<td>FSB Int. Bank plc (NNPC/NMA/etc shares)</td>
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</tr>
<tr>
<td>16</td>
<td>Afribank Nigeria Ltd (BIAO shares)</td>
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</table>

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<th>PARASTATALS</th>
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<tr>
<td>17</td>
<td>Daily Times of Nigeria plc</td>
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</tr>
<tr>
<td>18</td>
<td>Federal Radio Corporation of Nigeria</td>
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<tr>
<td>19</td>
<td>New Nigerian Newspapers Limited</td>
<td>No</td>
</tr>
<tr>
<td>20</td>
<td>News Agency of Nigeria</td>
<td>No</td>
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<tr>
<td>21</td>
<td>Nigerian Television Authority</td>
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<tr>
<td>22</td>
<td>National Fertilizer Company of Nigeria</td>
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<tr>
<td>23</td>
<td>Federal Super-phosphate Fertilizer Co. Ltd.</td>
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</tr>
<tr>
<td>24</td>
<td>Nigerian Machines Tools Co. Ltd.</td>
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<tr>
<td>25</td>
<td>Nigerian National Paper Manufacturing Co.</td>
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<tr>
<td>26</td>
<td>Nigerian Newsprint Manufacturing Co.</td>
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<td>27</td>
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<td>28</td>
<td>Sunti Sugar Company Ltd.</td>
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<td>29</td>
<td>Laflaji Sugar Company Ltd.</td>
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<tr>
<td>30</td>
<td>Ashaka Cement plc.</td>
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<tr>
<td>31</td>
<td>Benue Cement plc.</td>
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<tr>
<td>32</td>
<td>Cement Company of Northern Nigeria plc.</td>
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<tr>
<td>33</td>
<td>Nigerian Cement Company Ltd., Nkalagu</td>
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<tr>
<td>34</td>
<td>Calabar Cement Company</td>
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<td>35</td>
<td>Anambra Motor</td>
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<tr>
<td>36</td>
<td>Leyland Nigeria Ltd.</td>
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<tr>
<td>37</td>
<td>Nigerian truck Manufacturing Co., Ltd.</td>
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<tr>
<td>38</td>
<td>Peugeot Automobile of Nigeria Ltd.</td>
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<tr>
<td>39</td>
<td>Volkswagen of Nigeria Ltd</td>
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<tr>
<td>40</td>
<td>Steyr Nigeria Ltd</td>
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<tr>
<td>41</td>
<td>Nigeria Romania Wood industries Ltd.</td>
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<tr>
<td>42</td>
<td>West African Portland Cement plc</td>
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### PETROLEUM RESOURCES

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<th>PARASTATALS</th>
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<tr>
<td>43.</td>
<td>Nigerian National Petroleum Corporation</td>
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</tr>
<tr>
<td>44.</td>
<td>Port Harcourt Refinery &amp; Petrochemicals Ltd.</td>
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<td>45.</td>
<td>Warri Refinery &amp; Petrochemicals Ltd.</td>
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<td>46.</td>
<td>Kaduna Refinery &amp; Petrochemicals Ltd</td>
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<td>47.</td>
<td>Eleme Petrochemicals Company Ltd.</td>
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<td>48.</td>
<td>Nigeria Petroleum Development Co. Ltd</td>
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<td>49.</td>
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<td>Pipeline Products Marketing Company Ltd.</td>
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<td>African Petroleum plc</td>
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<td>52.</td>
<td>Unipetrol plc</td>
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<td>53.</td>
<td>National Oil &amp; Chemical Marketing plc</td>
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<td>54.</td>
<td>Dresser Nigeria Ltd.</td>
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<tr>
<td>55.</td>
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<tr>
<td>56.</td>
<td>A. C. M. Nigeria Ltd</td>
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<tr>
<td>57.</td>
<td>Baker Nigeria Ltd</td>
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<td>58.</td>
<td>Sedco Forex Nigeria Ltd</td>
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<td>59.</td>
<td>Flopetrol Nigeria Ltd</td>
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<td>60.</td>
<td>Schlumberger Wise Line Co.</td>
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<td>61.</td>
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<td>62.</td>
<td>Key Drill Nigeria Ltd</td>
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<td>63.</td>
<td>Baroid Nigeria Ltd</td>
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<td>64.</td>
<td>D.C.P. Ltd</td>
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### POWER & STEEL

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<td>65.</td>
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<td>Steel Rolling Mill, Jos</td>
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<td>67.</td>
<td>Steel Rolling Mill, Katsina</td>
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<tr>
<td>68.</td>
<td>Delta Steel Company Ltd.</td>
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<tr>
<td>69.</td>
<td>Ajaokuta Steel Company Ltd.</td>
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<td>70.</td>
<td>Aluminium Smelter Company Ltd.</td>
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<td>71.</td>
<td>National Iron Ore Mining Company Ltd.</td>
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### SOLID MINERALS

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<td>73.</td>
<td>Nigerian Coal Corporation</td>
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<td>74.</td>
<td>Nigerian Uranium Mining Co., Ltd.</td>
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### TRANSPORT

