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United Nations Development Programme

Project title: Environmentally Sound Management and Disposal of PCBs in Nigeria		
Country: Nigeria	Implementing Partner: Federal Ministry of Environment	Management Arrangements : National Implementation Modality (NIM)
UNDAF/Country Programme Outcome: <i>By 2022, Nigeria is achieving environmental sustainability, climate resilience and food security through efficient management of its cultural and natural resources</i>		
UNDP Strategic Plan Output: <i>Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste</i>		
UNDP Social and Environmental Screening Category: <i>High. See Annex F.</i>	UNDP Gender Marker: 1	
Atlas Project ID/Award ID number: 00105607	Atlas Output ID/Project ID number: 00106795	
UNDP-GEF PIMS ID number: 5720	GEF ID number: 9236	
Planned start date: 1 April 2018	Planned end date: 31 March 2023	
LPAC date: 23 January 2018		

Brief project description: The project is intended to assist Nigeria to implement a sound management system for PCBs and other POPs. As part of this project the Federal Government of Nigeria will upgrade the regulatory regulations to identify, use, manage and properly decontaminate or dispose PCB contaminated equipment still in use or as waste. Additionally, the project will also establish three collection centres where PCB wastes from surrounding areas will be collected and prepared for subsequent decontamination or disposal. One of these collection centres will house an environmentally friendly decontamination system where solid materials from transformers, capacitors and other equipment contaminated with PCBs will be properly decontaminated. These centres will also temporarily house a mobile dechlorination system that will be used to selectively destroy PCBs from transformer mineral oil allowing the efficient and economically attractive decontamination of the dielectric fluid and its use as PCB-free oil in electrical transformers. **The project intends to decontaminate 1500 metric tons of PCB-contaminated electrical equipment and to dispose of 200 metric tons of pure PCB from transformers and capacitors.** The establishment of state-of-the-art analytical laboratories in Nigeria and the acquisition of the decontamination and dechlorination systems will allow PCB owners to complete the identification and proper treatment and disposal of the PCBs that will remain in the country beyond the duration of the project. The identification and proper management of PCB-containing equipment and wastes, in addition to the increased people's awareness of health and environmental risks of these toxic compounds will prevent accidental releases of PCBs, thereby protecting the health of employees, government officials and public in general and preventing the global spread of these chlorinated wastes to other locations.

The project will consist of the following four components which are:

- Component 1. Institutional capacity and training on PCBs;
- Component 2. Inventory of PCBs in 22 states of Nigeria not previously covered by other inventories;
- Component 3. Establishment of PCB collection and treatment center;
- Component 4. Environmentally sound disposal of identified PCBs, and
- Component 5. Monitoring, Learning, Adaptive Feedback and Evaluation.

FINANCING PLAN

GEF Trust Fund	USD 6,930,000
UNDP TRAC resources	USD 250,000
Cash co-financing to be administered by UNDP	N/A
(1) Total Budget administered by UNDP	USD 7,180,000
PARALLEL CO-FINANCING (all other co-financing that is not cash co-financing administered by UNDP)	
Government	USD 5,025,000
Private Institutions	USD 36,799,126
(2) Total co-financing	USD 41,824,126
(3) Grand-Total Project Financing (1) +(2)	USD 49,004,126

SIGNATURES		
Signature: <i>[Signature]</i> Name: Charles K. Ikeah Director, Pollution Control & Env. Health Federal Ministry of Environment	Agreed by Implementing Partner	Date/Month/Year: 24/07/2018
Signature: <i>[Signature]</i> Name: AUWAL A. MAIDABINO Nigeria GEF OFP	Agreed by Government	Date/Month/Year: 27/07/2018
Signature: <i>[Signature]</i> Name: Samuel Bwalya Country Director	Agreed by UNDP	Date/Month/Year: 27/07/2018



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List of Acronyms and Abbreviations

AEDC	Abuja Electricity Distribution Company
ASP	African Stockpiles Project
BAT	Best Available Technology
BET	Best Environmental Practice
CBN	Central Bank of Nigeria
CEMAC	Centre for Environmental Management and Control
CPC	Consumer Protection Council
DISCOs	Distribution Companies
DPR	Department of Petroleum Resources
EIA	Environmental Impact Assessment
EKEDC	Eko Electricity Distribution Company
EPA	Environmental Protection Agency
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
FEC	Federal Executive Council
FRSC	Federal Road Safety Commission
GA	Gender Assessment
GEF	Global Environment Facility
GENCOs	Generation Companies
GS	Gender specialist
Ha	Hectares
ICCON	Institute of Chartered Chemists of Nigeria
IEC	Information, Education and Communication
IERD	International Economic Relations Department
ILO	International Labour Organization
IPAN	Institute of Public Analysts of Nigeria
IPP	Independent Power Producers
ISC	Inter-Ministerial Steering Committee
ISO	International Standardization Organization
KM	Knowledge Management
LASEPA	Lagos State Environmental Protection Agency
MDAs	Ministries' Departments Agencies
M&E	Monitoring and Evaluation
MSH	Management Sciences for Health
MPU	UNDP's Montreal Protocol and Chemicals Unit
NAFDAC	National Agency for Food and Drug Administration and Control
NCS	Nigeria Customs Service
NDLEA	National Drug Law Enforcement Agency
NEMA	National Emergency Management Agency
NEMSA	Nigerian Electricity Management Services Authority
NERC	Nigerian Electricity Regulatory Commission
NESREA	National Environmental Standards and Regulations Enforcement Agency
NEPZA	Nigeria Export Processing Zone Authority
NEWMAP	Nigeria Erosion and Watershed Management Project
NIMASA	Nigerian Maritime Administration and Safety Agency
NIP	National Implementation Plan
NIPP	National Integrated Power Project
NLC	Nigeria Labour Congress
OHS	Occupational Health and Safety
OHSMA	Occupational Health and Safety Management System

PAC	Project Appraisal Committee
PAD	Project Appraisal Document
PCEHD	Pollution Control and Environmental Health Department
PEN	Polychlorinated Biphenyls Elimination Network
PHCN	Power Holding Company of Nigeria
PIF	Project Identification Form
PIM	Project Implementation Manual
POPP	Programme and Operations Policies and Procedures
PPE	Personal Protective Equipment
PPG	Project Preparation Grant
PPM	Parts Per Million
PPP	Public Private Partnership
PSC	Project Steering Committee (or Project Board)
RIP	Remediation Implementation Plan
SON	Standard Organization of Nigeria
SOP	Standard Operating Procedures
STAP	GEF Scientific Technical Advisory Panel
TC	Technical Committee
TCN	Transmission Company of Nigeria
UNEC	University of Nigeria Enugu Campus
WEP	Women Environmental Programme

II. DEVELOPMENTAL CHALLENGE

A. Country features

The Federal Republic of Nigeria is located in West Africa and shares land borders with the Republic of Benin in the West, Chad and Cameroon in the East, and Niger in the North. Its coast in the South lies on the Gulf of Guinea on the Atlantic Ocean. Nigeria is comprised of thirty-six states and its Federal Capital Territory, Abuja. These states are further sub-divided into 774 Local Government Areas (LGAs). As per the World Bank overview presentation, “with approximately 184 million inhabitants, Nigeria accounts for 47% of West Africa’s population, and has one of the largest populations of youth in the world [...]. Nigeria’s economy grew by 2.7% in 2015, significantly below its growth of 6.3% in 2014. Since the fall in oil prices in mid-2014, growth has been on a downward spiral, and the economy is currently in recession. In 2016, it continued to deteriorate further after recording negative growth in the first two consecutive quarters (-0.4% and -2.1% year-on-year in real terms, respectively). In the third quarter, GDP contracted by 2.2%, driven by a significant decline in the country’s oil output, shortages of power, fuel, and foreign exchange. Inflation doubled to 18.8% (projected) at the end of 2016, from its level of 9.6% at the end of 2015, mainly as a result of fuel and electricity price increases and the depreciation of the Nigerian naira during the year. Average inflation will likely remain in the double digits over 2017/2018. Nigeria’s economy is expected to grow by about 1% in 2017 and 2.5% in 2018, based on an expected increase in oil output, as well as the accelerated implementation of public and social investment projects by the Federal Government. The recent lower growth rate of the Nigerian economy has resulted in a renewed focus on economic diversification, promoting growth in the private sector, and driving job growth”¹.

B. Polychlorinated Biphenyls

Human exposure to Polychlorinated Biphenyls and other Persistent Organic Pollutants (POPs) can lead to serious health effects including certain cancers, birth defects, dysfunctional immune and reproductive systems, greater susceptibility to diseases, and damages to the central and peripheral nervous systems. The resistance to chemical degradation of these materials makes them persist in the environment for a significant period of time, allowing them to move in the food chain and accumulate in aquatic, birds and animal species.

Polychlorinated Biphenyls (PCBs) are among the most toxic and persistent POPs listed in the Stockholm Convention. They are a family of chemicals with 209 isomers where two biphenyls groups, attached by a carbon-carbon bond may contain from one (Monochlorobiphenyls) to ten (Decachlorobiphenyl). The number and position of the Chlorine Atoms in the PCB molecules create the possibility of the 209 isomers. The spatial distribution and the location of the Chlorine Atoms in the molecules also give them their toxic characteristics. Thus, 13 of these 209 isomers exhibit a dioxin-like toxicity.

PCBs have been used in almost all sectors of the Nigerian economy such as coolants and insulating fluids in transformers and capacitors in electricity generation, transmission and distribution, in flexible coatings of electrical wiring and components. With this in mind, PCBs are seen as a threat to public health and environment. However, to neutralize this threat, Nigeria joined the global community in negotiating and ratifying the Stockholm Convention on Persistent Organic Pollutants (POPs) which obliges parties to eliminate the use of PCBs in equipment.

The country has a few number of piecemeal legal instruments addressing the various aspects of chemical management. There are four Ministries’ Department Agencies MDAs that have been identified as major players in the management of chemicals in the country. These are the Federal Ministry of Environment; Federal Ministry of Health; National Agency for Food and Drug Administration and Control (NAFDAC) –

¹ <http://www.worldbank.org/en/country/nigeria/overview>

an agency under the Federal Ministry of Health; and the Factory Inspectorate Division of the Federal Ministry of Labour and Productivity. The laws in place require that chemicals' usage should be tracked through registration, and management from "cradle to grave", that is from importation through formulation, usage, distribution through disposal based on the life cycle approach.

PCBs were not manufactured in Nigeria, they were imported materials, already contained in electrical equipment or components of already-manufactured goods brought into the country. Because of their stability, heat resistance and excellent heat transfer and dielectric properties, PCBs were widely used as insulating fluids in electrical transformers, capacitors and switches. They were also used in the industry as additives in paint, carbonless copy paper, and plastics. As special fluids with a cost higher than mineral oil, their use in electrical application was limited to places where the possibility of a catastrophic failure of the equipment causing a fire had to be avoided. Hence, apart from electricity-generating stations, transformers made with PCBs were installed in underground mines, national defense facilities, hospitals and other commercial and non-commercial institutions. PCBs were also used in the manufacturing of power correction capacitors, mainly installed in banks in electric transmission stations.

Nigeria, similar to other economies in development, faces the challenge of PCBs, and as earlier mentioned, mainly because of imported electric equipment and materials containing this chemical. It suffices to say that PCBs, because of their mobility, have become a global challenge that requires collective action. This realization gave birth to the Stockholm Convention and various regional treaties, so countries can, in their national space, ensure environmentally-safe processes with also a global environment target.

The Stockholm Convention on Persistent Organic Pollutants

The Stockholm Convention on Persistent Organic Pollutants is a global treaty established to protect human health and the environment from a class of chemicals, identified as hazardous to humans and biodiversity. Adopted in 2001, and having entered into force on 17th May, 2004, it currently has over 150 member countries, with governments committing to take measures to eliminate or reduce the release of POPs into the environment.

The Stockholm Convention focuses on eliminating or reducing releases of POPs. Enlisted parties are required to take measures (legal and/or administrative) to eliminate or heavily restrict the production and use of POP pesticides and PCBs, and to minimize their unintentional production and release. The 12 key POPs that were initially targeted by the Convention included Aldrin, Chlordane, DDT, Dieldrin, Dioxins, Endrin, Furans, Hexachlorobenzene, Heptachlor, Mirex, PCBs and Toxaphene. New substances were added subsequently for control by the Convention.

The Stockholm Convention is the most significant global legally binding instrument for targeting POPs. It is perhaps best understood as having five essential aims:

- Eliminate dangerous POPs
- Support the transition to safer alternatives
- Target additional POPs for action
- Cleanup old stockpiles and equipment containing POPs
- Work together for a POPs-free future

In essence, the Convention sets up a system for tackling additional chemicals identified as unacceptably hazardous. It recognizes that a special effort may sometimes be needed to phase out specific chemicals for certain uses and seeks to ensure that this effort is made. It also channels resources into cleaning up the existing stockpiles and dumps of POPs that litter the world's landscape. Ultimately, the Convention points the way to a future free of dangerous POPs and promises to reshape or even eliminate reliance on toxic chemicals.

The Federal Republic of Nigeria signed the Stockholm Convention in May, 2001 and ratified it in May, 2004. The National Implementation Plan was developed, as required for signatories. The NIP identified certain activities as priority for action, with PCB management and elimination as one of them.

Ensuring the Environmentally Sound/Safe Management of PCBs is an objective the country has been trying to achieve, however, a number of issues and barriers exist that have challenged progress:

- Previous efforts to establish a comprehensive national PCB inventory has resulted in the testing of about 1,500 out of ca. 100,000 transformers existing in the country's electrical system. The testing was carried out only in 15 of the 37 States in Nigeria;
- The Nigerian legal framework and infrastructure has a number of gaps that hinder the environmental sound management of PCBs;
- The absence of regulatory requirements for the use, disposal and handling of PCB-containing equipment and material has prevented a systematic approach of managing these materials in Nigeria;
- The limited capacity in technical and human resources prevents proper monitoring and inspection and the enforcement of the existing national regulatory framework on PCBs;
- Identification of PCB-contaminated transformer is carried out on a voluntary basis by some of the transformer owners. The information gathered is however kept by the owners without specific action being taken to properly manage the equipment found with PCBs;
- The absence of accountability requirements by the government for owners of electrical equipment has created a gap of available information for the proper planning of the disposal of PCBs;
- The lack of awareness within the public and of workers' potential exposure to PCBs prevents from taking proper precautions when dealing with these toxic chemicals, thereby increasing the chances of harm to their health and the environment;
- The lack of decontamination/treatment options for PCB wastes within the country limits the potential alternatives that can be economically and efficiently applied and therefore prevents the environmentally-sound disposal of these toxic materials;
- The lack of disposal options for PCBs within the country results in the export of the waste as the only technically acceptable alternative for their proper disposal. The export of PCB wastes to European disposal facilities is expensive and some of the Nigerian companies cannot afford such costs;
- Many of the PCB-containing electrical equipment are still in service and proper management of these pieces of equipment will require replacement. The cost of replacement that would include removal and disposal of the PCB-containing units, acquisition and installation of the new equipment, are high and therefore almost impossible to implement for some of the Nigerian PCB Owners.

In order to be effective and generally avoid the generation and release of more toxic materials into the environment, these barriers need to be addressed. Hopefully, the results this project looks to achieve will help the country gain grounds in its commitment to the Stockholm Convention, whilst translating into lessons that other countries experiencing similar challenges can adapt to address their issues. The next section delineates these efforts and subsequent chapters discuss the way forward, given the situation.

C. PCB Management in Nigeria - Current Status

Nigeria has a large stock of PCB-containing oil and equipment that has been identified by the National Baseline Inventory carried out in the country and, as a result, there is a need to develop and implement

Environmentally Sound Management and Disposal of PCBs in the country. Preparation of the Project Document is a step towards instituting legal and ministerial agreements to enable all principal partners - GEF, UNDP and the Federal Government of Nigeria - to delineate actions and ensure effective use of the approved funds.

The NIP listed as a priority the need to quantify the amount of PCBs in the country. Reliable information on the matter did not exist prior to 2009, when a preliminary inventory of PCBs was undertaken in 10 Nigerian states with the bilateral support from Canada, managed by the World Bank. The preliminary inventory carried out provided first evidence of the presence of PCBs in the electrical sector, however it had a very limited scope as only a small number of equipment were sampled. Basically, dielectric oil from 281 transformers were tested with screening test kits and 27 transformers were found contaminated. Unfortunately, these were not labelled, creating a major gap in the inventory development effort.

The GEF/World Bank project subsequently set up and demonstrated a more comprehensive – though still limited - inventory in 15 states in the country; on the average, only 115 pieces of equipment were sampled in each of the states, amounting to a total of 1,793 pieces of electrical equipment analyzed.

The instrument used for the screening exercise, was the Chlor-N-Oil/L200DX. Out of the 1793 samples, 555 (31%) pieces of equipment were contaminated at a level above the threshold limit of 50 mg/kg or ppm. Another important finding from the study was that all contaminated transformers (except for some capacitors found with high levels of contamination) were mineral oil transformers. Although the project provided important information about the extent of PCB contamination within its target states, the effort was considered not exhaustive.

Table 1 summarizes the volume of PCB-contaminated mineral oil and total weight of the equipment found out of the 1793 pieces of electrical equipment tested in the 15 states covered by the the GEF/World Bank project.

Extrapolation of the data collected during that project would give a total of about 30,000 electrical transformers that would be contaminated with PCBs. Most of the transformers would be small distribution transformers that would represent a significant challenge, not only financially, but also technically, for any country to deal with on its own.

Table 1: Results of the preliminary inventory carried out as part of the GEF/World Bank project in Nigeria

S/No	State	Weight of PCB-containing Oil (Tons)	Weight of PCB-containing Equipment (Tons)
1	Lagos	263.29	1026.50
2	Oyo	49.36	242.32
3	Ogun	54.22	202.67
4	Delta	436.41	1169.55
5	Rivers	1.50	4.80
6	Enugu	66.88	240.23
7	Anambra	48.66	165.24
8	Abia	15.74	66.64
9	Sokoto	32.57	127.84
10	Kaduna	205.94	891.75
11	Kano	121.82	427.57
12	Bauchi	21.83	85.42
13	Benue	93.62	305.52

14	Niger	94.75	498.60
15	Abuja	182.66	683.06
TOTAL		1689.25	6137.71

Some important work has been done in trying to assess the degree of PCB contamination in the electrical system in Nigeria and, though much more needs to be done, some of the preliminary conclusions that can be drawn are as follows:

- There is a significant number (probably in the order of 20 to 30% of all transformers) of PCB-contaminated transformers in Nigeria.
- The large scattered areas where these transformers are in use or in storage yards will require some degree of consolidation once they are removed from service and/or subject to treatment/decontamination.
- Although most of the pieces of equipment found to contain PCBs are mineral oil-contaminated transformers, some of the equipment were made of pure or high-level PCBs. Based on this reality, a dechlorination system is the tool needed to decontaminate both categories of contamination. With the latter, though (equipment lined from inception with pure PCBs), the options could be 1. Prior mixing with low-level PCB-contaminated mineral oil; 2. Export for high-temperature incineration (or an alternative, acceptable destruction option could be sought).

