

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: AB4881

Project Name	MANAGEMENT OF PCBs/POPs IN NIGERIA
Region	AFRICA
Sector	General Energy Sector (35%); Petrochemicals and Fertilizers (30%); Power (20%); Other industry (15%)
Project ID	P113173
GEF Focal Area	Persistent Organic Pollutants
Borrower(s)	FEDERAL GOVERNMENT OF NIGERIA
	Federal Ministry of Finance Finance Building Central Business Area Nigeria
Implementing Agency	
	Federal Ministry of Environment Federal Secretariat Complex Central Business Area FCT Nigeria
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	July 15, 2009
Estimated Date of Appraisal Authorization	January 15, 2010
Estimated Date of Board Approval	May 13, 2010

1. Key Development Issues

Polychlorinated biphenyls (PCBs) are one of the twelve original Persistent Organic Pollutants (POPs) to be eliminated under the Stockholm Convention. First synthesized in 1881, PCBs were found to be relatively fire-resistant, very stable, non-conductive for electricity and with low volatility under normal conditions. These characteristics made them ideal for many industrial applications and consumer products, beginning in 1929, but predominantly used between 1950 and 1983. Most well known is the use of PCBs for dielectric fluid in electrical equipment, from large transformers to small capacitors in lighting fixtures. Industry used PCBs extensively as heat transfer fluids and as coolants for high temperature processes. PCBs were also used in hydraulic fluids, surface coatings, carbonless copy paper, as plasticizers in sealants, caulking, synthetic resins, rubbers, paints, waxes and asphalts and as flame retardants in lubricating oils.

2. Human exposures to PCBs are believed to have some health problems. Acute human exposure to PCBs can produce swelling of the eyelids, pigmentation of the nails and mucous membranes, fatigue, nausea and vomiting. Chronic exposure, including at low levels, can cause alteration to liver enzymes, rashes, acne, developmental, mental and behavioral problems,

immune suppression, and possibly cancer. The World Health Organization (WHO) International Agency for Research on Cancer ranks PCBs as a probable human carcinogen.

3. Nigeria never produced PCBs, but imported a lot of PCB-containing equipment (transformers, capacitors, ballasts, paint additives, hydraulic fluid additives, etc). PCBs were used as an additive in dielectric fluids and functioned mainly as insulating oil for electrical and hydraulic equipment. However, the most predominant use of dielectric fluid was in electrical equipment where the weight of oil in a single power transformer may have been thousands of kilograms. The Power Holding Company of Nigeria (PHCN) is by far the biggest user of dielectric fluids and the biggest owner of equipment that potentially contains PCBs. Other possible significant users of equipment that potentially contains PCBs are private electrical generators, major industrial facilities, oil refineries, textiles and cement industries.

4. Nigeria signed the Stockholm Convention in May 2001 and ratified the treaty in May 2004. After signing in 2001, the Government requested and received financial assistance from the Global Environment Facility (GEF) through the United Nations Industrial Development Organization (UNIDO), in the form of a US\$499,000 GEF POPs Enabling Activity (EA) grant to finance the preparation of its NIP. Given the size of the country, its level of economic development and its complex government structure, and taking into account the amount of GEF resources available, the level of detail that could have been expected from these inventories was limited.

5. The PCB inventory, as proposed by UNIDO was completed, but with very limited information on volumes of PCB stocks and on the numbers of PCB-containing equipment is actually available. Most of the data compiled were provided by 10 transmission stations of the Power Holding Company of Nigeria (PHCN) in six states of the North Central Zone and in the Federal Capital Territory. The report does not provide any indication of why those particular states were selected or whether they are representative of the national context. In addition, no information was included regarding privately owned equipment. From the report, only 22 transformers were identified, most of which range in ages from 15 to 30 years. No testing was conducted on the transformer oils. No data regarding other types of equipment (e.g capacitors) are included in the report. Anecdotal information is presented on PCB spills, PCB contaminated soils and groundwater and PCB stocks at some of the transmission stations, but no supporting data are included.

6. In spite of the inadequacy of the existing PCB survey conducted under the GEF project, the Government of Nigeria has highlighted PCB management as one of its top priorities regarding POPs. This is due to several reasons:

- a) The Nigeria electricity sector has facilities located in all 36 states including the Federal Capital Territory, with about 250 transmission, 34,800 distribution and over 2,000 power transformers. It is likely that many of these transformers contain PCBs and that a significant number of them may not be providing adequate containment for the oils. The Federal Ministry of Environment (FMOE) is therefore very concerned about the potential harm this equipment might be posing to the health of people living and working nearby PHCN facilities, as well as the environment.