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<td>76.</td>
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<td>Nigerdock Ltd</td>
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### WATER RESOURCES

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<td>79.</td>
<td>River Basin and Rural Development Authority (12 in number)</td>
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### WORKS AND HOUSING

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<td>81.</td>
<td>Federal Mortgage Finance Limited</td>
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### AFRICAN INVESTMENTS

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<th>AUDIT REQUIREMENTS</th>
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</thead>
<tbody>
<tr>
<td>83.</td>
<td>Save Sugar Company</td>
<td>Full</td>
</tr>
<tr>
<td>84.</td>
<td>Onigbolo Cement</td>
<td>Full</td>
</tr>
<tr>
<td>85.</td>
<td>Royal Swaziland Sugar</td>
<td>Full</td>
</tr>
<tr>
<td>86.</td>
<td>Chemical Company, Senegal</td>
<td>Full</td>
</tr>
</tbody>
</table>
Comments on the Screening of PEs:

Without knowing the particular activities of the industries listed under AFRICAN INVESTMENTS, they have been listed as requiring full audits, in order to be consistent with the other industries in sugar, cement and chemicals.

Although The Tafawa Balewa Square Investments Ltd. under DEFENCE has been placed as requiring a full audit, this status can only be confirmed when a pre-audit has been carried out. The specific (particular) activities of the enterprise could not be determined at this time.

9. DECOMMISSIONING PLANS

During the pre-audit assessment it was observed that all the enterprises would require some form of decommissioning of old equipment and materials. Some of the equipment comprised: old plants, control panels; vehicles; tanks; and buildings that may need demolishing. It is recommended that undertaking actual decommissioning plans for each enterprise must be evaluated and the costs be determined during the comprehensive audits.

10. STATUTORY FRAMEWORK

This chapter has been devoted to reviewing and evaluating the laws and regulations by which the Bureau of Public Enterprises (BPE) and the relevant government agencies, such as the Ministry of the Environment (MOE), would have the capacity to monitor and enforce existing regulations and execute remediation plans within the process of privatization of Public Enterprises.

The policy initiatives of the Federal Government of Nigeria (FGN) have been geared towards the framework of the country’s natural resource management policies for integrating environmental concerns into the private sector plans, programs and development actions.

These initiatives are summarized as follows:

10.1 National Policy on the Environment:

As indicated in the chapter on Environmental Setting (i.e. Chapter 3), the FGN has taken a number of steps to address various environmental problems in the country. In 1989, the FGN formulated a National Policy on Environment that led to the establishment of the Federal Environmental Protection Agency (FEPA), through Decree No. 58 of 1988 as amended by Decree 59 of 1992 and further amended by Decree 14 of 1999 with the mandate for the overall responsibility towards ensuring a good quality environment for Nigeria. Since then FEPA has been absorbed into the Ministry of the Environment and no longer operates as a separate or independent agency.

In addition, the Environmental Impact Assessment (EIA) Decree No. 86 of 1992 was promulgated. Also, it is generally understood that the National Policy on Environment should
strengthen the consultative and advisory roles of the National Council on the Environment and the State Environmental Protection Agencies (SEPA) and other institutions.

These initiatives, coupled with the policies on energy and electricity, provided a strong linkage of the utility reform and re-structuring with the environmental management of Nigeria appropriate for the privatization and commercialization of the enterprises within the sectors.

The revised policy is based on fundamental re-thinking and a clearer appreciation of the interdependent linkages among development processes, environmental factors as well as human and natural resources. It is recognized that the actions and activities designed to increase the productivity of the society and meet the essential needs of the populace must be reconciled with environmental issues that had hitherto been neglected or not given sufficient attention.

Other important initiatives include the following:

- National Guidelines for Environmental Audit in Nigeria (1999);
- National Guidelines on Environmental Management System in Nigeria (1999);
- Environmental Impact Assessment Sectoral Guidelines: Oil and Gas; Infrastructures, and Agriculture and Rural Development (1995);
- The Electricity Act (1927 revised 1975);
- Report of Technical Committee on Privatization of NEPA (2000);
- Action Plan for Transmission Sub-Sector to Improve Power Supply (April 2000);

10.2 National Agenda 21:

Nigeria’s Agenda 21 of 1999 was a blueprint of action from now on into the 21st century and beyond by Government, UN development agencies, NGOs and independent sector groups in every area in which human activity impacts on the environment.

The objectives of Nigeria’s Agenda 21 seek to:

i. Integrate environment into development planning at all levels of government and the private sector,

ii. Intensify the transition to sustainable development;

iii. Address sectoral priorities, plans, policies and strategies for the major sectors of the economy; and

iv. Simultaneously foster regional and global partnerships.