In order to establish a national PCB management system, Nigeria needs to build on past projects, identifying additional contaminated transformers, labeling and then managing them. A follow-up inventory exercise is therefore recommended, for the states where the GEF/WB project initiated the inventory, and in the other 22 states, where no work has been done yet. These expanded efforts will include some highly industrialized states.

The absence of treatment/disposal options for PCBs within the country was also identified as a challenge for the environmentally sound management of PCBs in Nigeria. Owners of PCB-containing equipment do not have economically-acceptable means to decontaminate and re-use the contaminated transformers; the only alternative available to them is to remove the equipment, export it for disposal and possibly procure new ones. These options are expensive for the owners and therefore difficult to adopt.

D. Relevance of the Project

Consistency with National Priorities

The proposed project is fully consistent with national priorities. The following activities were identified as immediate priorities in Nigeria's National Implementation Plan:

- a) Preparing detailed inventories with special attention to closed-down industries that were high power consumers;
- b) Labeling PCB-containing transformers;
- c) Creating an electronic database for POPs (and specifically PCBs) that includes, among other things, the name and address of the equipment holder, the location and description of equipment, the quantity of PCBs contained therein and the dates and types of disposal envisaged;
- d) Ensuring that updating of the national inventory is a responsibility of the PCB users;
- e) Creating awareness on the dangers involved in the use of PCB-containing oils for domestic purposes;
- f) Establishing legislation for the control of imports, exports and use of PCBs; and
- g) Analyzing the levels of PCBs in environmental media, the tissues of animals and plants, as well as human blood and mothers' breast milk to establish the extent of environmental contamination with PCBs.

At the national level, the project is intended to strengthen the Government's capacity to manage, monitor, control and, ultimately, phase out the use of PCBs. The project design includes provision for a

comprehensive review of current hazardous waste management regulations, and the development and incorporation of a new regulatory framework that will specifically address POPs in general, and PCBs in particular. It will also develop a baseline national inventory of PCBs and PCB-containing equipment and a national PCB management plan.

Furthermore, the acquisition and transfer of dechlorination and decontamination technologies for the treatment of PCB wastes in Nigeria will provide affordable means to reduce and eliminate PCBs from the country and therefore reduce the probability of accidental releases into the environment.

Treatment of PCB waste within the country will allow PCB owners to have access to economically-acceptable and timely solutions to treat and decontaminate their PCB equipment and waste. In addition, the transfer of technologies to Nigeria will result in the creation of jobs and the retention of valuable by-products such as clean PCB-free mineral oil resulting from the dechlorination of the contaminated transformer oil, as well as clean metals such as copper and steel, recovered from the decontamination of transformers, switches and other electrical equipment.

Finally, the project will support the implementation of the:

- National Implementation Plan (NIP) for POPs;
- National Strategy for Environmental Protection;
- Federal Government's Vision 2020 with special attention to pollution prevention, abatement, remediation and management themes;
- It will also contribute to the FMEnv's ongoing efforts to reduce the risks to human health and ecosystem integrity from industrial pollution and
- Improve the ministry's capacity and performance in Solid and Hazardous Waste Management.

Higher level objectives to which the project will contribute

The project will contribute to various global and regional objectives. At the global level, it is expected to assist Nigeria in meeting its obligations under the Stockholm Convention, contributing to global efforts to control toxic chemicals in general, eliminate/reduce POPs' releases to the environment, and in managing PCB waste and PCB-contaminated equipment in an environmentally-sound manner. Other treaties such as the Basel Convention, which share priorities to address POPs with the Stockholm Convention, will also benefit from the outcomes of the project. Relevant regional instruments include the Bamako Convention. The nature and provisions of these treaties – global and regional, are discussed in a later section. Finally, the project will contribute to the implementation of Sustainable Development Goals (SDGs) in Nigeria, as described in Chapter VI.

Global Environmental Benefits (GEBs): The treatment of 200 MT of pure PCB electrical equipment and the decontamination of 1,500 MT of PCB-contaminated transformers in an environmentally acceptable manner is directly consistent with the objective of the Stockholm Convention for the elimination of these toxic materials. Furthermore, as the treatment technologies being acquired for the project will remain in the country, these will be used to continue and complete the elimination of PCBs within Nigeria after the completion of the project, consistently with the requirements under the Stockholm Convention.

Socio-Economic Benefits

The project will bring several direct and indirect social and economic benefits, specifically:

- The activities related to the project itself will create jobs for project staff, service providers and for technical staff that will be permanently employed in laboratories and other support services.
- The acquisition, installation and operation in Nigeria of temporary storage facilities for PCB wastes, a mobile PCB dechlorination system and a treatment facility for the decontamination of PCB-contaminated transformers, and all other commercial activities such as analysis and

transportation of PCBs, created to support these PCB-related systems, will create jobs for a significant number of people, improving their socio-economic situation.

- The creation of economically-attractive treatment options for PCB waste in Nigeria, compared to the only previously-available costly option of export of such wastes to European facilities, will result in a net economic benefit for the PCB owners when treating or disposing their PCB-contaminated equipment.
- The application of environmentally-friendly alternatives for the decontamination of PCB-contaminated electrical equipment will allow the recovery of valuable by-products such as clean transformer oil, copper and carbon steel that can be re-used in the country.

As additional PCB waste is treated in the decontamination alternatives being established in Nigeria, the illegal or unintentional release of the harmful chemicals into the environment will be reduced, thereby reducing potential exposure to these toxic chemicals and protecting human and environmental health.

Increased information, Knowledge and Skills on PCB Management

The implementation of this project in Nigeria will allow the transferring and development of technical, scientific and project management knowledge and skills that will remain in the country beyond the duration of this project. These new knowledge and skills can subsequently be applied to other projects and situations helping the development of innovative solutions to other environmental problems in the country. These knowledge and skills will also be properly communicated and disseminated to other countries, particularly with project teams in countries with a similar context to Nigeria's.

E. Associated Legislation and Responsibilities Concerning PCBs in Nigeria

I. Relevant National Legislation

The regulatory framework for the environmentally-sound management of PCBs in Nigeria still needs further development and improvement. As recently as March 2015, the Federal Executive Council (FEC) adopted the National Policy Framework on PCB Management in Nigeria. However important pieces of regulations such as those required for owners of electrical equipment to test and properly manage and dispose of PCB-contaminated equipment still do not exist.

The lack of regulatory requirements makes the testing of electrical equipment a voluntary activity; thus, owners are neither required to inform the government of their findings nor required to take proper steps to manage the PCB-contaminated equipment.

Whereas a dedicated PCB regulation that specifies conditions for use, handling, transportation and disposal of such materials is still lacking, a number of legal instruments and regulations regarding environmental and human health that could be applied to PCBs exist. These include:

- **The Environmental Impact Assessment Act No. 86, 1992 (FMEEnv)**

The Act provides the guidelines for activities of development projects for which EIA is mandatory in Nigeria. The Act also stipulates the minimum content of an EIA and is intended to inform and assist proponents in conducting EIA studies, against dumping of harmful waste on any land, territorial waters, and Exclusive Economic Zones or the country's inland water ways. The Act also prescribes severe penalties for any persons found guilty of any crime relating thereto.

Other Relevant National Legal Instruments on Environment includes the:

- National Environmental Protection (Pollution abatement in Industries and Facilities generating Waste) Regulations, 1991
- National Environmental Protection (Management of Solid and Hazardous Wastes) Regulation, 1991
- The National Guidelines and Standards for Environmental Pollution Control in Nigeria, 1991

- Public Health Law, 2006
- National Guidelines on Environmental Management Systems, 1999
- Technical Guidelines and Rule Authorization for the Sound Management of Hazardous Materials and Impounded Goods, 2010.

Alongside available legal instruments to address environmental issues and chemicals' management there is a cross-sectoral national infrastructure, through relevant Ministries, Departments, and Agencies (MDAs). Hence, four main organizations are identified for the management of chemicals in the country: the Federal Ministry of Environment (FMEnv); Federal Ministry of Health (FMoH); National Agency for Food and Drug Administration and Control (NAFDAC) – an agency under the Federal Ministry of Health; and the Factory Inspectorate Division of the Federal Ministry of Labour and Productivity (FMoL).

The Federal Ministry of Environment

The Ministry has the primary responsibility for co-ordination of activities that protect the Nigerian environment from risks associated with chemicals as well as other environmentally-associated risks.

The Federal Ministry of Health

The Ministry of Health has a stake due to its oversight responsibility on health matters in the country. Along these lines, risks of human exposure, either occupational ones, or through ingestion of foods, and the resulting effects on health, make the Ministry a key stakeholder.

The National Agency for Food and Drugs Administration and Control (NAFDAC)

The NAFDAC Decree 15 / 1993 and its Amendment Decree 19 / 1999 mandates the Agency to:

- Regulate and control the importation, exportation, manufacture, advertisement, distribution, sale and use of food, drugs, cosmetics, medical devices, bottled water and chemicals;
- Undertake appropriate investigations into the production premises and raw materials for food, drugs, cosmetics, medical devices, bottled water and chemicals, and establish relevant quality assurance systems including certification of the production sites and of the regulated products;
- Undertake inspection of imported food, drugs, cosmetics, medical devices, bottled water and chemicals and establish relevant quality assurance systems, including certification of the production sites and of the regulated products.

The Federal Ministry of Labour and Productivity

At various workplaces, workers are exposed to certain harmful chemicals, hence the Factory Inspectorate arm of the Federal Ministry of Labour and Productivity is responsible for supervising such environments, ensuring the workers have safe working environments and, where relevant, protection from exposure to chemicals. The Ministry also ensures compliance by industries on the use of Personal Protective Equipment (PPE).

II. Relevant International Treaties and Regulations

Due to the long-range transportation of POPs, a global approach is necessary to agree on the control of these substances. In addition to the Stockholm Convention, Nigeria has commitments at the international and regional levels, and has ratified all the Multilateral Environmental Agreements (MEAs) on chemicals and waste. International conventions relevant to the sound management of POPs and other hazardous chemicals to which Nigeria is party include:

- **The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)**

The Basel Convention is a global agreement which addresses the problems and challenges posed by the transboundary movement and management of hazardous wastes, including those consisting of,

containing or contaminated with POPs. It was adopted on 22 March 1989 and came into force on 5 May 1992.

The Basel Convention uses a Prior Informed Consent (PIC) procedure to control transboundary movements of waste, whereby hazardous waste cannot be shipped from one country to another without the consent of those countries involved, including countries of transit. The Convention has developed guidelines for managing wastes contaminated by chemicals in Annexes A and B of the Stockholm Convention and recognizes these guidelines as BATs and BEPs.

- **The Bamako Convention on the Control of Transboundary Movements of Hazardous Wastes within Africa (1991)**

This convention is the only regional convention on hazardous wastes. It was put together by the African Region with the inclusion of radioactive waste, which is missing in the Basel Convention. Nigeria has ratified the convention.

- **The United Nations Framework Convention on Climate Change**

This convention acknowledges that change in the Earth's climate and its adverse effects are a common concern of humankind. It includes pertinent provisions of the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on the 16th June, 1972.

- **The Globally Harmonized System (GHS) of Classification and Labeling of Chemicals**

The Globally Harmonized System (GHS) of Classification and Labeling of Chemicals is a worldwide initiative to promote standard criteria for classifying chemicals according to their health, physical and environmental hazards. It uses pictograms, hazard statements, and the signal words "Danger" and "Warning" to communicate hazard information on product labels and safety data sheets in a logical and comprehensive way. The primary goal of GHS is better protection of human health and the environment by providing chemical users and handlers with enhanced and consistent information on chemical hazards.

- **The Strategic Approach to International Chemicals Management**

The International Conference on Chemicals Management held in February 2006 finalized and adopted the Strategic Approach to International Chemicals Management. SAICM is a global framework to improve chemicals management. It is a voluntary agreement supported by a high-level declaration and contains a toolkit of policies and activities aimed at raising the standards of chemicals management, particularly in developing countries. SAICM pulls together international bodies with responsibility for chemicals management and supports and enhances the global treaties that cover chemicals and hazardous waste. Nigeria is actively involved in SAICM activities.

III. STRATEGY

A. General Strategy and Theory of Change for the Project

Section II on the context and development challenges discussed the situation of PCB management in the country, highlighting gaps and emerging issues that have impeded progress, and which need to be addressed for environmental and health risks to the chemicals to be minimized. As an overview, the analysis identified:

- The gaps in existing environmental regulations, which have prevented owners of equipment containing PCBs to have a clear and consistent approach to managing their equipment, which are either kept in-service, maintained or disposed of, after completing their useful life.

- That managing PCB-containing equipment is a voluntary activity practiced by some and not all owners of electrical equipment in Nigeria. Thus, testing of equipment to determine if they are contaminated is not mandatory; as such, reliable information about the spread of PCB contamination in the electrical sector is almost non-existent.
- That the lack of specific regulations regarding PCBs prevents government officials to demand accountability on the proper handling of these chemicals.
- The lack of understanding of the toxicity associated with PCBs makes workers and the general public unaware of the health and environmental risks posed by exposure.
- The absence of treatment technologies at the local level. The lack of legislation regarding the removal and disposal of PCB-containing equipment has prevented investments in decontamination technologies, although these technologies have been on the market for several years in developed countries, offering economical and environmentally-safe treatment solutions for PCB-contaminated equipment.
- The lack of a gender-sensitive approach in previous undertakings, given the differential impact of chemicals on men and women, and the need to understand this, so that interventions equally and equitably meet the needs of all involved (women, men, boys and girls), and generally avoid reinforcing inequalities.

The above issues have been only partially addressed by the World Bank project mentioned above and a complementary project needs to address the remaining gaps.

Research and careful evaluation have therefore shown that addressing these gaps in the proposed project will require a number of actions, listed as follows:

Increase National PCB Management Capacities and Ensure Enforcement of Legislation: This will require a close cooperation between government officials responsible for the establishment and the enforcement of new regulations and key stakeholders such as owners of transformers, capacitors and other pieces of electrical equipment (i.e. electrical utilities, heavy industries, mining, and commercial organizations). Activities that will help achieve this objective include:

- Develop and implement clear requirements and guidelines to manage PCBs in in-service equipment, as well as treatment and disposal of PCB-containing waste.
- Test online and offline transformers (that is, transformers that have been removed from service and those that remain in-service and are reachable without needing to disconnect the electrical supply).
- Label, inspect and maintain transformers that are in-service and found to contain PCBs above the 50 mg/kg threshold, until such time these units are decontaminated below the threshold level, or removed and declared waste.
- Carry out training sessions for workers that can be exposed to PCBs, such as in the electrical utility industry, enterprises which are heavy users of electricity, waste disposal companies and government inspectors.

Increasing Awareness of the Risks Associated with PCBs and other POPs: The risks associated with PCBs are not recognized by those exposed to them, and by the public in general. The invisibility at the trace level of contamination in air and water hide their presence and the slow but continuous bioaccumulation in body tissues make exposure to these toxic materials all the riskier. Therefore, to protect the health of people potentially exposed to these materials, the project will hold open house programmes for neighborhoods of electrical generating, transmission and distribution stations, around PCB treatment facilities and waste disposal sites, where the presence of PCBs in in-service equipment might have been confirmed.

Engagement of Stakeholders: The proper management of PCBs cannot be based on the voluntary efforts of some owners of electrical equipment and service companies; it must be a compulsory obligation to

comply with government environmental legislation. Furthermore, there should be general awareness of the health and environmental risks posed by PCBs and the desire of employers to protect their employees and the public in general. The project will count on the direct engagement of government officials, representatives of the electrical utility industry and other owners of electrical equipment, NGOs, and other stakeholders. A key participation is that of the electrical utility industry and other owners of electrical equipment that will provide samples of their equipment and PCB-contaminated waste, which will be treated or decontaminated as part of the project.

Recognizing the natural resistance to change and the perceived economic impact that an environmentally sound management of PCBs may involve, GEF, the Government and UNDP, through this project, will support owners of electrical transformers to sample the dielectric fluid from 11,000 units, providing the know-how and tools for them to continue the testing of the rest of the electrical transformers in their companies, as well as training of their operators in the proper management of PCB-containing equipment.

Improve Information Regarding PCBs in Nigeria: The information gathered as part of the original inventory of PCBs in Nigeria (bilateral funding from Canada) was not properly documented at the time and therefore was of limited use. Under the proposed project, a Management Information System database, that will include relevant information such as PCB levels, equipment size, voltage and year of manufacturing etc., will be developed and properly maintained. This will complement what was accomplished in the World Bank-supported GEF-funded previous project. This project will continue to assist in building up the PCB inventory in the country by taking samples and analyzing dielectric oil from 11,000 electrical transformers and, as the PCB-contaminated equipment gets treated or disposed of in approved facilities, the management information system will be updated.

The information about the volume of PCB-contaminated oil and equipment and the level of PCB contamination in the different regions of the country will allow the government and service providers better planning for treatment activities. In addition, this database will allow Government officials to be up to date about the progress and status of PCBs in the country.

Acquire and Implement a PCB Treatment Technology in Nigeria: One of the most important elements in the implementation of an environmentally-sound system for the management of PCBs in any country with a vast inventory of contaminated transformers is the availability of economical and environmentally-friendly treatment alternatives. The acquisition and transfer of dechlorination technologies and the decontamination solution for PCB-contaminated transformer carcasses will provide PCB owners in Nigeria with economical treatment solutions that permit the recovery of valuable materials such as transformer oil and copper and steel from transformers, as the contaminated oil gets destroyed.

Adopt a Gender Responsive Approach to Project Issues: this is necessary considering the role of gender in mediating human/environment interactions, including all environmental use, knowledge, and assessment, and its role as a fundamental organizing principle in all societies. As a result, conclusions are drawn the world over that no development effort can be truly successful or transformative without being gender-sensitive. Moreover, evidence is available that exposure to environmental hazards affect women and men differently, including regarding vulnerability. Consequently, the proposed strategy discussed will be incomplete to address the global challenge in question, if the gender differentials and issues are not taken into consideration. The project will hence focus efforts on gender targets to create the needed balance for its beneficiaries and Stakeholders – men, women, boy and girls - across all levels.

These actions encompass the strategic direction and thrust of the project, in assisting the country to develop and implement an environmentally-sound management system that will allow PCB owners to have access to economical and efficient treatment alternatives to reduce their environmental liabilities.

The approach will also allow the government to protect its citizens and the environment and to comply with the Stockholm Convention, whilst advancing gender equality and women empowerment.

The proposed alternative scenario intends to support Nigeria with the necessary technical and financial assistance to ensure that significant volume of PCB wastes is treated during the implementation phase and that technology and know-how remain in the country to allow, in the post-project stage, Nigeria to eliminate all PCBs.