- b) One of the present Government's top priorities is to upgrade up to 10,000 MW of its installed power capacity, at a cost of up to US\$10 billion. Some of the upgrades will involve replacement of old equipment, which may be contaminated with PCBs. It is therefore critical for the government to have a clearer picture of what is the potential for contamination of PHCN's electrical equipment such that plans to adequately manage the decommissioning of this equipment can be put in place.

- c) The risks to human health and to the environment posed by the unsound management of privately owned PCB-containing equipment or PCB stocks are also a priority of the government. In particular, information about illegal trade of spent oils, poorly managed and inadequately disposed equipment is a source of grave concern, although no actual data currently exists to assess the situation. Compiling data about these issues will allow to better plan at the level of government enforcement of private sector operations that will be required to ensure human health and environmental safety.

2. Rationale for Bank Involvement

7. The Federal Government of Nigeria recognized the environmental and health threats posed by POPs at an early stage and fully participated in the negotiations leading to the Stockholm Convention. It was a signatory in 2001 and ratified the Convention on May 24, 2004. The proposed project is consistent with the Government policy documents: the seven point agenda and vision 2020 with special attention to pollution prevention, abatement, remediation and management theme.

8. The project will support some of the national priority actions called for in the NIP, i.e. comprehensive PCB inventory and some of the recommendations of the recently concluded study: Baseline National Inventory of PCBs and PCB-containing equipment in Nigeria executed with the support from the World Bank Canadian Trust Funds on POPs.

9. The Bank as a GEF implementing agency is committed to help client countries achieve the global environmental objectives that are supported by the international conventions and by the GEF. The Bank has been very active in supporting Nigeria in addressing environmental challenges and recently completed the study on the inventory of PCBs and PCB-containing equipment supported with financial assistance from the Canadian Trust fund on POPs.

10. The proposed project is well aligned with the second Country Partnership Strategy (the Bank's CAS) under the pillar of achieving sustainable development and inclusive non-oil growth especially as limited institutional capacity for pollution risk assessment, prevention and remediation was identified as a key issue.

3. Proposed Objectives

11. The overall goal of the project is to improve public health and environmental quality by avoiding the environmental release of PCBs from on-line and off-line electrical equipment and ensuring sound management and safe disposal of PCB and PCB-containing equipment. The

specific objective is to build capacity for environmentally sound management of PCBs, and the main outcomes of the project will include (i) increase awareness among key stakeholders and the general public, (ii) improved regulations, (iii) enhanced physical facilities management of PCBs and PCB-containing equipment, and (iv) improved national capacity to manage PCBs in an efficient and environmentally sound manner,

4. Preliminary Description

12. The preliminary design of the project consists of three components. These are:

Component 1: Capacity Building for PCB Management (GEF: US\$ 0.8m counterpart fund; \$1m). This component comprises of the following:

Component 1a: Policy, Regulatory and Institutional Review and Strengthening (GEF US\$ 0.40m; Counterpart fund US\$ 0.50m). This will entail the review and formulation of policies and legislations on PCBs. Existing regulations do not properly cover POPs/PCBs. Furthermore, enforcement and execution of existing policies and regulations are severely constrained by the absence of effective monitoring and evaluation measures. The project will therefore support development and update of the legal and regulatory system for safe PCB management and disposal. Institutions like the Pollution Control Division of the Federal Ministry of Environment, the Environment and Chemicals Department of the PHCN, as well as the private sector will be strengthened through dedicated training.

Component 1b: Training and Public Awareness (GEF US\$ 0.45m; Counterpart fund US\$ 0.50m).

Training in PCB management (e.g the entire cycle of PCB identification to final disposal, including sound recycling and reuse of waste oils) will be held in Abuja, Lagos, Port Harcourt and Kano. The training will target Ministry of Environment officials at the national and state levels, NESREA, electrical companies and environmental/chemicals units at the PHCN. In addition, experience from abroad for PCBs containment and disposal technologies will be reviewed and knowledge sharing and management organized for the key project stakeholders. Public awareness will involve the preparation and dissemination of training and awareness raising materials; and would essentially include TV programs / documentaries, posters and the production of brochures/pamphlets for raising public awareness of PCBs issues. This capacity building and public awareness efforts will be targeted to those handling PCBs and truly vulnerable to health impacts (PHCN workers, private sectors, etc.)