In combating environmental problems, sustainable development practices and policies have become integral parts of the planning process of the FGN. Redressing the backlog of environmental problems, however, remains a central concern for both the people and the different levels of government.
10.3 Telecommunication:

In 1998 the Ministry of Communications approved the National Policy on Telecommunications and refined (revised) in 2000. In order to promote the policy goals of total liberalization, competition and the private sector-led growth of the telecommunications sector, a 22 member Telecommunications Sector Reform Implementation Committee (TSRIC) was inaugurated in February 2000.

The policy, supported by the National Council on Privatization (NCP), is part of the current trend of globalization and convergence in the telecommunications industry where the country (Nigeria) needs a more proactive policy that recognizes international best practices.

Between 1960 and 1985, the telecommunications sector consisted of the Department of Posts and Telecommunications (P & T) in charge of the internal network and a limited liability company, the Nigerian External Telecommunications (NET) Limited, responsible for the external telecommunications services.

In January 1985, the erstwhile P&T was split into Postal and Telecommunications Divisions. The latter was merged with NET to form Nigerian Telecommunications Limited (NITEL), a limited liability company, while the Postal Division was reconstituted into another organization called the Nigerian Postal Service (NIPOST). The main objective of establishing NITEL was to harmonize the planning and co-ordination of the internal and external telecommunications services, rationalize investments in telecommunications development and provide accessible, efficient and affordable services.

10.4 The Nigerian Communications Commission (NCC):

This commission was established under the Decree 75 of 1992, whose main objective included creating a regulatory environment to facilitate the supply of telecommunication services and facilities. The NCC has set out guidelines for undertaking, among others, the provision and operation of private network links employing cable, radio communications, or satellite within Nigeria.

In 1996 the Nigerian Mobile Telecommunications Limited (M-TEL) was separated from the NITEL. M-TEL is the only mobile cellular telephony network in the country, although a total of twelve other mobile cellular operators have been issued licenses but only a few have commenced limited operations while approvals have also been given for the issuance of licenses to 21 other operators.

The role of the FGN in the telecommunications sector includes giving the overall direction for the telecommunications development; the Ministry of Communications formulates broad telecommunications policy by proposing policy options and recommending to Government such measures as legislation, fiscal incentives, overall monitoring of the radio spectrum allocation in the country, etc.
It has been proposed that a National Frequency Management Council (NFMC) be established and liaise with the NCC and the Nigerian Broadcasting Commission (NBC) on the assignment of frequencies.

10.5 Relevance of the Statutory Framework in the Privatization of PEs in Nigeria:

To meet the national energy needs through increased use of hydropower and gas-fired plants and improved efficiency of energy use, the FGN has stated that the private sector should be encouraged to generate and distribute hydro-electricity by removing the monopoly ingenerating, transmitting and distributing from NEPA; encourage industries/institutions to switch to hydro and gas-fired energy sources, and discourage the use of traditional fuel-wood that increases deforestation by supplying electricity to rural communities. The national legislation, taken together, addressed the need for the lead agency (in this case NEPA and NITEL) to promote the use of renewable sources of energy by creating necessary incentives, and to take measures for the conservation on non-renewable sources of energy by encouraging the planting of trees and wood lots by individual land users, institutions and community groups.

10.6 Legal Framework on Liabilities:

The Bureau of Public Enterprises (BPE) must work closely with the Ministry of the Environment (MOE) to ascertain who assumes the responsibilities for environmental liabilities at the PEs. For instance, do the liabilities fall on the new owners or on the former owners? It appears the laws of Nigeria are silent on these issues, and hence BPE and MOE must determine the appropriate law(s) covering environmental liabilities with respect to: privatization policy, due diligence, and indemnification, so that there would be a clear understanding of who is liable for contamination, both past, current and in the future, i.e. during and after divestiture.

10.7 Monitoring Protocols:

Although environmental audit has been proposed as a legal requirement in the National Guidelines for Environmental Audit in Nigeria (as amended by Decree No. 14, 1999), the capacity of auditors in Nigeria is still small at both the regulatory and private sector levels. In the few cases that have carried out environmental audits the enterprises have relied on overseas auditors, a situation that is not economically sustainable. Hence, capacity building must be created at all levels for environmental audits in Nigeria.

There were lack of standards for monitoring environmental parameters, for instance, for measuring water quality and air quality for Nigeria. Therefore, the individual PEs has been conducting self-monitoring using standards that were not consistent. The MOE must be responsible for determining and preparing guidelines and environmental performance indicators that are measurable for monitoring sites and facilities of the PEs.
The performance indicators can serve as the instrument for responding to any potential environmental hazard that may occur as a result of activities by the enterprises. Furthermore, MOE must set up a monitoring and accountability protocol that would require either monthly, quarterly or yearly reporting from the PEs with respect to addressing significant mitigation measures and meeting the environmental management challenges of the enterprises.

11. TRAINING AND CAPACITY BUILDING

A “training of trainers” program should be developed and provided to the personnel of the enterprises, preferably the senior management staff, on environmental management in the context of good management practices. The “train the trainers” sessions for the senior officials in the short term would provide the vehicle to provide, in turn, long-term training to the staff and workers of the enterprises. The training could also form the basis for developing capacity building within the enterprises. The initial training could be provided by a qualified local/national environmental management consultant/firm, with support provided by an international consultant.