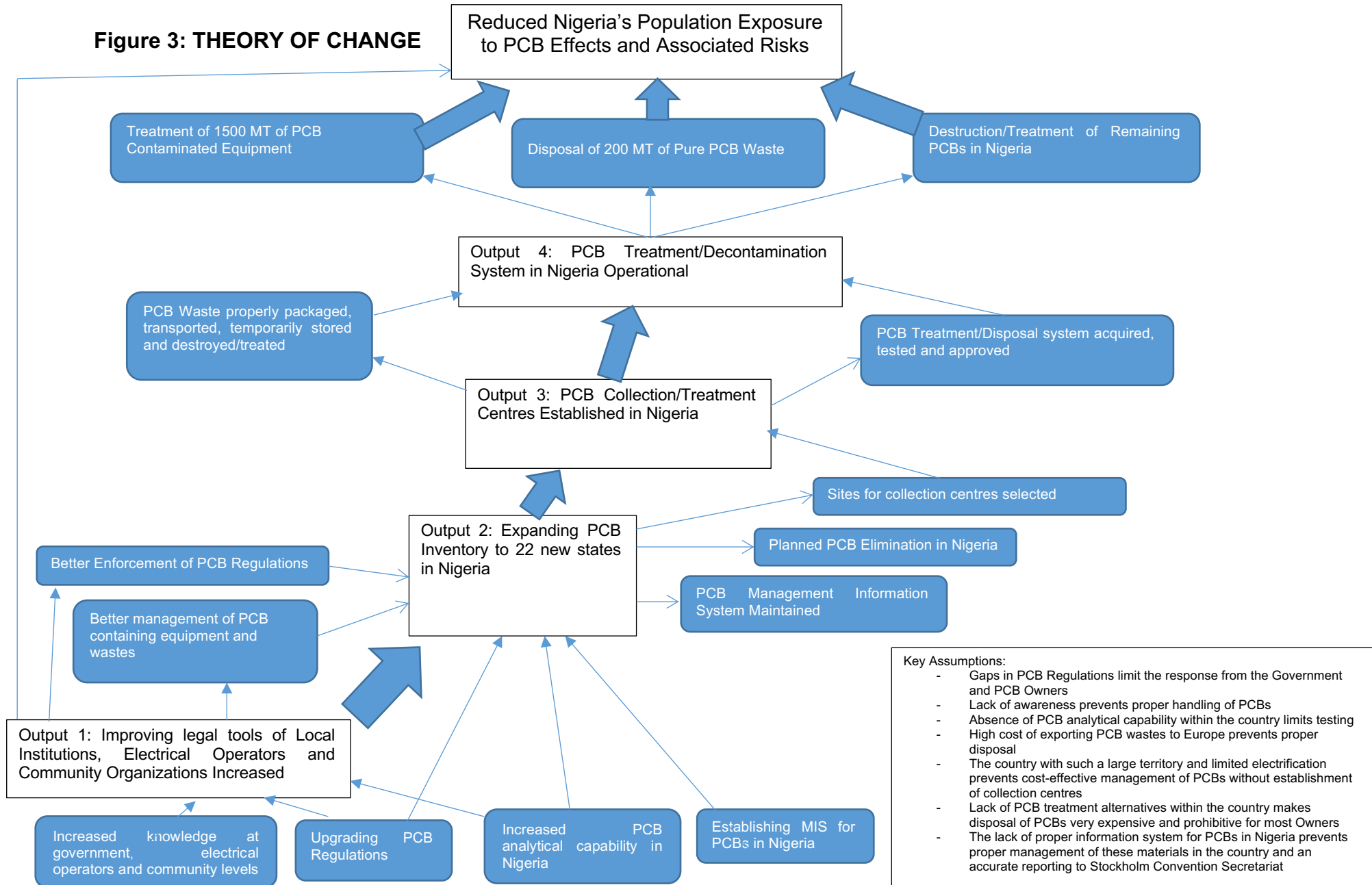
The project will be implemented by the close cooperation between the Federal Ministry of Environment (FMEnv), the Federal Ministry of Finance (FMoF) and the Federal Ministry of Power (FMoP); representatives of the Electrical Utilities, representatives of waste disposal service companies, academic institutions and NGO's.

It should be noted however, that the project does not expect to eliminate all the PCBs in the country, but aims to treat and/or eliminate significant volumes of the already identified PCB-contaminated material, with the intent also to provide technical support and tools to owners of electrical equipment so they are able to continue with the proper management of their electrical equipment, and ultimately facilitate the establishment of a dechlorination and decontamination technologies for the environmentally sound treatment of such wastes.

The project's overarching goal was thus defined as to *Reduce Nigeria's Population exposure to PCBs and associated risks, and sub-targets defined as components.*

Following the Theory of Change diagram (Figure 3 below), which summarizes the strategy discussed above, the next section provides the detailed project description, culminating with the matrix on the incremental costs and the GEF contribution to the proposed alternative scenario, in comparison to the baseline, by project component.

Figure 3: THEORY OF CHANGE



IV. RESULTS AND PARTNERSHIPS

The objective of GEF's funding of this project is to minimize the risks of exposure of Nigerians and the environment to PCBs, particularly for vulnerable populations, while facilitating the country's commitments to the Stockholm Convention.

The project structure is designed to ensure that this overarching goal is achieved through creation of an enabling environment for decommissioning and destruction of Nigeria's estimated inventory of over 7,000 tons of PCB-related wastes. To this end, the project components were defined as follows:

1. Institutional Capacity and Training on PCBs;
2. Inventory in 22 States not previously covered by Other Inventories;
3. Establishment of PCBs Collection and Treatment Centres;
4. Environmentally Sound Disposal of Identified PCBs; and
5. Monitoring, Learning, Adaptive Feedback and Evaluation

Component 1 - Institutional Capacity and Training on PCBs

Under this component, the following outcomes will be achieved:

- a. Assessment and strengthening of capacities of local institutions and operators on PCB management;
- b. Development and implementation of rules and regulations on PCBs;
- c. Awareness raising and dissemination of project objectives and results.

The overarching goal of this component is to strengthen both the capacity of Government and that of stakeholders to monitor, control and ultimately phase out the use of POPs in general and PCBs and PCB-containing equipment in particular. The process that has been undertaken to implement this to date includes:

- ✓ The development of the National Policy Framework on PCBs Management in Nigeria, which was validated by stakeholders, vetted by the Federal Ministry of Justice and forwarded to, and approved by the Federal Executive Council (FEC);
- ✓ The development and on-going efforts to communicate and create awareness on PCBs, including the establishment of the project web site (World Bank-supported GEF-funded project – PCB Phase 1) - <http://pcbmgmt.org.ng>;
- ✓ The development and distribution of Information, Education and Communication (IEC) materials amongst the stakeholders and the general public; and
- ✓ Training and capacity building on PCB management.

To ensure continued progress towards increasing the capacity and training of Government and stakeholders, the PMU embarked on, and will continue its efforts in implementing the following:

- ✓ Strengthening capacities of local institutions on the implementation of PCB regulations and guidance;
- ✓ Training of operators on PCB identification, handling, transport and disposal.
- ✓ Improving and enforcing regulations on PCBs (drafting, enacting, enforcing them);
- ✓ Raising awareness and disseminating information about project objectives and results.

The capacity of stakeholders will be enhanced based on their required mandate in the management of PCBs, to result in a diverse array of skills and capabilities across stakeholder groups and levels. As such, capacities will be built for all relevant entities engaged in any of the following activities:

- **Policy, Rules and Regulatory Development:** Stakeholder capacity, specifically personnel from the Federal Ministries of Environment, of Health and Labour and Productivity and operators from the electrical companies, will be built to understand and interpret laws, treaties, etc., as well as

formulate plans and programmes, and rules and regulations that capture and implement the essence and intent of the laws;

- **Inspection, Compliance and Enforcement:** Training of personnel from the Federal Ministries of Environment, of Health and Labour and Productivity, will focus on the appropriate set of skills and tools to conduct site inspections to ensure compliance and where necessary enforce compliance of regulatory requirements;
- **Monitoring and Evaluation:** Enhance skills to monitor and evaluate project implementation for efficient and effective project management and documentation for personnel from the Federal Ministry of the Environment;
- **Legal Proceedings:** Develop sufficient legal skills to interpret and guide MDAs and other relevant entities on the development and implementation of PCB plans and programs;
- **Import and Export Exercise:** Develop sufficient skill within personnel from the Federal Ministry of the Environment and Customs Department to inspect, process and clear PCB-containing oil, equipment and materials either for export or import into the country;
- **Sampling, Testing and Analysis:** Develop sufficient technical skills within personnel of chemical laboratories, electrical companies and PCB service companies to enable proper protocols in collecting samples, testing and analyzing them in a manner consistent with international best practices;
- **Laboratory Science and Technology:** Develop adequate scientific and technical skills to conduct laboratory functions, especially for the identified labs / national reference labs;
- **Packaging and Transportation:** Develop skill sets within the personnel of the Federal Ministry of Environment, electrical companies and PCB service companies to properly package and transport PCB-containing or -contaminated oil, equipment and materials to ensure public health and safety, and preservation of the environment;
- **Storage, Handling and Disposal:** Develop skills within personnel from the Federal Ministry of Environment, electrical companies and operators of the temporary storage facilities and PCB treatment systems for the environmentally-sound management and maintenance of storage facilities, PCB-containing/contaminated oil, and PCB-containing/contaminated equipment and materials, prior to effective disposal using appropriate methodology and technology;
- **Servicing, Repairs and Maintenance:** Develop adequate skills within operators of electrical companies and service companies in charge of servicing, repairing and maintaining PCB-containing equipment, to ensure prevention of cross-contamination, spills and illegal discharges or disposals; and
- **Decontamination and Clean-up Operations:** Develop skill sets in operators of electrical companies, temporary storage facilities and treatment systems in decontaminating and cleaning up equipment and materials contaminated with PCBs.

Component 2 - Inventory of PCBs in States of Nigeria not previously covered by other Inventories

The Stockholm Convention requires that signatories have programmes to achieve the complete elimination of PCBs by year 2025. In order to achieve this target Nigeria needs first to know the extent of the PCB problem in the country and subsequently develop initiatives that will facilitate the achievement of desired results. Within this Component therefore, the project will establish the analytical capability in the country required to test for PCB contamination, carry out the testing of 11,000 electrical equipment (mainly transformers in the 22 states not previously covered), and the establishment of the MIS to house data on the project, including the one collected through previous studies. Nigeria will then have a recorded PCB inventory to cover the whole country, as well as the tools to continue the testing of the remaining pieces of equipment. Specifically the following Outcomes will be achieved:

- a. Establishment of PCB analytical capacity, including upgrading of analytical equipment in one laboratory and training of technical staff, and acquisition of a new laboratory for the operation of the treatment facilities;
- b. Sampling and analysis of 11,000 samples of oil from electrical equipment;
- c. Establishment of the PCB Management Information System for the 22 states covered by this inventory.

Upgrading of Laboratories for the Analysis of PCBs

Laboratory design includes various activities that can produce a highly functional laboratory. Hence, the upgrading of the SHETSCO Laboratory may involve structural and non-structural elements of laboratory design. These elements include space, case-work and furniture, storage, ventilation, lighting, and fresh and waste water. This activity will include the development and remodeling plan for the SHETSCO laboratory and procurement for two additional mobile laboratories for field testing, as well as carrying out the actual remodeling/upgrade for optimum functioning and installation of instruments and other laboratory equipment.

Inventory of PCBs in the remaining 22 States

The data obtained under the previously-conducted National Baseline Inventory of PCBs and PCB-containing equipment in 15 states have been entered into a database domiciled with the FMEnv. The next steps of the process will be to:

- ✓ Complete the National Baseline Inventory by undertaking sampling and analysis of dielectric oil in the 22 states not covered by the previous inventories, because being limited to an extrapolation from the limited number of available PCB analyses could lead to serious estimation errors. A certain level of extrapolation will be anyway necessary as the project cannot cover the sampling of all the transformers, and for the previous 15 states only a limited number of transformers for each state have been sampled.
- ✓ Build capacities of stakeholders involved in this activity - technical, administrative and analytical;
- ✓ Organise train-the-trainers workshop for key personnel;
- ✓ Periodically review and update the PCB Inventory Plan: a PCB Inventory Plan would be developed for stakeholders across project levels. For primary stakeholders as GENCOs, TCN and DISCOs, the facilities will be required to:
 - i. Develop a detailed PCB inventory plan which will entail capacity building on PCBs and PCB inventory procedures and techniques; capacity building on occupational health and safety in handling PCBs; PCB detection and analysis, and emergency procedures;
 - ii. Execute the inventory plan and identify PCB materials and concentrations within the facility;
 - iii. Obtain, register and submit a PCB registration form to the FMEnv, which is responsible for its development and dissemination and
 - iv. Update the PCB database with information from the forms.

Establishment of a Management Information System for PCBs

The project will establish a comprehensive management information system (MIS) that will include all relevant information collected in the inventory to be carried out as part of this project, the information collected from previous studies and any other data to be collected.

The MIS to be established as part of this project will help government officials and PCB owners to plan and implement treatment and decontamination activities, thus advancing the elimination of PCBs in Nigeria. Furthermore, the MIS will provide the Government with first-hand information on the milestones and progress towards PCB management in the country, also serving as a source for reporting to the Stockholm Convention, and other relevant parties that might require the information.

Component 3 - Establishment of PCB Collection and Treatment Center (PCBs Interim Storage Facilities)

Under this component, safe storage sites will be established for the collection and treatment of the PCBs identified in the course of the inventory. To this end, three sites have been identified as interim storage facilities – Neke Uno Interim Storage Site, Enugu State, Epe Interim Storage Site, Lagos State and the FCT site at SHESTCO. The design and construction of the facilities are yet to commence.

- **Site 1: Neke Uno Interim Storage Facility Site, Enugu State**

The Neke Uno site was selected and estimated suitable as an interim storage facility in December, 2014. The site is in a remote area of the Neke Uno Town, and away from any immediate human settlements. The site is located in the Enugu-East Local Government Area, about 20 km from Nike Lake Resort area, and about 300 meters from the main road. It is easily accessible from the highway connecting the City of Enugu and Opi Junction along the Nsukka-Ninth Mile Expressway. The overall land in the area is about 200 ha, but 1.6 ha required by the project has been allocated for the facility.

The project plan is that the pilot disposal/technology treatment centre will be located on this site; however, this will require additional planning and construction to accommodate the processing, treatment and disposal of PCB-containing or -contaminated equipment, materials and oil.

- **Site No. 2: Epe Interim Storage Facility Site, Lagos State**

This site is the second secured PCBs Interim Storage Facility site, located in Sala Village, at the outskirts of the Epe Township of Lagos State, presently designated for industrial development. The site is about 80 kilometers away from the LASEPA office in Alausa, Ikeja, Lagos. To its left is a land allocated by the Lagos State Government to the Nigerian Automobile Association for use as “Car Crushing Plant and Breakers Yard”. The site is easily accessible by a good asphalt paved road from Lagos, and it is part of a bigger portion of land belonging to the “Kula Chieftaincy Family”.

- **Site No. 3: Abuja, FCT**

The Abuja site is located within the Sheda Science and Technology Complex (SHESTCO) at km 32 on the Abuja-Lokoja Expressway. The facility is a para-statal under the Federal Ministry of Science and Technology. It is easily accessible along the expressway, and the overall land area is 6 hectares, although only 3 hectares will be required for the construction of the facility. It is anticipated that the site will serve as a safeguarding site where equipment, oil and materials will be processed. The geographic location of Abuja presents the highest viability for its centrality in relation to the Northern and neighbouring states to the FCT. A Memorandum of Understanding (MoU) has been signed between SHESTCO and the FMEnv regarding laboratory space as well as the site mentioned above.

Overall, the design and development of these sites are yet to be carried out. The project, through the PMU, will develop the terms of reference for activities, as well as the technical specifications for the procurement of ancillary technologies, infrastructures and disposal technologies or services. Contractors need to be hired to develop drawings and ultimately embark on construction of the necessary buildings and installation of technology and infrastructure as may be needed.

Component 4 - Environmentally Sound Management (ESM) of PCBs

At present there is no known facility certified or approved as having the capability, in Nigeria, to treat or dispose of PCBs. The inventory of PCBs in Nigeria conducted during Phase 1 of the project showed that the majority of enterprises send failed transformers and/or discharged PCBs for storage at specially designated locations within their premises.

Once the needed infrastructures and technologies have been procured, installed and are ready for operation, the treatment of low-contaminated PCB equipment and pure PCB will be carried out, in accordance with BAT/BEP, and at the best cost/effectiveness ratio. The presence of this equipment will need to be prepared at project preparation, so that the disposal activities can start in the early stage of project implementation, without waiting for the results of the extended PCB inventory.

Based on preliminary estimates, between 20 and 30% of all electrical transformers in Nigeria are contaminated with PCBs above the threshold level of 50 mg/kg. This means that nearly 30,000 transformers scattered all over the country are contaminated with PCBs and need to be properly managed and decontaminated. From previous inventory studies, more than 6,000 metric tons of PCB-contaminated electrical equipment have been already identified. **As part of this project, 1,500 MT of PCB-contaminated equipment (including oil) and 200 MT of pure PCB waste will be properly treated or disposed of, using environmentally sound technologies.**

The PCB equipment and waste to be treated will be transported to the collection and treatment center, and the disposal of at least 1,500 tons of PCB-contaminated equipment as well as 200 tons of pure PCB equipment will be carried out.

Project Stakeholders, namely Abuja Electric Distribution Company and Kaduna Electric, have already allocated a total of nearly USD 14,000,000 for the procurement of new transformers and capacitors intended to replace PCB-containing equipment from their network. Commitment letters indicating these and other funds to be used as co-financing in the project have been submitted by these two electrical companies.

As regards the decontamination of PCB-contaminated equipment and the mobile dechlorination equipment: the terms of reference that will be developed for these two activities will indicate a specified amount of time for the operation of the equipment to ensure the transfer of technology and best practices in Nigeria. Additionally, there will be a likely need for partnership between any international operator (if selected), and local firm of choice, so as to ensure sustainability of project results.

Component 5 - Monitoring, Learning, Adaptive Feedback and Evaluation

A web portal for sharing relevant project information has already been built, which will allow users access to data and documents, based on their user profile. Ultimately, public access will be granted for all the documents which are of public relevance, such as project performance, guidance documents, environmental impact assessment documents etc. Under this project, the website and database management will be enhanced to make the systems more user-friendly, allowing summaries and multimedia materials of the project activities to be uploaded on the portal periodically. Necessary information will also be printed and distributed, so as to reach those who do not have easy access to the web.

Some factors will need particularly close monitoring:

- i. Financial resources to conduct workshops and conferences to introduce and share experiences on POPs and PCBs management in other countries;
- ii. Incorporating and maintaining integrated Geographic Information System (GIS) with the MIS to enable mapping of electrical equipment contaminated by PCBs or containing PCB oil.

B. Incremental Cost Reasoning and Co-financing

This section presents the incremental cost reasoning and GEF contribution to the proposed alternative scenario, in comparison to the baseline, by project component. In summary, the information provides justification for proposed project activities, and funds allotted for their implementation.