Component 2: Design, Development and Implementation of Environmental Sound Management (ESM) for on-line and off-line equipment and potentially contaminated sites (GEF US\$3.0 m; Counterpart fund US\$ 6.2m).

This will involve the following activities:, (i) development of procedures, manuals, management protocols and guidelines for the identification of PCB-containing equipment, labeling electrical equipment and good maintenance practices (ii) identification and upgrading of laboratories for testing PCBs in oils and soils samples, (iii) identification and enhancement of possible interim storage locations within PHCN facilities so as to meet the requirements for environmentally

sound and safe storages of PCBs oils/wastes and PCB-containing equipment, (iv) oil recycling and transformer maintenance guidelines, and (v) development of strategies and options for PCB disposal at the national level. This will involve the implementation of demonstrations pilots aimed at disposing of existing PCB stocks or off-line equipment. These pilots will later be scaled up at the national level, once the total volume of PCBs that need disposal is identified and (vi) development of guidelines for characterization and risk management of contaminated sites.

Component 3: Baseline National Inventory of PCBs and PCB-containing Equipment and Development of National PCB Management Plan (GEF US\$ 1.9m; Counterpart fund US\$ 4m)

This component will build on the recently concluded partial inventory study that was funded by the World Bank with support from the Canadian Trust funds on POPs and covered 10 states. It will complete the existing database of PCB containing equipment to include 15 additional states. This component will also assist in the development of the methodology for a comprehensive study and guidelines/procedures that Government will follow to cover the remaining 11 states and the Federal Capital Territory (FCT) in the future. This will include sampling and testing of potentially contaminated equipment owned by the electricity sector, as well as by other economic sectors that have never been controlled.

The inventory will entail the development of a comprehensive database and labeling, and results from this inventory will provide a clearer picture of the extent of PCB contamination in electrical equipment across the country, on the basis of which, a long-term PCB management plan will be developed.

The management plan that is envisioned will consist of a cost-effective schedule to phase out all potentially contaminated on-line equipment, in a manner consistent to the targets of the Stockholm Convention, and according to, among other factors, age of equipment, level of risk, location, capacity, and ownership. The management plan will also include an assessment of disposal options for off-line equipment and PCB waste oils. Safeguarding, storage and disposal options will be evaluated for equipment and contaminated oils that are currently in storage, as well as those which will be taken off-line in the future and until 2025. A long-term plan, which will include options for financing the costs of disposal, will be developed. The overall PCB management plan will be developed in conjunction with PHCN.

Component 4: Project Management (GEF US\$ 0.6m; Counterpart fund US\$ 1m)

This component is designed to provide effective and efficient management support for the implementation (including monitoring) of the project.

13. The principal outcomes of the project will be: (a) Strengthening of Government institutions and agencies for PCB identification, labeling, collection, transport, storage, and monitoring, (b) development and adoption of policies and legal instruments for PCB management and disposal, (c) knowledge of status of PCBs and PCB-containing equipment nationwide, (d) Ensuring environmentally sustainable management of on-line and off-line equipment including disposal options, and (e) information exchange and awareness creation for a large part of Nigeria.

5. Safeguard Policies that Might Apply

14. **The project will be categorized as a B due to the small-scale and site specific impacts.** The potential adverse impact is related to the public health and environmental risks associated with handling, transporting and storage of PCBs. Thus, triggering the environmental assessment policy (OP 4.01)

15. There are no plans for land acquisition or resettlement. Besides, the interim storage sites of PCB-containing equipment will be within the existing PHCN facilities and warehouses; thus the involuntary resettlement policy (OP/BP 4.12) is not likely to be triggered.

16. In fulfilling the requirements of the triggered policy, the environmental and Social Management Plan of the Nigeria Energy and Gas Improvement Project (NEGIP) which was also prepared to handle wastes will be revised, updated and adapted for this project. It will be disclosed Country wide and Info shop prior to appraisal.

6. Tentative Financing

	(\$m.)
Source:	
BORROWER/RECIPIENT	12
Global Environment Facility (GEF)	7
Total	19

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