The training must be a part of the environmental auditing for the privatization process. The relevance of the training program is to ensure that the management personnel of the PEs appreciate the need for environmental auditing and monitoring. Also the training will ensure that conditions of good management practices are adhered to, mitigation measures are effectively applied and the benefits expected from environmental management are achieved in order for the privatization processes to be sustainable.

The targeted audience should be the senior management of all the PEs. It is anticipated that the training will be initiated after the completion of the audits. The training should be seen as part of capacity building for the environmental auditing in the privatization processes, and therefore, should be borne or financed as part of the costs for the audits for the NPSP. This project should include components to strengthen the institutional capacity through training.

The following are the details for conducting environmental training and awareness workshops/seminars for the management staff of the PEs, as part of the environmental audits of the enterprises. Since environmental management is absent at majority of the enterprises, it is highly recommended that the senior management be provided with training on environmental management practices that will underpin the desired environmental audits of the PEs. It is suggested that this “training of trainers” format be extended to the senior management of all the four key enterprises.

The components should cover the following areas:

- Information on national Environmental Regulations and Guidelines for the enterprises of Nigeria;
- Training and Awareness of Environmental Management and Good Practices for the enterprises through national workshops, seminars and training of trainers sessions;
- Institutional Strengthening and Capacity Building of Ministry of the Environment (formerly FEPA) to coordinate with enterprises on environmental management;
- How to conduct environmental auditting every year of all enterprises, followed by training sessions on good practices for environmental management.

**Training Programs**

Description of Technical Assistance

The Training and Awareness Programs on Environmental Management and Good Practices should be held after the completion of the environmental audits of the PEs. Participants for the workshops and seminars should be drawn from the management of the various privatization candidates/enterprises, as well as those already privatized. The Train the Trainers sessions should cover:

- the management of environmental information,
- applicable environmental laws and regulations of Nigeria,
- international environmental assessments and auditing,
- environmental management systems/plans (ISO 9000, 14000)

The training may cover areas such as, compliance with company policies, procedures and good management practices; landuse planning, social and resettlement issues; regulations on the environment with respect to health and safety issues for workers; medical monitoring; hazardous materials handling, safe disposal and transportation; and environmental database management, information technology, and reporting.

**BUDGET**

The training involving workshops and seminars will require a budget not to exceed one million dollars (US$1,000,000.00). The cost estimates cover the training for participants from all the Public Enterprises, and not limited to only the four key ones of NEPA, NITEL, M-TEL, and NIGERIA AIRWAYS LTD.

Each PE must bear the cost for its participants, such as, their travel, and subsistence expenses, honorarium, hotel, etc. A total of three international consultants and a similar number for local/national experts would be required to conduct the training exercises. Also, about three to four training sessions within the year may be conducted across the country. The format and details for the training should be left to both BPE and MOE.

The breakdown is as follows:

- Professional Fees for International Consultants .......... US$600,000.00
- Professional Fees for Local Experts and Consultants .. 200,000.00
- Miscellaneous for international travel, etc. .......... 200,000.00

**Total** US$1,000,000.00
12. INTER-AGENCY RELATIONSHIPS:

An inter-agency cooperation, especially between the Ministry of the Environment (formerly National Environmental Protection Agency, FEPA) and the Bureau of Public Enterprises of the National Council of Privatization, would provide the best means of coordinating, supervising and benefiting from the various actions being conducted by different agencies and institutions relating to the environmental management of public enterprises.

Ideally, the inter-agency relationship (working through committees) should be formally instituted under the leadership of BPE, and should involve national, State, and local government agencies and institutions which have interests, skills and experience to deal with the wide range of complex environmental and social issues associated with significant environmental management issues, such as for example, hydro power development and gas-fired thermal plants.

The relationship should include agencies that comprise: water; energy; oil and gas; agriculture; physical planning; human resettlement and land use planning; health and labor; finance; and regulatory framework.

BPE should liaise with the Ministry of the Environment by setting up advisory panels or committees. The activities of the panel could be expanded to accommodate the appropriate areas of concern for BPE. For instance, the geographical information system (GIS) capabilities of the Ministry of the Environment may be utilized to develop a pollution potential mapping and the characterization of contamination vulnerability for the vicinities of the public enterprises.

13. COST ESTIMATES FOR CONDUCTING AUDIT ACTION ITEMS

13.1 COST FOR NEPA FACILITIES:

The cost estimates for addressing the audit action items for NEPA are not to exceed five hundred and twenty-five thousand dollars (i.e. US$525,000.00).

The cost includes estimates for carrying out comprehensive audits and partial audits.