Table 2: Baseline Scenario and Alternative Scenario with GEF support²

Component 1: Institutional Capacity and Training on PCBs	
Baseline Scenario	Alternative Scenario with GEF Support
The “National Policy Framework on PCB Management in Nigeria”, September 2014, developed under the WB Phase 1 project, has been endorsed by the Federal Ministry of environment. A legislative framework on PCBs is still missing in Nigeria. Current efforts by the Government to update regulations regarding PCBs may not be sufficient and Nigeria may not be able to meet its obligations under the Stockholm Convention because of the weak institutional and technical capacity. Some of the identified difficulties are as follows: • Owners of electrical equipment are not required to test and monitor PCB-contaminated equipment, therefore there is no accurate inventory of PCBs in the country. • There is no reliable information on PCB-contaminated oil and equipment already removed from the electrical network. • The lack of understanding of the harmful effects of PCBs prevents workers and the public from protecting themselves from exposure to the chemicals, or to be cautious about releases of PCBs and harmful chemicals into the environment.	The national regulation on PCB management and disposal will be drafted and proposed for approval to the Federal Government. Standards for the treatment of PCB-contaminated equipment and oil will be established. In addition, the project will complement the baseline scenario with the following activities that will ensure that government officials, owners of electrical equipment, NGOs and other stakeholders are aware of the requirements to manage their equipment and the health and environmental risks associated with PCBs: • Support to implementation of PCB regulations; • Training of government inspectors and workers potentially exposed to PCBs and development of guidelines for the environmentally sound management of PCBs; • Public awareness sessions with NGOs, representatives of academic institutions and the general public on the health and environmental risks associated with PCBs and other POPs.
Tentative Co-financing: USD 1,048,234	Requested GEF grant: USD 300,000
Component 2 – Inventory of PCBs in 22 States not Previously Covered	
Baseline Scenario	Alternative Scenario with GEF Support
The preliminary inventory carried out under the Canadian-Nigerian cooperation investigated 10 states. That inventory provided a first evidence of the presence of PCBs in the electrical sector. However, the effort had very limited scope, with the sampling of a limited number of equipment, which were not labeled for future management. Subsequently, the GEF/World Bank Phase 1 project set up and demonstrated a more comprehensive –	The project will complement the baseline project with the following activities: • Establishment of a management information system (MIS) to record all relevant data of PCB-contaminated transformers; • Acquisition of analytical tools to screen and test samples of transformer oil collected from obsolete and in-service equipment;

² This table does not include the USD 250,000 contribution from the UNDP Country Office, as well as the outcomes 5 and 6 (GEF funding).

though still limited - inventory in 15 Nigerian states. The amount of samples taken in each state is obviously not exhaustive, as only about 100 pieces of equipment were sampled per state on average. The baseline activities currently pursued by owners of electrical equipment are based on their own initiative and on a voluntary basis. The lack of technical and financial capacity of some of the owners of electrical equipment to test and properly manage PCB-containing transformers prevents the implementation of a systematic approach to the management of PCBs.	
• Sampling and analysis of 11,000 pieces of electrical equipment in 22 states in Nigeria not covered in previous studies; • Continue support of the efforts carried out in the rest of the country where owners of electrical equipment are implementing individual PCB monitoring plans.	
Tentative co-financing: USD 8,333,645 Requested GEF Grant: USD 1,516,500	
Component 3 – Establishment of PCB Collection and Treatment Centre	
Baseline Scenario Nigeria is a large country that covers an area of 923,768 km². Although the electrical network is concentrated in the most industrialized states, it covers most of the country's territory. Based on this reality, the main purpose of the GEF/WB project was to establish PCB collection centres where identified PCB wastes could be consolidated pending disposal. The temporary operation of mobile PCB decontamination technologies to treat the PCB wastes consolidated in these locations was envisioned. The baseline activities include the identification of physical locations where the PCB collection centres could be established. Collection and storage of PCB wastes from the areas around these collection centres was also an activity that was considered, but has never been implemented. The baseline activities currently being financed are: • Storage of PCB containing equipment in the compounds of some of the electrical facilities.	Alternative Scenario with GEF Support The alternative scenario includes the establishment of three PCB storage facilities where PCB wastes from surrounding areas can be consolidated and the PCB dechlorination technology can be temporarily installed and operated. The alternative scenario also includes the establishment of one treatment center, including pre-treatment facilities and a technology for the chemical treatment of equipment and oil contaminated by PCBs.
Tentative co-financing: USD 8,420,307 Requested GEF grant: USD 2,383,500	
Component 4 – Environmentally Sound Disposal of Identified PCBs	
Baseline Scenario The main purpose of the GEF/WB Phase 1 project was to identify and safeguard PCB-contaminated equipment for future treatment and disposal. However, there was no commitment to disposal of PCBs under that project. Without GEF support the identified PCB stockpiles will not be disposed of with national resources, and	Alternative Scenario with GEF Support The alternative scenario includes the acquisition of a mobile PCB dechlorination system and the construction of a PCB transformer decontamination facility. In addition, the project will include the decontamination of 1,500 MT of PCB-contaminated electrical equipment, mainly transformers and

the country will not develop the capacity to dispose future POPs stockpiles in an environmentally sound way.

switches containing PCB-contaminated mineral oil, and the disposal of 200 MT of pure PCB equipment.

Thus, the project will provide technical and financial support for:

- The acquisition of a mobile PCB dechlorination system to decontaminate PCB-contaminated transformers (a system that can both, continuously decontaminate in-service PCB transformer oil and that can be operated as a batch process to treat oil from small distribution transformers is preferred);
- The establishment of a PCB transformer decontamination facility where metallic components from electrical equipment could efficiently be decontaminated, allowing the recovery of copper and steel;
- The transfer of technical expertise and know-how that will remain in Nigeria beyond the duration of the project, allowing PCB owners to have access to efficient and economical decontamination options within the country.

Tentative Co-financing: 24,021,940

Requested GEF Grant: 2,200,000

C. Partnerships

The Federal Ministry of Environment (FMEnv) is the executing partner for the project, responsible for providing policy guidance and co-chairing the project Steering Committee with UNDP, which will be responsible for the overall coordination and monitoring of project implementation. The FMEnv, through the PMU, will also be responsible for coordinating project activities, including providing technical assistance and implementation support for the development of the new PCB regulations, communicating and disseminating it to the appropriate targets, and ultimately enforcing them. The ministry will also lead the preparation of the technical guidance materials and maintain communication with stakeholders as needed.

The National Electricity Regulatory Commission (NERC), will serve as a go-between, for the project and electrical institutions, to communicate information and ensure compliance with developed regulations. The **Nigeria Customs Service (NCS)** will be particularly important to involve, as they are key to increased enforcement of PCB-related regulations in the country.

The Transmission Company of Nigeria (TCN), the Abuja Electricity Distribution Company (AEDC), Kaduna Electric and other electricity companies in Nigeria are key partners to the project - AEDC and Kaduna Electric are providing substantial co-financing to the project. They will give the project access to their facilities and transformers for various activities to be implemented, such as the National Baseline Inventory, as well as PCB wastes, for treatment, and will support disposal activities – this is essential to the successful completion of the project.

Other partners will play mainly a supportive and advisory role within the project's implementation lifetime, in alignment with their respective mandates and specific project activities.

D. Stakeholder Engagement

This GEF project will assist the Federal Ministry of Environment in Nigeria to fill the gaps existing in the PCB regulatory framework. It will also provide the technical and financial resources necessary to increase the country's capacity to test, handle, treat and dispose of PCB wastes by increasing analytical capacity, training government and electrical utilities' personnel on the risks associated with PCBs and establishing within the country environmentally friendly and economical technologies for the safe dechlorination of PCB-contaminated oil and the decontamination of PCB-contaminated transformers.

This GEF project will build awareness on the links between waste management and public health (including occupational exposures), with a special focus on the health implications of exposure to the chlorinated PCB wastes for particularly vulnerable populations, such as female workers, pregnant women, and children who could live nearby these industrial areas.

The importance of this environmental initiative is of tremendous significance for the electrical utility industry, heavy users of electricity, environmental groups and the public in general. The project will thus spend significant efforts to promote the merits of the project and to create awareness about the risks associated with PCBs, and stakeholders mentioned above will actively be engaged throughout project implementation.

E. Gender Mainstreaming

The project recognizes the role of gender mainstreaming in realizing development outcomes; for the project to be truly successful, the differential impact of chemicals on women and men has to be understood, and gender-differentiated needs met, as it relates to access to and control over resources, roles, responsibilities and time used etc. A gender analysis carried out has informed actions the project might take to ensure men and women benefit equally and equitably from its activities, and that the aforementioned needs are incorporated into project implementation (see Annexes L and M). Five gender-targeted priorities are therefore identified for project implementation, namely: Enabling Environment, Inclusion and Participation, Technical Support and Synergies, Awareness Creation and Knowledge Management.

- ❖ **Enabling Environment:** Making the right inputs that will allow and facilitate implementation and achievement of objectives activities;
- ❖ **Inclusion and Participation:** For women to be positioned as much as men, to participate in the project, and benefit from the opportunities it brings;
- ❖ **Technical Support and Synergies:** To ensure effectively engendered processes so gender mainstreaming results are produced;
- ❖ **Awareness Creation:** Purposefully, to create demand for Gender Equality and Women Empowerment, at all project levels (community, national);
- ❖ **Knowledge Management:** Focused on generating knowledge on gender and the project context of chemicals management, while ensuring it is disseminated to stakeholders through appropriate channels.

Alongside findings from the analysis, the GEF Gender Equality Action Plan, the UNDP Gender Equality Strategy, and Gender Equality Provisions of the National Policy on the Environment, make up the programmatic framework for identified activities, establishing also the relevance of the effort. The project purposes to align to their mandates at any stage, to ensure that the project supports women's capabilities, enjoyment of rights, and their equal and meaningful participation as actors, leaders and decision makers. Annexes L and M provide the Gender architecture for the project, with the Gender Analysis, Gender Action Plan, and Gender Results Framework.

V. FEASIBILITY

A. Sustainability

It has to be noted that the project intends to establish in Nigeria an Environmentally Sound Management system for PCBs. The project will help the government of Nigeria to fill the gap and establish the regulatory framework to give users of PCBs the responsibility to test and properly manage equipment contaminated with PCBs.

Through the transfer into Nigeria of mobile PCB dechlorination technologies and the installation of a treatment facility for the decontamination of PCB-contaminated transformers, this GEF-funded project will provide Nigerian PCB owners with affordable and domestic disposal solutions that will remain available for them well beyond the completion of the project.

Additionally, the MIS to be established by the project will remain in use after the completion of the project. This accurate inventory of PCBs will help Nigerian PCB owners to plan and dispose their vast inventory of PCBs once their equipment has reached the end-of-life stage and before the 2025 target date included in the Stockholm Convention.

Furthermore, the knowledge to be transferred and/or developed through the implementation of this project will help the country to tackle other POPs and environmentally-sensitive materials.

B. Scale-up and Replication

This project is anticipated to be highly replicable with other nations globally, and in West Africa in particular, as many countries are just now implementing their legal infrastructure and completing initial national inventories under their respective NIPs. The procedures developed via this project for verification of inventory and PCB destruction (PCB traceability), facilitating access to services, strengthening capacity for enforcement at the federal and state levels, and for raising awareness, are replicable. All these should be easily considered by other countries with economies in transition and developing countries, whether directed towards the larger generators (primarily electrical sector) or PCB owners with a small number of transformers such as commercial and industrial facilities.

C. Project Cost Efficiency and Effectiveness

In general, cost effectiveness will be ensured at each stage of the project by adoption of tender-based (quality for affordable costs) UNDP procurement procedures for all the activities, including the selection of PCB management services and decontamination equipment rental/establishment.

UNDP has accumulated significant experience on the procurement and testing of disposal services for POPs-contaminated materials. If carried out with local technologies / facilities, the disposal is usually preceded by extensive testing of the technology conducted on significant amount of POPs waste, to certify its compliance with Stockholm and Basel Conventions' rules and standards. When carried out, technical specifications are prepared, encompassing the full range of services - from carrying out Basel Convention procedures for shipment, to packaging for final disposal and certification of waste destruction. This approach resulted in very high quality/cost ratio in other projects.

UNDP also has a unique experience in the pre-commercial testing of disposal technologies, through for instance the on-site testing conducted on technologies for the disposal of soil highly contaminated by PCDD/F in Vietnam, including the mechano-chemical technology.

D. Risks Measures and Management

As per standard UNDP requirements, the Project Coordinator will monitor risks quarterly and report on its status to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability is high (i.e. when impact is rated at 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks will also be reported to the GEF in the annual PIR.

The overall project's risk rating is considered as medium. SESP-related risks are accommodated within the broader risk framework, and are separately described in the SESP tool with proposed areas of attention/monitoring/follow-up actions for UNDP Country Office (see below and Annex F), defined to guide the compliance process.

Table 3: Risks and Risk Mitigation Measures

Please see Annex I.

E. Social and Environmental Safeguards

The overall risk rating under the Social and Environmental Environmental Screening Procedure (SESP) is "High" (see SESP, Annex F); consequently, the project will prepare an Environmental and Social Management Plan (ESMP).

In managing this project, strong oversight and safety principles will be applied by UNDP Nigeria during the project implementation process. Regular communication between UNDP and the PMU on key project milestones such as recruitment of international experts, step-wise project implementation, and oversight missions are all advised. A thorough tendering process to select qualified sub-contractors with a good track record and performance of similar contracts with UNDP or other GEF implementing agencies will consistently be applied.

The selection of the PCB dechlorination and decontamination technologies for PCB-contaminated oil and transformers will be based on developing the Terms of Reference to meet the needs of the country and exhaustive evaluation of the alternatives offered by internationally recognized vendors through an open and transparent UNDP tender process. Only commercially available technologies, with proven track records, will be considered for this project.

Activities related to the inventory of PCB-contaminated electrical equipment will be contracted out to companies with hands-on experience doing this activity and using personnel fully trained in working near energized electrical equipment and PCB-contaminated equipment, from both the Government and the private sector.

Operators potentially exposed to PCBs, involved in the packaging, transportation, handling and treatment of PCB-contaminated materials, will be fully trained and their competence tested before being allowed to carry out such activities. These training and testing requirements will minimize the risks of accidental releases of PCBs and the operators' potential exposure to these toxic materials.

All operations, once the project is approved by the GEF, will be undertaken using rigorous and well-established and documented international hazardous waste and dangerous goods management practices, procedures and standards, including those set out by the Basel and Stockholm conventions and GEF STAP guidelines, and internationally referenced OHS procedures for on-site workers. No direct social impacts are expected from the implementation, and public consultation in the local communities will be provided for during project implementation.

For all components, capacity building and training programmes will ensure the provision of internationally available expertise and advisory support, and specifically to local personnel involved in direct work on project sites.

VI. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goals: Sustainable Development Goals 1 (end poverty in all its forms everywhere), 3 (good health and well-being), 5 (gender equality), 6 (clean water and sanitation), 9 (resilient infrastructure, inclusive and sustainable industrialisation), 11 (sustainable cities), 12 (sustainable consumption and production), 13 (climate change), 14 (ocean and marine resources), 15 (life on land) and 17 (partnerships).					
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: Balanced and equitable regional economic growth based on sustainable planning and use of natural resources that will provide high quality of life and long-term economic opportunities for its inhabitants.					
This project will be linked to the following output of the UNDP Strategic Plan: Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.					
	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Project Objective: Reducing Nigeria's population exposure to PCB effects and associated risks	<i>Mandatory Indicator 1: Number of new partnership mechanisms with funding for sustainable management solutions of natural resources, ecosystem services, chemicals and waste at national and/or subnational level.</i>	<i>No public private partnership exists in Nigeria dedicated to the management and disposal of PCBs waste in Nigeria.</i>	<i>An agreement is reached between the Federal Ministry of the Environment and at least one Private company for the management and operation of the storage facilities and the operation of the mobile dechlorination and solid decontamination systems.</i>	<i>The 3 temporary PCB storage facilities, the mobile dechlorination and solid decontamination systems are fully operational and managed by a Private company under a PPP arrangement</i>	<i>There is at least one private company in Nigeria willing to undertake the responsibility to manage and operate the PCB storage facilities and the treatment technologies to be acquired by the project.</i> <i>The public-private partnership established to operate the PCB dechlorination system</i>

					<i>and the transformer decontamination facilities is effective and sustainable and will continue to offer PCB treatment services to PCB owners in Nigeria after project closure.</i>
	<i>Mandatory Indicator 2: Number of new jobs created through solutions for management of natural resources, ecosystem services, chemicals and waste.</i>	<i>As there is not any environmentally sound system for the management and disposal of PCBs in Nigeria, no job has been created yet</i>	<i>The implementation of this PCB project has created at least 20 jobs by mid-term</i>	<i>Fifty new permanent jobs to manage and operate the temporary storage facilities, operate the PCB treatment facilities, to manage the PCB programs within the electrical utilities, and to provide transportation and analytical support have been created by the full implementation of this PCB project.</i>	<i>The PCB owners and other stakeholders have the proper resources to manage and phase out the PCBs from Nigeria.</i>
	<i>Mandatory Indicator 3. Pure PCBs and of PCB-contaminated equipment safely managed and disposed or decontaminated by the end of the project,</i>	<i>People and workers are currently exposed to the risk posed by PCB-containing equipment stored or in-service. PCB contaminated oil is</i>	<i>Capacity of PCB owners have been built; Conditions are in place at the national level to identify, store and prepare PCB waste for disposal</i>	<i>The mobile dechlorination and solid decontamination systems are fully operational within Nigeria and ready to be operated beyond the project.</i>	<i>The PCB owners make their PCB-containing equipment available for the environmentally safe solutions being proposed by the project.</i>

	<i>reducing worker exposure and the potential for unintentional release of these materials into the environment.</i>	<i>being used, burnt or disposed without the proper care that it is required. No Financial resources are allocated to properly manage and dispose of PCB containing wastes.</i>		<i>Environmentally sound system for management and disposal of PCBs has been demonstrated.</i> <i>Laws and regulations are in place enabling this safe management practices.</i> <i>Lessons are available for similar treatment of other types of hazardous waste / dangerous chemicals; support and awareness is achieved at the public level, including a good understanding of advantages of safe management; differentiated impact on men and women of PCB exposure is demonstrated and widely known.</i>	<i>Identified PCB contaminated equipment are under control and secured for disposal until technologies or service delivered by the project are available.</i> <i>PCB dechlorination and solid decontamination systems for PCB-contaminated solids are acquired, demonstrated and fully operational in the planned timeframe.</i> <i>Handling of PCB equipment and disposal activities are carried out in an environmentally safe way without any harm to the individual health and the environment.</i>
Meeting targets for women inclusion and participation in project	<i>Women's share of positions at project level:</i>	<i>There is not any program in place to ensure women are</i>			<i>UNDP, the government of Nigeria and project's stakeholders are</i>

implementation, including training, recruitment and specific project activities and in stakeholders' jobs created	<i>Indicator 1: Women's share of positions within Project Board</i>	<i>given equal opportunities in the workplace in the context of PCB management activities</i>	<i>At least two women members of the Project Board</i>	<i>At least two women are in the Project Board</i>	<i>committed to increase empowerment of women in the country</i> <i>Women with technical and management skills as required for the implementation of the projects are available (among government officials and electrical/service company staff) and willing to be part of this project within Nigeria</i>
	<i>Indicator 2: Number of project consultants that are women</i>	<i>There is not any program in place to ensure women are given equal opportunities in the workplace in the context of PCB management activities</i>	<i>At least 20% (minimum 1) of project consultant are women</i>	<i>At least 40% representation of women in project consultancies</i>	<i>There are women with technical expertise to provide consultancy services</i>
	<i>Indicator 3: Number and percentage of women and men who receive training, by type of training earmarked</i>	<i>There is not any program in place to ensure women are given equal</i>	<i>At least 6 (20%) government enforcement officers and 20 (20%)</i>	<i>15 (50%) government enforcement officers and 50 (50%) operators from</i>	<i>There are sufficient number of women with technical background</i>

	<i>within project components</i>	<i>opportunities in the workplace in the context of PCB management activities</i>	<i>operators from electrical and other service companies are women</i>	<i>electrical and other service companies are women</i>	<i>interested in this area of work</i>
	<i>Indicator 4: Number of training sessions targeted which include a differentiated gender message/component</i>	<i>There is not any program in place to ensure women are given equal opportunities in the workplace in the context of PCB management activities</i>	<i>Two training sessions on the new regulations and environmentally sound management of PCBs to be completed, that include a differentiated gender message/component</i>	<i>Five training sessions on the new regulations and environmentally sound management of PCBs to be completed, that include a differentiated gender message/component</i>	<i>There are sufficient number of women and men with technical background interested in getting trained</i>
	<i>Indicator 5: Number of awareness activities providing targeted information, on risks of exposure to hazardous chemicals, with a differentiated gender message/component</i>	<i>There is not any program in place to provide information to women on the toxic effects of PCBs</i>	<i>At least 5 public meetings to provide information on the risks and proper management of PCBs are completed with a differentiated gender message/component</i>	<i>At least 15 public meetings in the country to provide information on the risks and proper management of PCBs are completed, with a differentiated gender message/component.</i>	<i>There are sufficient number of women interested in getting knowledge of the toxic effects of PCBs in women</i>
Component/Outcome 1 Institutional Capacity and Training on PCBs	<i>Indicator 6: Key technical and procedural guidance documents compliant with Stockholm Convention and national</i>	<i>No or insufficient guidelines for the ESM for PCB exists. There is not ESM for PCBs in the country.</i>	<i>Guidance documents for the ESM including the testing of PCBs in in-service and out-of-service equipment, labelling,</i>	<i>Guidance documents for the ESM including the testing of PCBs in in-service and out-of-service equipment, labelling, transportation, handling,</i>	<i>Environmental and health benefits regarding compliance with Guidance documents and ESM for</i>

	<i>regulation completed and endorsed.</i>	<i>Regulations regarding disposal of PCBs as a toxic waste are not fully enforced.</i> <i>No or insufficient technical level guidance material on ESM for PCB management exists.</i> <i>Some of the electrical companies have, at best, a voluntary and partial program to test some of the transformers removed from service, but results of this testing program are not automatically shared with government officials.</i>	<i>transportation, handling, storage and disposal of PCBs drafted and in initial stage of implementation.</i>	<i>storage and disposal of PCBs adopted and fully implemented.</i>	<i>PCBs are promoted in the country.</i> <i>The project staff spends significant efforts with government, and key stakeholders on the environmental and human health merits of the new ESM for PCBs and social, technical, legal and financial impact of the adoption of the new ESM system for these toxic wastes.</i>
	<i>Indicator 7: Number of operators of the electric sector and of the environmental control authority trained</i>	<i>No training on PCB issued delivered to operators in the electric sector countrywide.</i>	<i>Two Training sessions for government officials and electrical utility completed. 10 government enforcement officers</i>	<i>Five training sessions covering at least 30 government enforcement officers and 100 equipment operators</i>	<i>Senior management in electrical utilities approve participation of their workers in training and adopt ESM for PCBs</i>

	<i>and feeling confident in practically applying the ESM system for PCBs</i>		<i>and 30 operators from electrical companies are trained on the new PCB regulations and the proper management of PCBs.</i>	<i>(engineers and technicians) in the electric power sector representing all states in Nigeria on the ESM for PCBs are successfully completed.</i>	<i>in their respective organizations.</i>
	<i>Indicator 8: Gender Dimension in the context of PCBs issue in Nigeria completed, strategies for better Gender Mainstreaming in POPs related activities identified.</i>	<i>No gender dimension study ever carried out on PCBs in Nigeria.</i>	<i>One study to investigate the effect of PCBs in women, particularly lactating mothers, is completed.</i>	<i>One study to investigate the effect of PCBs in women, particularly lactating mothers is completed.</i> <i>Gender Mainstreaming for POPs management fully included to curricula of trainings above.</i>	<i>Enabling environment is achievable to ensure proper regulatory support.</i>
	<i>Indicator 9: Level of enforcement of Nigeria's law on PCB management strengthened, measured by number of inspection visits and high level of compliance observed.</i>	<i>Only staff at the central level in FMEnv and research institutions is knowledgeable about POPs in general and PCB issues in particular.</i>	<i>Gap analysis with special reference to enforcement needs completed at mid-term.</i> <i>Technical assistance to the environmental and Customs authorities on the enforcement of the law and technical regulation related to</i>	<i>Government inspectors for checking compliance with new ESM are fully trained and carrying site inspections in country-wide locations: joint participation of project staff and government representatives in at least 10 site inspections followed by assessment of the cases and</i>	<i>Government sets as a priority ESM of PCBs and requests and ensures that it is integrated within work programmes and training curricula of Customs and enforcement authorities in Nigeria.</i>

			<i>PCBs delivered through specialized trainings and joint participation of project staff and government representatives in at least 5 site inspections followed by assessment of the cases.</i> <i>Five company-wide PCB management plans drafted by participating companies.</i>	<i>documentation of the cases for the project.</i> <i>Training program curricula for new inspectors are fully developed.</i> <i>Annual report provided from year 3 of the project on implementation of PCB laws by Customs authorities.</i> <i>Ten company-wide PCB management plans drafted by participating companies.</i>	
Component/ Outcome 2 <i>Inventory of PCBs in 22 States not previously covered by other Inventories</i>	<i>Indicator 10: First nationwide inventory of PCBs completed. Government officials, electrical companies and other stakeholders reach a better understanding of the extent of the PCB problem in Nigeria and are able to plan and implement treatment and disposal activities.</i>	<i>Electrical equipment in important parts of the country have never been tested for PCB contamination. There is no systematic approach in identifying and recording PCB-contaminated equipment in the country.</i>	<i>Initiation of sampling and testing 11,000 pieces of equipment in 22 states not previously covered by other studies, with at least 5,500 transformers already tested, those found to contain above 50 mg/kg properly identified and</i>	<i>Testing of 11,000 pieces of electrical equipment completed and all those transformers found to contain PCBs above the threshold level of 50 mg/kg are properly labelled.</i> <i>MIS fully operational and containing data with the results of the 11,000</i>	<i>Owners of electrical equipment in the 22 states are ready and willing to facilitate access to their facilities and the sampling of their transformers, including by providing staff when required for these operations.</i>

		<i>There is no consistent procedure to test and manage PCB-contaminated transformers in Nigeria.</i>	<i>labelled; and the owners informed of the findings.</i> <i>Sampling and analytical procedures for testing PCB content in electrical equipment fully documented and adopted by electrical utilities and other owners of transformers.</i> <i>Management Information System (MIS) for PCB-contaminated transformers in Nigeria developed and fully implemented.</i>	<i>transformers covered by this study already and those from the previous work already recorded and analysed.</i> <i>Owners of PCB-contaminated transformers properly informed and aware of the need to manage these contaminated equipment appropriately, with a differentiated approach.</i>	
	<i>Indicator 11: An analytical laboratory is equipped and commissioned to carry out PCB analysis in transformer oil and solid components</i>	<i>There is not any analytical laboratory in Nigeria able to provide analytical services of PCB in transformer oil and solid components</i>	<i>At least one analytical laboratory gets established to provide PCB analysis using GC-ECD technique</i>	<i>In addition to the establishment of a fixed laboratory able to carry out PCB analysis in oil and solid material, a mobile laboratory to be mounted on the mobile PCB dechlorination</i>	<i>CEMAC has the resources available to acquire the necessary equipment and hire the proper personnel</i>

				<i>system is acquired and commissioned</i>	
	<i>Indicator 12: An innovative public-private partnership for the management of PCB contaminated equipment and waste is established and effectively supports national PCB disposal/decontamination effort.</i>	<i>No public-private partnership established in the country for the management of PCBs. Cooperation with private sector is not strong to support effective national PCB disposal/decontamination effort.</i>	<i>A public / private partnership for management of PCB contaminated equipment and waste established to conduct the activities related to ESM system on PCBs (completed at mid-term). Business plan and sustainability plan for the public/private partnership drafted. Appropriate level national communication on the PCB management plan ensured for better cooperation with the private sector.</i>	<i>Business plan and sustainability plan for the public/private partnership verified and amended based on experience gathered in the 1st and 2nd years of the project's activities.</i>	<i>A public private partnership to conduct ESM of PCB is more effective than a purely private or public institution due the fact that most PCB holders are public/private companies. Public institutions and private industry willing to establish a partnership to conduct ESM of PCB. Possibility exists that a foreign, international private company is willing to take part in the public-private partnership, to ensure international standards and expertise are shared.</i>
Component/ Outcome 3	<i>Indicator 13: Temporary Storage facilities for PCB-contaminated</i>	<i>The country does not have any dedicated storage facilities for</i>	<i>Storage facilities for the temporary storage of PCB contaminated</i>	<i>Three facilities for the temporary storage of PCB</i>	<i>Sites for the temporary storage facilities are identified and approved.</i>

Establishment of PCBs Collection and Treatment Centre	equipment designed, built and fully operational.	PCB contaminated equipment. These pieces of equipment when removed from service are stored in the open yards without any special precautions and clear disposal avenues.	equipment are designed and built. Transportation and consolidation of PCB-contaminated equipment in temporary storage facilities in the initial stage of implementation.	wastes are fully operational	Site for the construction of treatment facility for the decontamination PCB- contaminated transformers is identified and government approval obtained in time. UNDP experts and national stakeholders establish cooperation so that the technical specification and selection of proper technologies are really suited to the specific country situation and needs. Site for demonstration of mobile PCB dechlorination system is found and agreed by stakeholders. Operating Entity for the management and operation of PCB decontamination and
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					<i>dechlorination facilities identified.</i>
	<i>Indicator 14: Mobile PCB dechlorination unit procured and in use in the country</i>	<i>The country does not have any PCB dechlorination technology to treat the PCB contaminated oil</i>	<i>UNDP issued the contract for the design and construction of treatment facility for the mobile PCB dechlorination system</i>	<i>One mobile PCB dechlorination system is acquired and fully operational</i>	<i>Technologies for the safe decontamination of PCB-contaminated in a mobile dechlorination system is commercially available and vendors of these technologies submit bids to UNDP tenders within the project's budget.</i>
	<i>Indicator 15: Treatment facility for the decontamination of PCB-contaminated transformers designed, built and fully operational</i>	<i>The country does not have any treatment facility for the decontamination of PCB contaminated transformers</i>	<i>UNDP issued the contract for the design and construction of treatment facility for the decontamination of PCB-contaminated transformers</i>	<i>One treatment facility for the decontamination of PCB-contaminated transformers is built and fully operational.</i>	<i>Technologies for the safe decontamination of PCB-contaminated transformers are commercially available and vendors of these technologies submit bids to UNDP tenders within the project's budget.</i>
Component/ Outcome 4	<i>Indicator 16: 200 tons of pure PCBs are safely managed and disposed</i>	<i>No records of PCB wastes exported for disposal in acceptable facilities</i>	<i>The 200 MT of pure PCB electrical equipment to be disposed of as part of</i>	<i>Disposal of 200 MT of pure PCB electrical equipment is completed.</i>	<i>PCB owners are willing to provide PCB wastes</i>

Environmentally Sound Disposal of Identified PCBs		exist. Therefore, any PCB-contaminated equipment removed from service has been disposed as non-PCBs and thereby releasing the PCBs into the environment and exposing humans to these toxic materials.	the project are identified. Options for the disposal of 200 MT of pure PCB electrical equipment are discussed and planned.		Disposal options for pure PCB electrical equipment is available and accessible to the project.
	Indicator 17: 1,500 tons of PCB-contaminated equipment are safely managed and disposed	Nigeria does not have any treatment or disposal facility for the proper decontamination or disposal of PCB wastes. Therefore, any PCB-contaminated equipment removed from service has been disposed as non-PCBs and thereby releasing the PCBs into the environment and exposing humans to these toxic materials	The 1,500 MT of PCB-contaminated equipment to be treated have been identified and at least 75% of the equipment have already been consolidated by transportation to treatment centres in its early stage. Plan to use dechlorination system and decontamination system for PCB-contaminated transformers is prepared and	Treatment and decontamination of the 1,500 MT of PCB contaminated equipment are completed. Plans to continue the dechlorination of PCB-contaminated oil are completed and ready for implementation.	PCB owners are willing to provide PCB wastes Mobile PCB dechlorination is approved and able to be sited in different locations within the country.

			<i>discussed and agreed with PCB owners</i>		
Component/ Outcome 5 Monitoring, Learning, Adaptive feedback and Evaluation	<i>Indicator 18: Documentary evidence that project's results are sustained and replicated through proper M&E and Knowledge Management actions.</i>	<i>N/A</i>	<i>Inception activities carried out, project management structure implemented, project reporting and planning established and implemented</i> <i>Midterm Evaluation and auditing activities carried out.</i>	<i>Project reporting and planning continued until project end</i> <i>Terminal and auditing activities carried out; terminal reporting completed and submitted to Government of Nigeria, UNDP and GEF.</i> <i>Lessons learned and best practices are properly documented and disseminated at national level and at least in two other developing countries that are interested in this experience.</i>	<i>All the relevant stakeholders are well aware of GEF/UNDP rules as well as National Legislation, and willing to cooperate in the timely establishment of project management structures</i> <i>Project reporting and planning mechanisms and templates are timely communicated and agreed with project management staff at all levels.</i> <i>Project stakeholders actively cooperating in all evaluation and auditing activities.</i> <i>Evaluations and auditing are carried out in an independent and professional way, with</i>

					<i>the purpose to enhance project activities and generate recommendations for project success and sustainability after project closure.</i>
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VII. MONITORING AND EVALUATION (M&E) PLAN

A. Overview

Monitoring during the project will shed light on how the project is advancing towards development objectives. While monitoring will be an ongoing process, evaluation will take place at key project milestones, i.e. the mid-term and project end, when reviews will be carried out. The responsibility of monitoring will lie with the monitoring and evaluation section of the PMU, to be headed by the Project Coordinator, while evaluation will require an external evaluator.

Measuring results accurately, and at given milestones, is central to the success of the project, as well as dissemination of information to project stakeholders. Quarterly and annual reports detailing experiences, challenges and lessons, will inform the project's pace, and help guide decisions on what may change, and how implementation might progress.

The Project Results Framework in Section VI will be reviewed during mid-term and prior to project end, by an external evaluator engaged for the task.

The project results will be properly documented from the start of the project and the project results framework will be monitored annually. This continuous monitoring and evaluation activities will ensure that the project is properly implemented, as planned, whilst achieving targeted goals. As well, there will be documentary evidence that project's results are sustained and replicated through proper knowledge management and monitoring and evaluation actions.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). While these UNDP requirements are not outlined in this project document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to standard. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the [GEF M&E policy](#) and other relevant GEF policies.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop – they will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in the project's M&E activities, including the GEF Operational Focal Point and national/regional institutions assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country.

B. M&E Oversight and Monitoring Responsibilities

Project Coordinator: The Project Coordinator is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Coordinator will ensure that all project staff maintains a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Coordinator will inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted. She/he can be supported by national consultants on specific M&E tasks, as required.

The Project Coordinator will develop annual work plans based on the multi-year work plan included in Annex A, including annual output targets to support the efficient implementation of the project. The

Project Coordinator will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. gender strategy, KM strategy etc.) occur on a regular basis.

Project Board: The Project Board or Project Steering Committee will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up, as well as highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

Project Implementing Partner: The Implementing Partner is responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes, and that they are aligned with national systems so that the data used by and generated by the project supports these systems.

UNDP Country Office: The UNDP Country Office will support the Project Coordinator as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key GEF M&E activities including the annual GEF PIR, the independent mid-term review and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

The UNDP Country Office is also responsible for complying with all UNDP project-level M&E requirements as outlined in the [UNDP POPP](#). This includes ensuring: the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported on using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Coordinator.

Furthermore, the UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

Audit: The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.³

³ See guidance here: <https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx>

C. Additional GEF Monitoring and Reporting Requirements

Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties, amongst others to:

- a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation;
- b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
- c) Review the results framework and finalize the indicators, means of verification and monitoring plan;
- d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;
- e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the knowledge management strategy, and other relevant strategies;
- f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
- g) Plan and schedule Project Board meetings and finalize the first-year annual work plan.

The Project Coordinator will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.

GEF Project Implementation Report (PIR): The Project Coordinator, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Coordinator will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, with progress reported also in the PIR.

The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate, while the quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR. The PIR submitted to the GEF will be shared with the Project Board.

Lessons Learned and Knowledge Generation: Results from the project will be disseminated within and beyond the project intervention area through existing information-sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyze and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between the project and other projects of similar focus in the country, within the region, and globally.

GEF Focal Area Tracking Tool: The following GEF Tracking Tool will be used to monitor global environmental benefit results:

The baseline/CEO Endorsement GEF Focal Area Tracking Tool – included as Annex D of this project document – will be updated by the Project Coordinator/Team and shared with the mid-term review consultants and terminal evaluation consultants before the required review/evaluation missions take

place. The updated GEF Tracking Tool will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

Independent Mid-term Review (MTR): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, the report submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project's evaluation. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the MTR process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Coordinator will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publicly available in English on the UNDP ERC.

The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP ERC. Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

Final Report: The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report shall be discussed with the Project Board during an end-of-project review meeting to discuss lessons learned and opportunities for scaling up.

Table 4: Mandatory GEF M&E Requirements and M&E Budget

GEF M&E Requirements	Primary Responsibility	Indicative costs to be charged to the Project Budget ⁴ (US\$)		Timeframe
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	USD 11,000		Within two months of project document signature
Inception Report	Project Coordinator	None	None	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, Annually
Monitoring of indicators in project results framework	Project Coordinator	Per year: USD 4,000 (Total USD 20,000 for 5 years)		Annually
GEF Project Implementation Report (PIR)	Project Coordinator and UNDP Country Office and UNDP-GEF team	None	None	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	Per year: USD 4,000 (Total USD 20,000 for 5 years)		Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation	Project Coordinator	2,500		On-going
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Coordinator UNDP CO	None		On-going
Addressing environmental and social grievances	Project Coordinator UNDP Country Office BPPS as needed	None for time of project Coordinator, and UNDP CO		

⁴ Excluding project team staff time and UNDP staff time and travel expenses.

GEF M&E Requirements	Primary Responsibility	Indicative costs to be charged to the Project Budget ⁴ (US\$)		Timeframe
		GEF grant	Co-financing	
Project Board meetings	Project Board UNDP Country Office Project Coordinator	5,000		At minimum annually
Supervision missions	UNDP Country Office	None ⁵		Annually
Oversight missions	UNDP-GEF team	None ⁶		Troubleshooting as needed
Knowledge management as outlined in Outcome 4	Project Coordinator	USD 51,500		On-going
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Coordinator and UNDP-GEF team	None		To be determined (ad hoc)
Mid-term GEF Tracking Tool	Project Coordinator	USD 10,000		Before mid-term review mission takes place
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 25,000		Between 2 nd and 3 rd PIR.
Terminal GEF Tracking Tool	Project Coordinator	USD 10,000		Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 45,000		Initiated at least three months before operational closure
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		USD 200,000		

⁵ The costs of UNDP Country Office participation and time are charged to the GEF Agency Fee.