The details of the cost estimates are as follows:

A.1 FULL AUDITS:

- Kainji Power Station  US$ 75,000.00
- Shiroro Power Station  75,000.00
- Jebba Power Station  75,000.00

Sub Total for Hydro Power Stations  US$225,000.00

- Sapele Thermal Plant  US$ 50,000.00
Delta (Ughelli) Power Station 50,000.00
Afam Power Station 50,000.00
Lagos (Egbin) Power Station 50,000.00

Sub Total for Thermal Power Stations US$200,000.00

Total for Full Audits for NEPA: US$425,000.00

A.2 PARTIAL AUDITS:

Cost estimates for partial audits of bulk supply substations in Kaduna and Kano and other facilities nationwide are not to exceed one hundred thousand dollars .... US$100,000.00

Total for Partial Audits for NEPA: US$100,000.00

Overall cost estimates for both Full and Partial Audits: US$525,000.00

13.2 COST FOR FULL AUDIT AT NCC, OSHOGBO:

Cost estimates for conducting full audits at the National Control Center, Oshogbo, would not exceed seventy-five thousand dollars (US$75,000.00).

Total Cost Estimates for NCC Facilities: US$75,000.00

13.3 COST FOR NITEL FACILITIES:

The cost estimates for carrying out the audit action items for NITEL are not to exceed three hundred thousand dollars (US$300,000.00).
The cost includes estimates for carrying out comprehensive audits and partial audits for facilities nationwide.

The breakdown is as follows:

A.1 FULL AUDITS:

Abuja (Wuse) Facilities US$ 50,000.00
Benin City 50,000.00
Lagos Facilities 50,000.00
New Bussa 50,000.00

Sub Total for Full Audits US$ 200,000.00
A.2 PARTIAL AUDITS

The cost estimates for partial audits for facilities nationwide, including those at Kano, Kaduna, Sapele, Ajaokuta, and Lokoja, are not to exceed one hundred thousand dollars (US$100,000.00).

Sub Total for Partial Audits | US$100,000.00

Total Cost Estimates for NITEL Facilities: US$300,000.00

13.4 COST FOR NIGERIA AIRWAYS:

The cost estimates for conducting partial audits at the facilities for Nigeria Airways Limited, notably in Lagos and Kano, are not to exceed three hundred thousand dollars (US$100,000.00).

Total for Partial Audits | US$100,000.00

13.5 COST FOR DECOMMISSIONING PLANS:

The cost estimates for the decommissioning plans must be assessed during the environmental audits at the enterprises.

13.6 COST FOR HIRING ENVIRONMENTAL ADVISOR:

The cost estimates for hiring an Environmental Specialist will not exceed two hundred and thousand dollars (US$250,000.00). The advisor will provide assistance to BPE on the environmental management requirements of the due diligence on privatization, as well as on environmental management matters in the preparation for the divestiture of public enterprises.

Total Cost Estimates for Environmental Advisor | US$250,000.00

13.7 CLARIFICATION OF COST ESTIMATES:

The overall cost estimates for carrying out the relevant tasks associated with the environmental auditing of the PEs, with respect to the privatization processes for NEPA, NITEL, and Nigeria Airways Limited, is not to exceed one million two hundred and fifty thousand dollars (US$1,250,000.00).
The stated amounts refer to the following audit action items:

- conduct of the full audits and partial audits for NEPA (US$525,000.00);
- conduct full audits and partial audits for NITEL (US$300,000.00);
- conduct full audit at NCC (US$75,000.00);
- conduct partial audits for NIGERIA AIRWAYS LIMITED (US$100,000.00);
- hire Environmental Advisor (US$250,000.00).

The audit estimates do not include preparation of decommissioning plans (DP). During the audits there should be assessment as to the need for a DP. However, when that need is established a decommissioning plan (including preparation costs) must be undertaken for that enterprise separate from the audit, and must be costed separately from the costs for the audits.

The costs do not include implementation of any mitigation measures, such as rehabilitation of estates at Kainji and installation of a new water supply system at Jebba for NEPA. The key remedial and mitigation measures stated in the report are the measures being recommended to be investigated, at the minimum, that would require to be confirmed during the full environmental audits at the various sites for each PE, for example the decommissioning plans. The costs for implementation and financing of mitigation measures will be determined separately in each audit as appropriate.

During the conduct of the full audits, the cost evaluations would include estimates of capital and operating expenses associated with remedial actions along with an implementation schedule. In general, if at all possible the cost data on operation and maintenance (O & M) and other recurrent costs should be made available during the full audits. It may be difficult to separate operating and recurrent costs from capital costs during the audits. However, it is important to obtain the information to make meaningful cost comparisons between simplified systems and other alternatives.

The cost estimates for the proposed full environmental audits and partial audit will involve the following:

**Number of consultants:** Four to Six Environmental Professionals with knowledge on technical, engineering, economic, financial, legal, labor and sociological background drawn from international firms; and about five local experts with similar background and as part of the international team.

**Other Direct Charges (ODC):** These charges consist of travel and subsistence expenses, laboratory analysis where needed, local transportation, report preparation, leasing of field equipment and instruments where appropriate, etc. The ODC would be from 15% to 20% of the overall costs.