⁶ The costs of UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

VIII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

A. Governance Roles and Responsibilities

The project will be implemented mainly at the Federal and State Levels, with the Pollution Control and Environmental Health Department (PCEHD) of the Federal Ministry of Environment undertaking overall project oversight, through the PMU. The PMU will work closely with relevant Ministries, Agencies and Departments, as well as electrical facilities, to achieve the development outcomes and results. The following describes the institutional arrangements, including roles and responsibilities of various institutions.

The project will be implemented over a period of five years, starting in the year 2018. The project will be nationally executed under UNDP's National Implementation Modality (NIM) according to the Standard Basic Assistance Agreement between UNDP and the Government of Nigeria, and the Country Program Document (CPD).

The **Implementing Partner** for this project is the Federal Ministry of Environment, responsible and accountable for managing the project, including the monitoring and evaluation of project activities, achieving project outcomes, and for the effective use of UNDP resources.

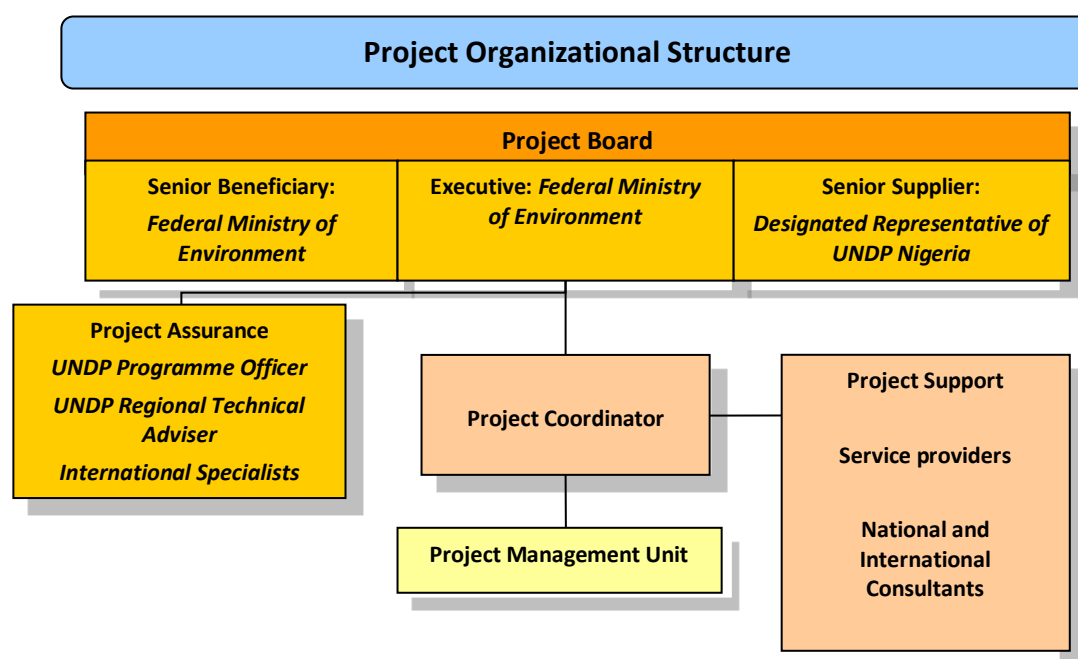


Figure 3. Project Organizational Structure

The **Project Board** (also called Project Steering Committee or PSC) is responsible for taking, by consensus, management decisions when guidance is required by the Project Coordinator, including recommendation for UNDP/Implementing Partner approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the Senior Supplier. The terms of reference for the Project Board will be completed at the time of the Project Inception workshop and adopted during that workshop. The Project Board comprises of the following institutions:

- Federal Ministry of Environment: Director of the PCEHD;

- UNDP: Designated Representative.
- Federal Ministry of Environment (GEF Desk Office)
- Federal Ministry of Information and National Orientation
- Federal Ministry of Power
- Federal Ministry of Health
- Federal Ministry of Labor
- Federal Ministry of Finance
- Federal Ministry of Transportation
- Nigeria Customs Service
- CEMAC
- AEDC
- Kaduna Electric
- An NGO (Center for Energy and Environmental Sustainability).

The **Project Coordinator** will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Coordinator's function will end when the project terminal evaluation report is finalised, and all other documentation required by the GEF and UNDP has been completed and submitted to UNDP (including operational closure of the project).

Project Assurance: UNDP provides a three-tier supervision, oversight and quality assurance role – funded by the GEF agency fee – involving UNDP staff in Country Offices and at regional and headquarters levels. Project Assurance must be totally independent of the Project Management function. The quality assurance role supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. This project oversight and quality assurance role is covered by the GEF Agency. The **project assurance** role will be provided by the UNDP Country Office, while additional quality assurance will be provided by the UNDP Regional Technical Adviser, and additional support may be requested from International specialists (as needed).

B. Governance Role for Project Target Groups

Both the PMU and the PSC will implement mechanisms to ensure ongoing stakeholder participation and effectiveness from the start of the Project by conducting regular stakeholders' meetings, issuing a regular project electronic newsletter, conducting feedback surveys, implementing strong project management practices, and having close cooperation with UNDP Nigeria.

UNDP Direct Project Services as requested by Government:

The UNDP, as GEF Agency for this project, will provide project management cycle services for the project as defined by the GEF Council. In addition, the Government of Nigeria may request UNDP direct services for specific purposes, according to its policies and convenience. The UNDP and Government of Nigeria acknowledge and agree that those services are not mandatory, and will be provided only upon Government request. If requested, the services would follow the UNDP policies on the recovery of direct costs. These services (and their costs) are specified in the Letter of Agreement (Annex K). As is determined by the GEF Council requirements, these service costs will be assigned as Project Management Cost and duly identified in the project budget as Direct Project Costs. Eligible Direct Project Costs should not be charged as a flat percentage. They should be calculated on the basis of estimated actual or transaction based costs and should be charged to the direct project costs account codes: "64397- Services to projects – CO staff" and "74596 - Services to projects COE for CO".

Agreement on Intellectual Property Rights and Use and Disclosure of Information:

In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, and other written materials, such as publications, developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies, notably the UNDP Disclosure Policy⁷ and the GEF policy on public involvement.⁸

Project Management:

The Project management will be executed through the Project Management Unit (PMU). The Project Management Unit (PMU) will be established by Federal Ministry of the Environment of the Republic of Nigeria. The PMU will work with closely with representatives of other ministries, electrical utilities. The project office will be situated at Plot 1B Mao Tse-Tung Street, Asokoro, Abuja, FCT, Nigeria – as has been confirmed by the Government of Nigeria. The close proximity between the PCB Project Management Unit and UNDP offices will contribute to the coordination with UNDP staff and help the smooth implementation of the project.

⁷ See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

⁸ See https://www.thegef.org/gef/policies_guidelines

IX. FINANCIAL PLANNING AND MANAGEMENT

A. Overview

The total cost of the project is USD **49,004,126**. This is financed through a GEF grant of USD 6,930,000 and USD 41,824,126 in parallel co-financing, not including UNDP's cash co-finance contribution of USD 250,000. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources. As indicated on page 2 above, it is not anticipated that any Cash parallel co-financing will be administered by UNDP as part of this project. Consequently, the cash co-financing indicated in the table below is not to be transferred on a UNDP bank account. The UNDP Nigeria cash contribution will be for staff participation, project vehicle, monitoring and evaluation purposes, and will be provided yearly up to the amount of USD 50,000 per year.

B. Parallel Co-financing

The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. The planned parallel co-financing will be used as follows:

Co-financing Source	Co-financing Type	Co-financing Amount in US \$	Planned Activities/Outputs	Risks	Risk Mitigation Measures
FMEnv.	In-kind	5,025,000	Personnel capacity building, Regulatory development and compliance, Inventory and provision of lands for interim storage of PCBs in Lagos and Enugu	<i>Difficulties related to the accounting of in-kind support and provision of land</i>	<i>Accounting mechanisms and rules will be clearly established at inception and regularly monitored throughout project implementation.</i>
CEMAC	In-kind	4,135,000	Resources allocated for establishing the PCB analytical capability and provide PCB analysis for duration of the project	<i>Coordination issues may arise. Investment may be subjected to the sustained financial capacity of the Centre</i>	<i>Coordination ensured through participation of CEMAC on PSC. CEMAC is committed to support this project.</i>
CEMAC	Cash	2,350,000	Capital investment required for the establishment and maintenance of PCB analytical capability as support to PCB project at the Centre	<i>Coordination issues may arise. Investment may be subjected to the sustained financial capacity of the Centre</i>	<i>Coordination ensured through participation of CEMAC on PSC. CEMAC is committed to support this project.</i>

AEDC	In-Kind	60,000	Personnel training	<i>Delays in project implementation</i>	<i>Coordination ensured through participation of AEDC on PSC</i>
AEDC	Cash	145,000	Contracting testing & analysis and procurement of computers and software for data management	<i>Delays in project implementation</i>	<i>Coordination ensured through participation of AEDC on PSC</i>
AEDC	Cash	50,000	Procurement of sampling and analysis instrument	<i>Delays in project implementation</i>	<i>Coordination ensured through participation of AEDC on PSC</i>
AEDC	Cash	6,000,000	Procurement of transformers, capacitors and transformer oil	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>AEDC has already allocated funds in company's capital budget</i>
AEDC	In-kind	2,510,000	Equipment removal and replacement	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>AEDC has already allocated funds in company's capital budget</i>
AEDC	In-kind	8,325,000	Operation and services	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>AEDC has already allocated funds in company's capital budget</i>
AEDC	Cash	500,000	Company's interim PCB storage construction and use	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>AEDC has already allocated funds in company's capital budget</i>
Kaduna Electric	In-Kind	389,117	Personnel training	<i>Delays in project implementation</i>	<i>Coordination ensured through participation of Kaduna Electric on PSC</i>
Kaduna Electric	Cash	1,284,086	Contracting testing & analysis and procurement of computers and software for data management	<i>Delays in project implementation</i>	<i>Coordination ensured through participation of Kaduna Electric on PSC</i>
Kaduna Electric	Cash	194,559	Procurement of sampling and analysis instrument	<i>Delays in project implementation</i>	<i>Coordination ensured through participation of Kaduna Electric on PSC</i>

Kaduna Electric	Cash	7,782,340	Procurement of transformers, capacitors and transformer oil	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>Kaduna Electric has already allocated funds in company's capital budget</i>
Kaduna Electric	In-kind	505,852	Equipment removal and replacement	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>Kaduna Electric has already allocated funds in company's capital budget</i>
Kaduna Electric	In-kind	1,439,733	Operation and services	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>Kaduna Electric has already allocated funds in company's capital budget</i>
Kaduna Electric	Cash	1,128,439	Company's interim PCB storage construction and use	<i>Investment may be subjected to the sustained financial capacity of the enterprise.</i>	<i>Kaduna Electric has already allocated funds in company's capital budget</i>
Total		41,824,126			

C. Budget Revision and Tolerance

As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan, allowing the project coordinator to expend up to the tolerance level beyond the approved project budget amount for the year, without requiring a revision from the Project Board. Should the following deviations occur (listed below in a) and b)), the project coordinator and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF.

- a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more;
- b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

Any expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC).

D. Project Closure and Refund

Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. On an exceptional basis only, a no-cost extension beyond the initial duration of the project will be sought from in-country UNDP colleagues and then the UNDP-GEF Executive Coordinator.

Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

E. Operational and Financial Completion

The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report, the corresponding management response, the end-of-project review, and the final Project Board meeting. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed

and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Financial completion on the other hand will occur when the following conditions have been met:

- ✓ The project is operationally completed or has been cancelled;
- ✓ The Implementing Partner has reported all financial transactions to UNDP;
- ✓ UNDP has closed the accounts for the project;
- ✓ UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

F. Transfer or disposal of assets:

In consultation with the NIM Implementing Partner and other parties of the project, UNDP programme manager (UNDP Resident Representative) is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project. In all cases of transfer, a transfer document must be prepared and kept on file.

X. TOTAL BUDGET AND WORK PLAN

Atlas Proposal or Award ID:	105607	Atlas Primary Output Project ID:	106795
Atlas Business Unit	NGA10		
Atlas Primary Output Project Title	Environmentally Sound Management and Disposal of PCBs in Nigeria		
UNDP-GEF PIMS No.	5720		
Implementing Partner	Federal Ministry of the Environment		

GEF Outcome/Atlas Activity	Responsibility	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget note
Component / Outcome 1. Institutional capacity and training on PCBs	Federal Ministry of the Environment	62000	GEF	71200	International Consultants	10,000	10,000	0	0	0	20,000	1
				71300	Local Consultants	50,000	45,000	10,000	10,000	5,000	120,000	2
				71400	Contractual Services Individual	30,000	20,000	15,000	15,000	12,500	92,500	3
				71600	Travel	6,000	6,000	6,000	15,000	6,000	39,000	4
				72500	Office supplies	1,500	500	500	500	500	3,500	5
				74500	Miscellaneous	2,000	2,000	2,000	2,000	2,000	10,000	6
				72100	Contractual Services-Companies	4,000	5,000	3,000	3,000	0	15,000	7
		Sub-total GEF		103,500	88,500	36,500	45,500	26,000	300,000			
	4000	UNDP	75700	Trainings, Workshops & Confer	20,000	15,000	0	0	0	35,000	8	
			Sub-total UNDP		20,000	15,000	0	0	0	35,000		
TOTAL OUTCOME 1						123,500	103,500	36,500	45,500	26,000	335,000	
Component/ Outcome 2.		62000	GEF	71200	International Consultants	10,000	10,000	10,000	10,000	7,000	47,000	9

Inventory of PCBs in 22 states of Nigeria not previously covered by other inventories	Federal Ministry of the Environment			71300	Local Consultants	20,000	20,000	20,000	20,000	16,000	96,000	10
				71400	Contractual Services Individual	23,000	23,000	23,000	23,000	13,000	105,000	11
				71600	Travel	16,000	15,500	15,000	15,000	10,000	71,500	12
				72500	Office supplies	5,000	4,000	4,000	4,000	2,000	19,000	13
				72100	Contractual Services-Companies	700,000	150,000	100,000	100,000	100,000	1,150,000	14
				74500	Miscellaneous	7000	6,000	5,000	5000	5000	28,000	15
				Sub-total GEF		781,000	228,500	177,000	177,000	153,000	1,516,500	
		4000	UNDP	72100	Contractual Services-Companies	10,000	10,000	0	0	0	20,000	16
	Sub-total UNDP		10,000	10,000	0	0	0	20,000				
	TOTAL OUTCOME 2					791,000	238,500	177,000	177,000	153,000	1,536,500	
Component / Outcome 3. Establishment of PCB collection and treatment centres	Federal Ministry of the Environment	62000	GEF	71200	International Consultants	10,000	10,000	10,000	6,000	6,000	42,000	17
				71300	Local Consultants	12,000	12,000	10,000	10,000	10,000	54,000	18
				72100	Contractual Services-Companies	300,000	218,000	700,000	600,000	200,000	2,018,000	19
				71400	Contractual Services Individual	20,500	20,500	20,500	20,500	20,500	102,500	20
				71600	Travel	40,000	30,000	30,000	30,000	20,000	150,000	21
				74500	Miscellaneous	4,000	4,000	4,000	3,000	2,000	17,000	22
				Sub-total GEF		386,500	294,500	774,500	669,500	258,500	2,383,500	
		4000	UNDP	72100	Contractual Services-Companies	20,000	20,000	10,000	10,000	10,000	70,000	23
	Sub-total UNDP		20,000	20,000	10,000	10,000	10,000	70,000				
	TOTAL OUTCOME 3					406,500	314,500	784,500	679,500	268,500	2,453,500	
Component/ Outcome 4. Environmentally sound disposal of identified PCBs	Federal Ministry of the Environment	62000	GEF	71200	International Consultants	10,000	10,000	6,000	6,000	6,000	38,000	24
				71300	Local Consultants	12,000	12,000	10,000	10,000	5,000	49,000	25
				72100	Contractual Services-Companies	200,000	500,000	600,000	570,000	54,000	1,924,000	26

				71400	Contractual Services Individual	10,000	10,000	10,000	10,000	10,000	50,000	27
				71600	Travel	30,000	30,000	30,000	20,000	10,000	120,000	28
				74500	Miscellaneous	5,000	5,000	3,000	3,000	3,000	19,000	29
				TOTAL OUTCOME 4		267,000	567,000	659,000	619,000	88,000	2,200,000	
Component / Outcome 5. Monitoring, Learning, Adaptive Feedback and Evaluation	Federal Ministry of the Environment	62000	GEF	71200	International Consultants	0	20,000	0	0	20,000	40,000	30
				71300	Local Consultants	8,000	15,000	15,000	12,000	5,000	55,000	31
				75700	Training, Workshops and Conferences	10,000	10,000	10,000	10,000	10,000	50,000	32
				72500	Office supplies	3,000	2,000	2,000	2,000	1,000	10,000	33
				71400	Contractual Services Individual	5,000	5,000	5,000	5,000	5,000	25,000	34
				74100	Audit	4,000	4,000	4,000	4,000	4,000	20,000	35
				Sub-total GEF		30,000	56,000	36,000	33,000	45,000	200,000	
		4000	UNDP	75700	Training, Workshops and Conferences	10,000	10,000	10,000	10,000	10,000	50,000	36
				Sub-total UNDP		10,000	10,000	10,000	10,000	10,000	50,000	
				TOTAL OUTCOME 5		40,000	66,000	46,000	43,000	55,000	250,000	
Project Management Costs	Federal Ministry of the Environment (Except 64397/74596 – Services to Projects: UNDP Nigeria)	62000	GEF	71400	Contractual services individual	17,000	17,000	17,000	17,000	17,000	85,000	37
				72200	Equipment	65,000	3,000	3,000	3,000	2,500	76,500	38
				74596	Services to Projects	14,000	18,000	25,000	18,000	12,565	87,565	39
				72400	Communication	4,000	3,500	3,000	3,000	2,435	15,935	40
				72500	Office supplies	1,000	1,000	1,000	1,000	1,000	5,000	41
				73100	Rental & maintenance – prem.	12,000	12,000	12,000	12,000	12,000	60,000	42
				Sub-total GEF		113,000	54,500	61,000	54,000	47,500	330,000	
		4000	UNDP	71400	Contractual Services Individual	15,000	15,000	15,000	15,000	15,000	75,000	43
		Sub-total UNDP				15,000	15,000	15,000	15,000	15,000	75,000	
		TOTAL OUTCOME 6				128,000	69,500	76,000	69,000	62,500	405,000	

PROJECT TOTAL (GEF)	1,681,000	1,289,000	1,744,000	1,598,000	618,000	6,930,000	
PROJECT TOTAL (UNDP)	75,000	70,000	35,000	35,000	35,000	250,000	
PROJECT TOTAL (GEF+UNDP)	1,756,000	1,359,000	1,779,000	1,633,000	653,000	7,180,000	

Budget Notes

1. Two international consultants for 20 days each @ 500 USD/day, to provide technical assistance on legislation, drafting of guideline and guidance, training; to assist on technical revision of document, drafting of technical specification, reviewing technical reports, etc.
2. Team of 3 local consultants, 1 for 100 days at 400 USD/day and 2 for 200 days at USD 200/day each with experience in environmental legislation/policies, waste management, disposal technologies to provide technical assistance on legislation, drafting of guidelines and guidance, and training.
3. Fee for full-time project staff for time spent on activities in Component 1 (Project Coordinator, 135 days at US \$ 400 per day, Technical Officer, 120 days at US \$ 200 per day and Administrative/Financial Assistant, 140 days at US \$ 100 per day).
4. National travel for project staff and consultants. Total number of trips estimated at 13 with US \$ 3,000 cost per trip.
5. Office supplies, estimated at US \$ 3,500 for the 5 years spent in component 1 for the preparation of documentation and promotional materials in training sessions and public meetings.
6. Various miscellaneous expenses which are permitted by the rules.
7. Contractual services for project website development and maintenance; and dissemination of project results. The project will have its own web page to be used by the PMU to inform of the project's progress and to promote the different activities, particularly training sessions and public consultations meetings.
8. Training workshops and capacity building for the staff of the Federal Ministry of Environment and participating states (\$200/per person, DSA/travels for 100 pers for 2 days each)
9. International consultants to provide training, guidance and quality control on sampling and laboratory work. One consultant for 40 days at a rate of USD 700 per day and the second consultant for 38 days at a rate of USD 500 per day.