**Period of Performance:** The period of performance for the audits should be from six to nine months, covering about twelve hundred (1000) person days. The Professional Fees should be negotiable for all consultants, with suggested average daily rate of US$1000 (for international consultants) and US$450 (for domestic consultants).
### 13.8 SUMMARY OF COSTS:

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<th>ENTERPRISE</th>
<th>FULL AUDIT</th>
<th>PARTIAL AUDIT</th>
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Overall Total Cost Estimates for all Items: **US$1,250,000.00**

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### 14. A ROAD MAP FOR ENVIRONMENTAL MANAGEMENT OF DIVESTITURE PROCESSES OF PUBLIC ENTERPRISES

#### 14.1 Environmental Guidelines and Requirements

**Background:**

This 'road map' for environmental management should be considered as part of the overall guidelines that will assist the BPE in future privatization transactions. Taken together with ANNEXE A, the road map will help the *Environmental Advisor* (to be hired) provide the necessary guidance for the due diligence processes during the preparation for divestiture of enterprises. ANNEXE A details the guidelines for conducting environmental audits during the due diligence processes.
14.2 Proposed Road Map:

As part of the due diligence and integral part of advisory work to help with the divestiture preparation for each public enterprise for comprehensive audits, the following steps would be required:

- Conduct pre-audit assessment by ranking the enterprises for the need for Comprehensive audits (CA), partial audits (PA), and no audits (NA);
- Prepare the Terms of Reference (TOR) for CA and PA;
- Prepare procurement/bidding packages for audits and partial audits;
- Conduct Comprehensive (full) audits and Partial audits;
- Indicate key audit findings and action plan for mitigation;
- Prepare cost estimates for each action plan;

At this stage, the TOR for the Comprehensive Audits must include the breakdown of environmental liabilities into past, on-going, and future operations of the audited enterprises. Furthermore, recommendations must be made as to who should pay for the environmental liabilities incurred by the various enterprises.

If dams are involved in the activities of the facilities, there must be an overview of dam safety at the relevant enterprises, with a reference to the World Bank’s safeguard policy in this regard.

At this point inter-agency cooperation is needed, especially with the Ministry of the Environment:

- Develop plan for Contingent Liabilities;
- Develop plan for Sampling Protocol;
- Develop plan for Performance Indicators;
- Estimate costs for all recommended action plans;
- Develop plan for environmental management system/plan for facilities;

At this stage it is essential to determine the need for decommissioning of equipment (either old, obsolete, or alternative usage). The decommissioning plan must adhere to the World Bank standards and guidelines that require that a fully costed environmental assessment be conducted for the dismantling, packaging and disposal of materials to safe sites and locations.

- Identify need for decommissioning plans (DP);
- Develop TOR for DP;
- Prepare procurement/bids for DP.

15. CONSULTATION WITH STAKEHOLDERS

Consultation with stakeholders were carried out whenever possible during the field inspections of various facilities and sites across the country. There was a lack of knowledge about the privatization and commercialization processes currently being pursued by BPE at most of the
facilities in the rural and urban areas. In general it was observed that at the NEPA and NITEL facilities inspected no new lands were required within the existing boundaries, and that resettlement of displaced persons have been taken care of long time ago.

*Kainji Dam Site:* It was found that the transmission lines at the vicinity of the Kainji dam site were too low and too close to the ground. There was prevalence of crop farming being carried out by the local people under the transmission lines and along the access roads. This situation could be dangerous and should be addressed by re-locating these farmers away from the transmission lines.

*Sapele Power Station:* The residences for the senior staff, including that of the Acting General Manager (AGM), Mr. A.A. Adeniyi, were directly under the high-tension (132kV) transmission lines. There was a meeting with the staff and was advised to re-locate to safer area since the transmission lines could impact them negatively due to electromagnetic effects.

*NITEL Facilities:* The consultation revealed that extensive farming of crops was a common occurrence around the tower bases, access roads, and storage sites wherever NITEL facilities were located in the rural areas. Although the 'right-of-way' clearances were being used by farmers for crop production, they did not appear to be of any major hazard to the environment. Since these areas were old, existing facilities a detailed Resettlement Action Plan (RAP) were not required because it could not be determined whether any persons have been affected socially and economically.

Finally, the consultation indicated that most of the potential persons that could have been displaced previously have their livelihoods and standard of living at least restored in real terms to pre-displacement levels.

**16. RECOMMENDATION**

1. Based on the environmental pre-audits conducted for the four key public enterprises in Nigeria, it is recommended that comprehensive (full) audits be undertaken for the following facilities:

   **National Electric Power Authority (NEPA):**

   - The Hydro Power Stations located at Jebba, Kainji and Shiroro;
   - The Thermal (Gas-Fired) Power Stations located at Afam, Delta (Ughelli), Lagos (Egbin), and Sapele.

   **Nigerian Telecommunications Limited (NITEL):**

   - Facilities located at Abuja, Benin City, Lagos and New Bussa.

   **National Control Center (NCC):**

   - Facilities located at Oshogbo
2. Partial audits must be carried out for the following facilities:

**National Electric Power Authority (NEPA):**

The Bulk Supply Substations located at Kaduna and Kano, as well as other major bulk supply substations in the country;

**Nigerian Telecommunications Limited (NITEL):**

Facilities located at Ajaokuta, Lokoja, Kaduna, Kano and Sapele/Benin City area.

**Nigeria Airways Limited (NAL):**

Facilities located at Lagos and Kano airports.

3. No audits were required for the facilities belonging to M-TEL, other facilities for Nigeria Airways located at Abuja, Kaduna and Benin City. Furthermore, it was assumed that the other facilities belonging to NEPA and NITEL, particularly in the rural areas, would not require any audits at this time, based on a random ‘drive through’ observations during the site visits across the country.

4. It is recommended that the rehabilitation of Kainji Estates and installation of a new water supply for Jebba Power Station must be negotiated as part of the divestiture arrangements with the new owners, or can be borne by the government. Either way, these are major issues that need to be addressed urgently. The estate management findings for Kainji and Jebba must be seen as posing significant environmental liabilities for the enterprise, and hence should be part of any future mitigation measures to be addressed in the future.

5. Decommissioning Plans: During the pre-audit assessments, it was observed that all the enterprises would require some form of decommissioning of old equipment and materials. Some of the equipment comprised: cranes, old plants, control panels, and batteries. It is recommended that undertaking actual decommissioning plans for each site must be evaluated and the costs be determined during the comprehensive audits.

6. Legal Framework and Contingent Liabilities: The Bureau of Public Enterprises (BPE) must work closely with the Ministry of the Environment (MOE) and other appropriate and relevant government agencies, in order to determine who assumes the responsibilities for environmental liabilities at the enterprises, and whether the liabilities fall on the new owners or on former owners at the time of divestiture. It is recommended that the former owners bear the liabilities of past actions before they hand over to the private sector, or the cost for remediation/mitigation measures must be deducted out of the privatization cost.

7. Guidelines and Environmental Performance Indicators: The Bureau of Public Enterprises (BPE) must hire an Environmental Advisor who will assist in providing guidance on determining and preparing environmental performance indicators that are measurable and monitorable for the privatization candidates. The Ministry of the Environment (MOE) can be contacted to provide supervision where appropriate in the monitoring of the measurable environmental indicators for the sites. Also, the Environmental Advisor will assist in using the
guidelines (see ANNEXE A) in collaboration with the Bureau of Public Enterprises (BPE), should enable the latter to determine the environmental requirements of future privatization candidates by combining with its own road map or guidelines as spelt out in this report. The Environmental Advisor can be hired for US$250,000.00 for a period of three years.

8. **Guidelines for Environmental Management in Divestiture:** As part of the divestiture of public enterprises, the ‘road map’ or guidelines proposed must be used by BPE to assist in supporting the integration of environmental management within the privatization processes for the current and future candidates. The road map should be taken together with the guidelines in ANNEXE A to maximize the appropriate guidance needed with the help of the Environmental Advisor.

9. **Training:** It is recommended that the Environmental Advisor develop an appropriate training program for the senior management of all the enterprises as part of the guidelines for environmental management in the divestiture processes for the privatization candidates.

10. **Environmental Management Systems/Plans:** Each enterprise must have on its premise a Senior Official responsible for environmental management activities, and liaise with the MOE on environmental laws and regulations pertaining to the activities of the enterprise and participate in training and be part of the capacity building for environmental management. The Environmental Advisor should include the EMS/P in the guidelines for the divestiture processes for the privatization candidates.

11. The Environmental Advisor to be hired must coordinate and support the development of contingency plans that link city/urban contingency plans with that of the enterprise. Furthermore, it is recommended that the enterprises develop and incorporate environmental management systems/plans (EMS/P) into its management structure. The EMS/P must include elements such as:

- execution of environmental monitoring programs for the enterprises;
- knowledge and compliance with applicable environmental laws and regulations;
- conduct occasional drills to alert the staff and workers on how to react and operate in cases of emergencies;
- conduct training and awareness programs as part of good management practices while promoting capacity building within the enterprise;
- develop the capacity to execute coherent sampling and monitoring programs as part of remediation plans;

and

- carry out medical monitoring, while including HIV/AIDS awareness programs.

12. **Period of Performance:** The comprehensive and partial environmental audits of the enterprises must be completed prior to the divestiture of each enterprise. However, the implementation of the audit action plans and decommissioning plans must be negotiated with the appropriate interested partners as part of the full divestiture of each enterprise. This means that the execution of any proposed audit action plans need not be completed prior to negotiations. The implementation schedules can be determined during the negotiation of the loans in the privatization process.
13. **Cost Estimates**: The overall costs for conducting the necessary and appropriate elements of the Environmental Auditing Programs for Privatization are not to exceed one million two hundred and fifty thousand dollars (i.e. US$1,250,000.00).