10. Team of 3 National consultants for 160 days each and a rate of USD 200/day to supervise and facilitate the work of the contractor in charge of PCB sampling and analysis.
11. Fee for full-time project staff for time spent on activities in Component 2 (Project Coordinator, 150 days at US \$ 400 per day, Technical Officer, 150 days at US \$ 200 per day and Administrative/Financial Assistant, 150 days at US \$ 100 per day).
12. Travel of National and international consultant within Nigeria during PCB inventory phase.
13. Office supplies. Acquisition of computers and software for project office and personnel.
14. Contractual services for sampling and analysis of dielectric oil from transformers, entered in a database and procurement of laboratory equipment.
15. Various miscellaneous expenses which are permitted by the rules.
16. Contractual services for sampling and analysis of dielectric oil from transformers, entered in a database and procurement of laboratory equipment
17. Two International consultants to carry out a) training on PCB disposal technologies; b) assistance on technical specification and procurement for disposal technologies; c) supervision of technology acceptance procedure; d) supervision of PCB handling and disposal operations. Both of them for 35 days, one consultant at a rate of USD 700 per day and the second consultant at a rate of USD 500 per day.

18. Two national consultants to provide technical assistance on TOR development, design of storage facilities, supervision of contract operations, environmental permitting, reporting, and liaising with environmental authorities and owners of PCB contaminated equipment for 90 days each, one at a rate of USD 400/day and the second one at a rate of USD 200/day.
19. Contractual services for the provision of the following: a) construction of 3 PCB storage facilities at USD 100,000 each; b) supply of a mobile dechlorination system for PCB-contaminated transformer oil at USD 900,000; and c) supply of a decontamination system for PCB-contaminated solid from electrical equipment for USD 818,000.
20. Fee for full-time project staff for time spent on activities in Component 3 (Project Coordinator, 125 days at US \$ 400 per day, Technical Officer, 150 days at US \$ 200 per day and Administrative/Financial Assistant, 225 days at US \$ 100 per day).
21. Travel within Nigeria of national and international consultants and project staff.
22. Various miscellaneous expenses which are permitted by the rules.
23. Contractual Services for the provision of logistics services for transportation system for the PCB-contaminated oil to the various treatment centers
24. International consultant to provide technical support for acquisition, demonstration and operation of PCB dechlorination system and treatment facility for the decontamination of PCB-contaminated transformers. One consultant for 30 days at a rate of USD 700 per day and the second consultant for 34 days at a rate of USD 500 per day.
25. Fee for 4 national consultants hire for 49 days each, one at a rate of USD 400 per day and the other three at a rate of USD 200 per day. The role of these consultants is to provide support for acquisition, demonstration and operation of PCB dechlorination system and treatment facility for the decontamination of PCB contaminated transformers.
26. Contractual services with Operating Entity to operate PCB dechlorination system and treatment facility for the decontamination of PCB-contaminated transformers to treat 1,500 MT of electrical equipment and to dispose of 200 MT of pure PCB-containing waste. This also includes US \$ 200,000 dedicated to cover the cost of transportation of PCB waste, which will be complemented by co-financing.
27. Fee for full-time project staff for time spent on activities in Component 4 (Project Coordinator, 50 days at US \$ 400 per day, Technical Officer, 100 days at US \$ 200 per day and Administrative/Financial Assistant, 100 days at US \$ 100 per day).
28. Travel within Nigeria of national and international consultants and project staff during implementation of the activities involved in component 4.

29. Various miscellaneous expenses which are permitted by the rules.
30. Fee for two International consultants to carry out mid-term review and terminal evaluation, and to provide advice/recommendations on project management including development of annual plans and knowledge management. Two missions each at a rate of USD 10,000 each.
31. One national consultant to carry out the monitoring of indicators in result framework and final GEF tracking tool for 60 days at a rate of USD 400/day and one national consultant on gender equality to monitor the roles and opportunities given to women in the context of the project for 105 days at a rate of USD 200/day.
32. Contractual services for a. Knowledge management services b. translation c. organization of inception workshop.
33. Office supplies. Acquisition of minor hardware components (external hard drives, computer pen drives, etc.)
34. Fee for full-time project staff for time spent on activities in Component 5 (Project Coordinator, 25 days at US \$ 400 per day, Technical Officer, 50 days at US \$ 200 per day and Administrative/Financial Assistant, 50 days at US \$ 100 per day).
35. Audit expenses and spot checks
36. Contractual services for Knowledge management meetings, peer-group discussions, experience services b. translation c. organization of inception workshop.
37. Fee for full-time project staff for time spent on activities in Project Management (Project Coordinator, 100 days at US \$ 400 per day, Technical Officer, 100 days at US \$ 200 per day and Administrative/Financial Assistant, 250 days at US \$ 100 per day).
38. Acquisition of equipment and other peripherals in connection to project activities. This will include the purchase of two vehicles for the management of the project, which are justified by the fact that two of the PCB storage facilities are located outside of Abuja.
39. Budget line "Direct Project Costs" (Services to Project) will be utilized to cover the costs of UNDP services on procurement, recruitment, etc. Direct project costs will be charged according to GEF rules on DPCs. Please see Annex F. Direct project cost – GOE, Direct project cost – staff: Direct Project Costs (DPC) are the costs of administrative services (such as those related to human resources, procurement, finance, and other functions) provided by UNDP in relation to the project. Direct project costs will be charged based on the UNDP Universal Pricelist (UPL) or the actual corresponding service cost, in line with GEF rules on DPCs. The amounts indicated here are estimations, however as

part of annual project operational planning the Direct Project Costs would be defined and the amount included in the yearly budgets. The account 64397 can only be used for operational cost per transaction; it is not a flat fee; Total cost: \$87,000.

- 40. Communications (phone and internet) for the project staff.
- 41. Office supplies. Acquisition of office materials (printer toners, ink, computer paper, etc.)
- 42. Utilities, office maintenance, security charges.
- 43. Fee for full-time project staff for time spent on activities in Project Management

Summary of Funds¹

Source of Finance	Type of co-financing	Amount	Amount	Amount	Amount	Amount	Total
		Year 1	Year 2	Year 3	Year 4	Year 5	
GEF	Grant	1,681,000	1,289,000	1,744,000	1,598,000	618,000	6,930,000
FMEnv	In-kind	1,005,000	1,005,000	1,005,000	1,005,000	1,005,000	5,025,000
UNDP (Nigeria TRAC funding)	Grant	50,000	50,000	50,000	50,000	50,000	250,000
Center for Environmental Management and Control (CEMAC)	In-kind	827,000	827,000	827,000	827,000	827,000	4,135,000
Center for Environmental Management and Control (CEMAC)	Cash	470,000	470,000	470,000	470,000	470,000	2,350,000
Abuja Electricity Distribution Company (AEDC)	In-kind	2,179,000	2,179,000	2,179,000	2,179,000	2,179,000	10,895,000
Abuja Electricity Distribution Company (AEDC)	Cash	1,339,000	1,339,000	1,339,000	1,339,000	1,339,000	6,695,000
Kaduna Electric	In-kind	466,940	466,940	466,940	466,940	466,941	2,334,701
Kaduna Electric	Grant	2,077,885	2,077,885	2,077,885	2,077,885	2,077,885	10,389,425
Total financing		10,095,825	9,703,825	10,158,825	10,012,825	9,032,826	49,004,126

1 Summary table includes all sources of finance.

XI. LEGAL CONTEXT

The project is a national implementation modality (NIM) project, in line with the Standard Basic Assistance Agreement (SBAA, 1988) between the UNDP and the Government of Nigeria, the Common Country Assessment (CCA) 2001, the United Nations Development Assistance Framework (UNDAF) III 2014-2017 and the Country Programme Document (CPD) 2017-2021.

Any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

This document together with the CPAP signed by the Government and UNDP which is incorporated herein by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA); as such all provisions of the CPAP apply to this document. All references in the SBAA to “Executing Agency” shall be deemed to refer to “Implementing Partner”, as such term is defined and used in the CPAP and this document.

Consistent with the Article III of the Standard Basic Assistance Agreement (SBAA), the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner’s security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner’s obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml. This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document”.

XII. ANNEXES

- A. Multi-year Work plan
- B. Monitoring Plan
- C. Evaluation Plan
- D. GEF Tracking Tool at baseline
- E. Terms of Reference for Project Board, Project Coordinator, Chief Technical Advisor and other positions as appropriate
- F. UNDP Social and Environmental and Social Screening Template (SESP)
- G. Environmental and Social Management Plan (ESMP) for moderate and high risk projects only (to be completed after GEF CEO Endorsement)
- H. UNDP Project Quality Assurance Report (to be completed after GEF CEO Endorsement)
- I. UNDP Risk Log
- J. Results of the capacity assessment of the project implementing partner and HACT micro assessment (to be completed after GEF CEO Endorsement)
- K. Additional agreements - DPC (to be completed after GEF CEO Endorsement)
- L. Gender Action Plan
- M. Gender Results Framework

ANNEX A: MULTI YEAR WORK PLAN

Please find it as a separate Word document.

ANNEX B: MONITORING PLAN

The Project Coordinator will collect results data according to the following monitoring plan.

Monitoring	Indicators	Description	Data source/Collection Methods	Frequency	Responsible for data collection	Means of verification	Assumptions and Risks
<i>Project objective from the results framework:</i> <i>Comprehensive identification and disposal/treatment of PCB contaminated equipment and waste in the country</i>	<i>Indicator 1</i> <i>National environmentally sound management (ESM) system of PCB chemicals and waste drafted, and implemented by 2020</i>	<i>Updates to the PCB management framework adopted and implemented</i> <i>Skills and knowledge exists on PCB ESM management in the private/public sector owning electric equipment</i>	<i>Project/PSC/UNDP CO reports</i> <i>Workshop reports</i> <i>Published legislative updates</i>	<i>Annually</i> <i>Reported in DO tab of the GEF PIR</i>	<i>FMEEnv; UNDP Country Office; Project office; Project consultants</i>	<i>Project progress reports/PIRs</i> <i>Consultant reports</i>	<i>Identified PCB contaminated equipment are under control and secured for disposal until collection</i> <i>Centres are built and operational</i> <i>Dehalogenation technology for PCB contaminated transformer oil and decontamination system for the</i>

							<i>decontamination of electrical equipment are acquired for the project and become fully operational.</i> <i>Handling of PCB equipment and disposal activities are carried out in an environmentally safe way without any harm to the environment and the health.</i> <i>Potential PCB owners are willing to facilitate sampling and analysis of their equipment.</i> <i>Owner of PCB contaminated</i>
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							<i>equipment will make use of project's facility to treat and/or dispose their PCB wastes</i> <i>The capacity of the country to carry out sampling and analysis of dielectric oil and waste for PCB quantification is large and reliable enough to timely carry out sampling and analysis activities.</i>
	Indicator 2 200 tons of pure PCBs and 1,500 tons of low-concentrated PCBs/related waste are safely managed and disposed off/decontaminated by the end of the project, thus	National PCBs inventory updated and database is operational to monitor this equipment Sub-contracts placed for pure PCB disposal and decontamination	Reports from private sector/laboratory reports PCB database Project progress report/UNDP CO reports	Annually/MTR/TE reports Reported in DO tab of the GEF PIR	FMEEnv; UNDP Country Office; Project office; Project consultants	Project progress reports/PIRs GEF tracking tool at MTR/TE time	Identified PCB containing equipment and waste amount to at least 1500+200 tons and is properly stored for treatment or

	<i>reducing global and local environment from exposure to these hazardous wastes</i>	<i>of low-concentrated electric oil</i>					<i>disposal under the project.</i> <i>The technology or service for the disposal of PCB equipment and waste (within the country and/or abroad) will be selected and procured.</i> <i>Disposal of 1,500+200 tons of PCB equipment can be completed within project and budget constraints.</i>
Project Outcome 1: Institutional Capacity and Training on PCBs	Indicator 3: Number of operators successfully trained.	Measures the success of the training in term of training effectiveness and number of operators trained	PMU (for TORs) Training consultants, training service companies, trainees, trainers. Data collected through questionnaires, surveys and direct interviews.	Quarterly.	UNDP Project Management Unit	Pre and post training tests. Training Reports. Training materials. List of training attendees. Feedback questionnaire	Assumptions: Pre and post training tests are duly carried out. Training reports are drafted. List of trainees is filled and signed. Risks: the above documents are

						<i>from the trainees.</i>	<i>not drafted / not made available.</i>
	Indicator 4 <i>Number of training session and workshops</i>	<i>Measures that the committed number of training sessions and workshops have been carried out</i>	<i>As above</i>	<i>Quarterly</i>	<i>UNDP Project Management Unit</i>	<i>List of workshop attendees. Workshop and training minutes and reports</i>	<i>Assumptions: Training minutes are duly drafted and signed. Risks: the above documents are not drafted / not made available</i>
	Indicator 5 <i>Number of guidance and procedural Documents completed</i>	<i>Verifies that guidance procedural documents have been drafted and are compliant with the Stockholm Convention.</i>	<i>PMU (for TORs) International consultants and experts, FMEnv. Collection of reports and direct interview.</i>	<i>Quarterly</i>	<i>UNDP Project Management Unit</i>	<i>Draft and final guidance and procedural documents for PCB management. Meeting minutes.</i>	<i>Assumptions Guidance and procedural documents have been prepared and made available. Risks: time to achieve agreements on the content of guidance document too long</i>
	Indicator 6: <i>Gap analysis with special reference to enforcement needs completed</i>	<i>Verifies that the gap analysis of the Nigeria PCB legislation has been carried out with special focus in enforcement issues.</i>	<i>(PMU for TORs) International consultants and experts, FMEnv. Collection of reports and direct interview.</i>	<i>Quarterly</i>	<i>UNDP Project Management Unit</i>	<i>Draft and final gap analysis report. Meeting minutes.</i>	<i>Assumptions: Gap analysis has been carried out with good quality and is available. Risks: Gap analysis not made available</i>

							<i>within the expected deadline.</i>
	Indicator 7: <i>Technical assistance delivered, number of sites inspected</i>	<i>Measures the number of site inspected under the project to verify compliance with PCB regulation and the amount and quality of technical assistance delivered</i>	<i>National authorities, national and international consultant. Collection of report, direct interviews.</i>	<i>Quarterly</i>	<i>UNDP Project Management Unit</i>	<i>Site inspection reports. Technical assistance reports.</i>	<i>Assumption: Site inspection report are duly filled. Risk: National authorities / inspected entities may be not willing to share information.</i>
Project Outcome 2: Inventory of PCBs in 22 states of Nigeria not previously covered by other inventories	Indicator 8: <i>Establishment of the PCB MIS for the 22 states covered by the inventory</i>	<i>Measures the level of successful completion of the data collected</i>	<i>PMU (for TORs) Inventory service provider, national and international consultant. Collection of reports, direct interviews.</i>	<i>Annually</i>	<i>UNDP Project Management Unit</i>	<i>Draft and final preliminary inventory reports. Sampling plans.</i>	<i>Assumption: The MIS is completed within the expected timeframe and made available. Risks: Reports incomplete / not made available</i>
	Indicator 9: <i>Number of equipment sampled and analyzed for PCB</i>	<i>Measures the number of equipment sampled and analyzed for PCB with reference to the expected target</i>	<i>PMU (for TORs) Inventory service provider, national and international consultant. Collection of reports, direct interview</i>	<i>Annually</i>	<i>UNDP Project Management Unit</i>	<i>Sampling plan. Draft and final inventory reports. Analytical certificates.</i>	<i>Assumption: The detailed inventory completed within the expected timeframe and made available.</i>

							<i>PCB sampling and analytical data properly collected. Risks: Inventory reports incomplete / not made available</i>
	Indicator 10: <i>PCB inventory is planned and implemented</i>	<i>Verifies that the PCB inventory has been established and is functional</i>	<i>PMU (for TORs), IT service provider, national and international consultant. Examination of the software through accessing the website. Collection of reports, direct interview</i>	<i>Annually</i>	<i>UNDP Project Management Unit</i>	<i>PCB inventory data. PCB inventory online database</i>	<i>Assumption. The PCB inventory database has been placed in a website and made available. Risks: Delay in completing the sampling and analysis. PCB inventory is not made available</i>
	Indicator 11: <i>PCB national plan is drafted and approved</i>	<i>Verifies that the PCB national plan has been drafted and adopted, measures its level of completeness</i>	<i>PMU. National authorities, national and international consultant. Collection of reports, direct interviews</i>	<i>Annually</i>	<i>UNDP Project Management Unit</i>	<i>Draft and final PCB national plan. Meeting minutes.</i>	<i>Assumption: National plan has been timely drafted and endorsed by the government. Risks: the approval of the national plan by the Government longer than expected.</i>

	Indicator 12: <i>National PCB management plan is reviewed for the first time based on inventory data</i>	<i>Verifies that the National PCB MP has been reviewed based in inventory data</i>	<i>PMU (for TORs), National authorities, national and international consultant. Collection of reports, direct interviews</i>	<i>Annually.</i>	<i>UNDP Project Management Unit</i>	<i>Draft and final review of the national plan based on updated inventory information.</i>	<i>Assumption: National plan has been timely amended and endorsed by the government. Risk: inventory data not available in time to upgrade the national plan, therefore the NP is not available</i>
	Indicator 13: <i>Public/ private partnership on PCB management is established</i>	<i>Verifies that the public-private partnership is established</i>	<i>PMU. Representative partner of the newly established PPP. National consultant, interviews.</i>	<i>Annually</i>	<i>UNDP Project Management Unit</i>	<i>Meeting minutes. Legal documents related to the establishment of PPP on PCB management.</i>	<i>Assumption: public and private bodies established a PPP within project timeframe Risk: No PPP established within the expected timeframe, therefore relevant document is not made available.</i>
	Indicator 14: <i>Business and sustainability plan for the PPP is</i>	<i>Measures the level of completeness of the business and</i>	<i>PMU. Representative partner of the newly established</i>	<i>Annually</i>	<i>UNDP Project Management Unit</i>	<i>Meeting minutes. Draft and final versions</i>	<i>Assumption: as above. Risk: no PPP established</i>