The cost estimates can be broken into:

- cost for comprehensive audits for NEPA facilities – US$425,000.00;
- cost for comprehensive audits for NITEL facilities – US$200,000.00;
- cost for comprehensive audits for NCC, Oshogbo (also for NEPA) – US$75,000.00;
- cost for partial audits for NEPA facilities – US$100,000.00;
- cost for partial audits for NITEL facilities – US$100,000.00;
- cost for partial audits for NIGERIA AIRWAYS facilities – US$100,000.00;
- cost for Environmental Advisor to develop guidelines and monitoring protocols – US$250,000.00

17. **LIST OF PUBLICATIONS USED FOR THE REPORT**

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**M-TEL:** Corporate Information, Nigerian Mobile Telecommunications limited, M-Tel Corporate Headquarters, August 2000, 12pp


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**NEPA:** Report of Technical Committee on Privatization of NEPA, Submitted on January 31, 2000, 16 pp with appendix

**NITEL:** Operational Report Summary for Central Zone, NITEL, November 2000, 20pp


### 18. PERSONS CONTACTED

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ANNEXE A:

A.1 GUIDELINES FOR ENVIRONMENTAL AUDITING:

A.1.1 Background:

These guidelines have been developed for use in conjunction with the ‘road map’ (Chapter 14 of this report) for conducting environmental audits as part of the due diligence preparation in the divestiture of public enterprises.

A.1.2 COMPREHENSIVE (FULL) AUDITS AND PARTIAL AUDITS:

The environmental comprehensive (full) audit must provide support and guidance in the preparation of the due diligence liabilities in the divestiture of privatization candidates.

The objectives must include the following:

- determine the potential pre-existing, on-going, and future environmental liabilities prior to divestiture;
- measure the enterprise environmental conditions against the risk of being held responsible for contingent damages after privatization;
- review the national legislative framework to ascertain the roles of the privatization candidate and the new investors on clean-up responsibilities at divestiture.

Specific environmental indicators should include the environmental audit index factors that comprise:

- Type of Enterprise (i.e. activities at facilities and sites)
- Emissions and Air Quality
- Wastewater (i.e. impact on surface water and groundwater receptors)
- Waste Oil and Spill Control Measures
- Solid Waste
- Noise
- Occupational Health and Safety Issues
The above factors must be assessed against the overall affects on pollution potential for the sites and facilities by considering the following components:

- Depth to water;
- Soil and aquifer media;
- Topography;
- Impact on land-use and planning;
- Impact on wetlands and water bodies; and
- Impact on workers

Also, the factors should include solid waste management and sanitation; land-use and habitation management (i.e. settlement/resettlement issues); occupational health and safety issues; wastewater and sewerage management on properties; emission and air quality management; used oil and waste oil management; and the overall environmental management (including capacity building, regulatory and legislative framework) of the privatization candidates.

The environmental full audits must be carried out in two phases: first phase to collect historical information and documentation; phase two should involve detailed physical sampling and where contamination is identified, the issue of remediation and clean-up will be dictated by the number of factors such as legislation, future land use, risk of contaminants spreading and possible impacts on human health and the environment.

Specifically, the environmental full audit must include the following:

- Carry out a detailed assessment of the biophysical, geological and geophysical issues pertaining to the privatization candidate, such as land-use and planning alternatives that directly or indirectly impact on the environment;
- Identify all significant environmental and occupational health and safety concerns related to both past and on-going activities;
- Prepare a prioritized list (i.e. high, medium, and low) of concerns related to past activities;
- Prepare a prioritized list (i.e. high, medium, and low) of concerns related to on-going activities;
- For both past and on-going environmental concerns, provide recommendations and estimated costs on what rehabilitation and clean-up measures are required in view of privatization;
- Review the capacity of the Federal Government and the Ministry of the Environment (MOE) capabilities to monitor the responsibilities for known or contingent environmental damages and pre-existing environmental problems;
- Determine who assumes the cost for liabilities;
- Provide recommendations and cost estimates for the past and on-going activities in relation to Nigeria and The World Bank safeguard policies;
- Determine who is responsible for developing measurable and monitorable environmental performance indicators for the privatization candidates; and
- Determine who enforces the monitoring of the audit action items.
Decommissioning Plans: If it is determined that equipment needs to be dismantled, packaged and transported to safe disposal sites, a decommissioning plan must be developed, adhering to the World Bank Safeguard policies with fully undertaken environmental assessment and fully developed cost estimates.

Training and Capacity Building: Training of personnel for environmental management for the Privatization Candidates must be assessed as part of the full audit, and if found to be necessary, training programs must be developed for the enterprise personnel. The cost estimates must be provided for the training and awareness programs on environmental laws and regulations and on good management practices for the privatization candidates.

Institutional Strengthening: The full audits can be used to develop institutional strengthening of the country's environmental management (i.e. the Ministry of the Environment) capabilities by retaining technical assistance (through the hiring of an Environmental Advisor to BPE) in order to develop measurable performance indicators for the various facilities, conduct sampling protocols, and develop monitoring schedules for enforcement of audit actions, both currently and in the future. The technical assistance can be acquired from local/national environmental consultants and from research institutions like the local/national Universities.

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