	<i>drafted and verified</i>	<i>sustainability plan for the PPP</i>	<i>PPP. National consultant, interviews</i>			<i>of the Business plan and of the sustainability plan,</i>	<i>within project timeframe therefore relevant documents including business and sustainability plans are not available.</i>
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Project Outcome 3: Establishment of PCB collection and treatment centres	Indicator 15 <i>Capacity (tons) of new storage and treatment facilities.</i>	<i>Measures the storage and treatment capacity of the collection centers</i>	<i>Contractors, PMUs (for TORs),</i>	<i>Quarterly in the first 2 years, then annually.</i>	<i>UNDP Project Management Unit</i>	<i>TOR for upgrading of storage facilities. Layout of storage facilities, site visits reports (before, during and after storage upgrading)</i>	<i>Assumptions: storage facilities identified and upgraded within project timeframe, reports made and TORs made available. Risks: delay in building collection facilities due to public resistance</i>
	Indicator 16 <i>Treatment technology is identified based on inventory data, assessed and procured</i>	<i>Verifies that technology or services for PCB disposal have been assessed, identified and procured in compliance with</i>	<i>PMU (for TORs). Collection of National and international consultant reports.</i>	<i>Annually, quarterly in the last 3 years.</i>	<i>UNDP Project Management Unit</i>	<i>Technology / disposal service assessment reports. Technical specifications and TORs for</i>	<i>Assumptions: vendors committed to provide updated information on their technologies. Bidding</i>

		SC requirements, UNDP and Government of Nigeria rules				the procurement of PCB technology or services. Bidding documents	documents and procurement completed within project timeframe. Risks: Bidding document / procurement not completed or made available within project timeframe.
	Indicator 17 Disposal technologies or services are tested or certified for their compliance with the Stockholm Convention BAT/BE	Verifies that the disposal technologies have been tested for their compliance with SC BAT/BEP or that the PCB disposal services are certified for the same.	PMU (for TORs). Collection of National and international consultant reports. Analytical laboratories. Direct interviews with vendors and consultants.	Quarterly	UNDP Project Management Unit	Technology testing technical plans. Technology testing reports. Site visit minutes during technology testing. Analytical certificates	Assumptions: Testing of PCB disposal technologies completed within project timeframe. Risks: Testing of PCB disposal technologies not completed within project timeframe, therefore relevant document is not made available
Project Outcome 4:	Indicator 18 Amount of equipment or waste	Measure and record the amount of PCB	PMU (for TORs and reports), international	Quarterly	UNDP	Hazardous waste manifests /	Assumptions: Information on PCB disposal

Environmentally sound disposal of identified PCBS	<i>containing or contaminated by PCB disposed in an Environmental Sound Manner</i>	<i>contaminated equipment treated and the amount of pure PCB containing equipment disposed</i>	<i>consultants, PPP operating the disposal technology, provider of disposal services. Direct interviews and collection of reports</i>		<i>Project Management Unit</i>	<i>certificate of storage, transportation and disposal of the amount of PCB waste treated-in compliance with Nigeria legislation. Site visit reports to storage and disposal facilities during operations. Analytical certificates,</i>	<i>made available throughout the whole disposal activities. Equipment disposed / treated properly tracked. Risks: data on PCB handling and disposal not properly collected during project implementation. Hazardous waste manifest system poorly established.</i>
Project Outcome 5: Monitoring, Learning, Adaptive Feedback and Evaluation	Indicator 19: <i>Monitoring activities have been carried out</i>	<i>Measures whether project monitoring activities have been carried out and project management structures have been established.</i>	<i>Collection of minute and reports during inception and meetings of the PSC. Collection of project management report at UNDP or PMU offices. Direct interviews with persons in charge.</i>	<i>Quarterly</i>	<i>PMU, UNDP, Project Steering Committees.</i>	<i>Inception report, PIRs, APW and QPW, APR and QPR, meeting minutes</i>	<i>Assumptions: Key project management and monitoring steps carried out timely. Project started within expected deadline. Project Steering Committee and Project Management Unit established</i>

							<i>timely and working effectively.</i> <i>Risk: delay in project signature and starting. PSC and PMU not effective in the day to day management and monitoring of the project.</i>
	Indicator 20: <i>Evaluation activities have been carried out.</i>	<i>Measures whether MTE and TE have been properly carried out.</i>	<i>Independent consultants</i>	<i>After 2nd PIR submitted to GEF and after final PIR submitted</i>	<i>PMU, UNDP, Project Steering Committees.</i>	<i>Mid-term evaluation report, Terminal evaluation report.</i>	<i>Assumptions: Project activities carried out within the timeframe set. Independent evaluators and auditors will carry out their evaluation task timely, effectively and independently.</i> <i>Risks: delay in project activities and in carrying out evaluations. Mid-term evaluation reports and terminal evaluation</i>

							<i>reports not available.</i>
	Indicator 21: <i>Learning and Adaptive Feedback system established and sustained</i>	<i>Measures whether the Learning and Adaptive Feedback system has been implemented.</i>	<i>Providers of web based services, PMU, UNDP</i>	<i>Annually</i>	<i>PMU, UNDP, Project Steering Committees.</i>	<i>Website, PCB information system.</i>	<i>Assumptions: Website and PCB information system, including PCB inventory, have been developed and are available. Risks: delay in carrying out knowledge management system, incompleteness of reporting</i>

ANNEX C: EVALUATION PLAN

Evaluation Title	Planned start date Month/year	Planned end date Month/year	Included in the Country Office Evaluation Plan	Budget for consultants	Other budget (i.e. travel, site visits etc.)
Terminal Evaluation	July 2022	September 2022	Yes	USD 45,000	USD 0
Total evaluation budget				USD 45,000	

ANNEX D: GEF TRACKING TOOL (S) AT BASELINE**MANAGEMENT AND DISPOSAL OF POPs**

Project title	Environmentally Sound Management and Disposal of PCBs in Nigeria
Country	Nigeria
GEF Agency	UNDP
GEF PMIS #	9236

[New tools and regulatory, and economic approaches]

Indicators	Number	Qualitative comments¹ from the project team or the GEF Agency
Indicator 1.1.1: Number of demonstrated tools for new POPs and waste issues ¹	N/A	

Indicator 1.1.2: Prioritized list of actions for reducing/eliminating POPs and waste	0	During the implementation of this project the following actions will be taken to reduce and/or eliminate PCBs from Nigeria: 1) 1500 metric tons of PCB-contaminated transformers (oil and solid) will be treated, 2) 200 metric tons of pure PCB containing equipment will be disposed of, 3) The project will acquire a mobile PCB dechlorination system to be used to decontaminate the oil from the 1,500 metric tons already identified PCB-contaminated transformer mineral oil, 4) The project will also acquire a solid decontamination system to be housed in one of the three collection centres to be established. transformers. In addition, the project will also 5) test 11,000 additional transformers. Any additional PCB-contaminated electrical equipment to be found in this testing program will be treated in the future with the technologies to be acquired as part of the project. Finally, 6) The upgrading of the country's PCB analytical capability will allow Nigerian owners of electrical equipment to test the remaining balance of transformers in the country (total number of transformers estimated to be about 100,000). The transfer of the PCB treatment technologies into Nigeria is an essential tool for the country to properly, economically and efficiently eliminate all PCBs from its territory.
Indicator 1.2: Number of technologies demonstrated, deployed and transferred	0	There are two technologies that are planned to be transferred to Nigeria, namely a mobile dechlorination system to decontaminate PCB-contaminated transformer oil and a fixed decontamination system to decontaminate solid materials from PCB-containing transformers and capacitors. These technologies will be selected during open bid tendering process. As part of the transferring of these technologies, the selected vendor(s) will deployed the systems in identified location and will demonstrate that the systems operate as required. The Vendors will also have to train local operators continue with the efficient and reliable operation of these systems.

Implementation Status	Yes = 1 No = 0	Qualitative comments ¹ from the project team or the GEF Agency
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NIP coordinating mechanism in place ²	N/A	
Inventories undertaken ³	0	Note: the national PCB inventory will be updated as a result of the current PCB disposal project, and used by the Government in the NIP update exercise as appropriate.
Draft updated NIP prepared	N/A	
Updated NIP submitted to the Stockholm Convention	N/A	

Notes.

2. Include composition of the coordinating mechanism in the "comments" column.

3. This refers to update of initial inventory and to conduct inventory of new POPs.

[POPs elimination or reduction]

Indicators	Quantity (tons)		Cost ¹ (\$ per ton)	Qualitative comments ³ from the project team or the GEF Agency
	Project target	Achieved to date		
Indicator 3.1: Amount and type of POPs eliminated or reduced	1,700	0	n/a	This includes the disposal of pure PCB containing equipment and the within the country treatment/decontamination of PCB contaminated transformers (oil and solids).
Details				

Disposal of pure PCBs containing equipment (transformers and capacitors)	200	0	n/a	The establishment of a decontamination system for solid components within Nigeria will allow the disassembly of transformers and the decontamination of the metallic components (about 60% of transformer total weight), thereby significantly reducing the disposal cost and allowing the recovery of residual value of the copper and other metals.
Decontamination of PCB-contaminated oil	525	0	n/a	The acquisition of a mobile dechlorination system to decontaminate PCB contaminated mineral oil will allow the project to economically and efficiently treat and recycle the valuable commodity. The dechlorination of PCB contaminated transformer oil is estimated to cost about USD 1.00 per kg. The recovery of the clean oil (up to 95% of the original waste) will result in an additional cost saving for the owner of this waste stream. Please notice that 525 is the equivalent of 35% of the 1,500 metric tons of PCB contaminated transformers that will be treated by the project.

Decontamination of empty PCB contaminated transformers	975	0	n/a	The acquisition of a decontamination system to treat solid components from PCB containing transformers and capacitors will allow the project to economically and efficiently treat and recycle the valuable metals from these equipment (mainly copper). The decontamination of mainly metallic components from PCB contaminated transformer is estimated to cost about USD 1.50 per kg (manual disassembly of transformers). The recovery of the clean metals (copper about 30% of the original waste, including oil) will result in an additional cost saving for the owner of this waste stream. Please notice that 975 is the equivalent of 65% of the 1500 metric tons of PCB contaminated transformers that will be treated by the project. The 975 metric tons of solid components contain about 450 metric tons of clean, pure copper that can be reclaimed and recycle.
Disposal of PCB contaminated equipment and wastes				

Notes

1. Overall costs including packaging, transport, safe storage, and treatment or disposal as appropriate. A specific cost estimate cannot be given at the present time, as the labour and other costs associated with the treatment systems that will be acquired and used by the project are not selected yet. However, it is known that the processing cost for dechlorination technologies for contaminated transformer oil and decontamination processing cost for metallic components is in the order of about USD 0.50 to 1.0 per kg. The export cost for pure PCBs to European incinerators is estimated to be about USD 10.00 per kg. It is expected that the 1,500 MT of low level PCB contaminated transformers and about 50% of the 200 MT of the pure PCB waste will be treated in Nigeria. The cost recovery of the reclaimed cleaned oil and cleaned pure copper has not been credited in this analysis.

3. Provide information on disposal technology and whether in-country or abroad.

4. Please provide the information on how the quantity is calculated, such as percentage of POPs contained in the products/waste, how much products replaced, how much waste disposed, and so on.

ANNEX E: TERMS OF REFERENCE FOR PROJECT PERSONNEL

Project Title	Environmentally Sound Management and Disposal of PCBs
Consultancy Title	Project Coordinator of the Project Management Unit
Contractual Modality	Full time – one year renewable up to 5 years.
Duty Station	Abuja with travel in Nigeria
Supervision	Project Steering Committee (PSC) and UNDP

Duties and Responsibilities

Overall, the PC will be responsible for the day-to-day running of the project, including overall coordination, planning, management, implementation, monitoring & evaluation and reporting of all project activities including to:

- Prepare and update project work plans, and submit these to the PSC and UNDP for clearance.
- Participate in quarterly work planning and progress reporting meetings with the PSC, PMU, and UNDP;
- Ensure that all agreements with implementing agencies are prepared, negotiated and agreed upon
- Prepare TORs for key inputs (i.e. personnel, sub-contracts, training, and procurement) and submits these to the PSC and UNDP for clearance, and administers the mobilization of such inputs.
- With respect to external project implementing agencies/ sub-contractors:
 - a. Ensure that these agencies mobilize and deliver the inputs in accordance with their letters of agreement or contracts, and
 - b. Provide overall supervision and/or coordination of their work to ensure the production of the expected outputs.
- Assume direct responsibility for managing the project budget by ensuring that:
 - a. Project funds are made available when needed, and are disbursed properly,
 - b. Expenditures are in accordance with the project document and/or existing project work plan,
 - c. Accounting records and supporting documents are properly kept,
 - d. Required financial reports are prepared,
 - e. Financial operations are transparent and financial procedures/regulations for NIM projects are properly applied; and
 - f. Be ready for audits at any time.
- Assume direct responsibility for managing the physical resources (e.g. vehicles, office equipment, and furniture) provided to the project by UNDP.
- Supervise the project staff and local or international short-term experts/consultants working for the project.
- Prepare project progress reports of various types and the Final Project Report as scheduled, and organize review meetings and evaluation missions in coordination with UNDP.
- Report regularly to and keeps the PSC and UNDP CO up-to-date on project progress and problems.

Required Qualifications

- University degree (post-graduate degree would be considered as an asset) in environment management, economy, management, chemicals or related fields; Knowledge of Result-based management and at least 5 years of experience in project management and implementation;
- Strong analytical skills, good inter-personal and team building skills – Leading skills;
- Full time availability for project management duties;
- Working level of English language is an absolute necessity;
- Familiarity with technical assistance projects and UN/GEF programme on POPs and PCBs disposal is an asset.

Project Title	Environmentally Sound Management and Disposal of PCBs
Consultancy Title	Administrative / Finance Assistant
Contractual Modality	Full time – one year renewable up to 5 years.
Duty Station	Abuja with travel in Nigeria
Supervision	UNDP and PMU

The Administrative/Finance Assistant is responsible for all the administrative and accounting matters under the Project. Under direct supervision of the Project Coordinator, the incumbent will:

- Maintain administrative files relevant to the Projects;
- Maintain day-to-day communication with PMU regarding the Projects' administration matters: procurement, human resources and finance matters; provide administrative support regarding recruitment of experts and procurement of goods and services under the Projects;
- Provide support to procurement processes related to the Projects' implementation: provide inputs for preparation of procurement plans for the office; provide support to organization of procurement processes including preparation of tender documents, receipts of quotations, bids or proposals, and their preliminary evaluation;
- Perform regular financial and administrative duties necessary for the successful and timely Projects' implementation, such as:
 - Enter daily transactions in Atlas system (vouchers, requisitions, etc.);
 - Keep track of all transactions in a budget notebook;
 - Perform regular budget revisions;
 - Provide regular delivery estimation and monthly expense estimation to the Finance Unit; provide regular reporting regarding the Projects' expenditures;
 - Prepare periodic Projects' asset/inventory reports;
 - Ensure completeness of documentation, check accuracy of calculation for all financial transactions related to the Projects, and prepare/process financial transactions in the system in accordance with UNDP rules and procedures.
- Draft routine correspondence, facsimile, memoranda and reports from oral instructions, previous correspondence or other available information sources, in accordance with the standard office procedures, and ensure appropriate follow-up; write minutes from the meetings; provide translation/interpretation services into English and vice versa when needed.
- Provide logistical support to the Projects and ensure provision of adequate secretarial and interpretation facilities (organization of Projects' events, meetings and study tours, arrangement of shipments, project vehicles maintenance, conference facilities arrangements, visits of experts, timely processed daily subsistence allowances, etc.).

A. Competencies:

Corporate Competencies:

- Demonstrates commitment to UNDP's mission, vision and values;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability.

Functional Competencies:

Knowledge Management and Learning

- Shares knowledge and experience;

- Actively works towards continuing personal learning, acts on learning plan and applies newly acquired skills.

Development and Operational Effectiveness

- Ability to perform a variety of standard tasks related to Results Management, including screening and collecting of programme/projects documentation, projects data entering, preparation of revisions, filling, provision of information;
- Ability to provide input to business processes re-engineering, implementation of new systems.

Leadership and Self-Management

- Focuses on result for the client and responds positively to feedback;
- Consistently approaches work with energy and a positive, constructive attitude;
- Remains calm and in control even under pressure.

Qualifications and Experience:

- Secondary Education; University Degree in Economy, Management or related sciences is desirable, but it is not the requirement;
- Minimum 4 years of relevant administrative experience at the national or international level;
- Experience in office management, preferably with an international organization;
- Experience in UN/UNDP or other international organization financed projects will be an advance;
- Excellent working knowledge of written and spoken English language;
- Excellent computer skills; experience in operating in web management systems.
- Excellent inter-personal and communication skills;
- Excellent organizational skills with developed attention to detail;
- Ability to work independently and in a team.

Project Title	Environmentally Sound Management and Disposal of PCBs
Title	Project Officer of the Project Management Unit
Contractual Modality	Full time – one year renewable up to 5 years.
Duty Station	Abuja with travel in Nigeria
Supervision	PMU Project Coordinator

Duties and Responsibilities

This assignment is for a full-time PMU Technical Officer who will be recruited with the objective to provide PMU with technical assistance and advice on all the activities to be carried out under the Project, to help on routine technical coordination and supervision and to prepare or assist in the preparation of relevant project documentation and training materials. The TO will work under the supervision of the Project Coordinator. The Technical Officer will in general, be responsible for:

1. Assisting PMU in drafting the inception report of the project;
2. Assisting PMU in overall technical management and coordination of all project activities;
3. Technical support to PMU on the supervision of all the technical activities related to institutional strengthening, policy framework, POPs and PTS cleanup plans, project monitoring and evaluation, and replication program development;
4. Technical support to PMU in participating in meetings with UNDP and the PSC;
5. Technical support to PMU in coordinating the work of international consultants;
6. Providing comments on project implementation progress at different stages;
7. Assisting PMU in drafting Terms of References for all the services and equipment to be procured under the project;
8. Assisting PMU in drafting technical reports and management reports like the Project Implementation Reports, (PIR), Annual and Quarterly Progress Reports (APR, QPR) and Annual and Quarterly Workplans (AWP, QWP);
9. Assist PMU in drafting minutes of the meetings with special reference to the technical part;
10. Perform site visits and inspections at project implementation sites during various implementation stages (site visits and inspection at EPCG, KAP, facilities for the storage of PCB, transformer substations, industrial sites, trainings)
11. Provide comments on the reports related to the technical activities and review the related plan under the Project to ensure their technical feasibility and most appropriate measures and actions taken.
12. Supervise the work of service provider to guarantee the quality and consistency of the reports and deliverables, and help them finalize reports before their dissemination to concerned parties;
13. Timely and proactively provide recommendation for the improvement of all project activities.

Duration of Assignment, Duty Station and Expected Places of Travel

- This is a full-time assignment for the duration of one year. The contract may be renewed yearly for maximum of 4 years (the duration of the Project) on the basis of the satisfactory evaluation of the performance of the work carried out by the Technical Officer in the preceding year.

- The Technical Officer will work at the PMU office.
- The Technical Officer is expected to travel within the country at the implementation sites, to supervise project implementation activities. The exact number of travels will be specified in the course of project implementation based on project needs. Travel and subsistence during travel will be paid by the project.

Deliverables

The following deliverables will be submitted to the PMU by the Technical Officer:

- Short quarterly work-plan of the activities to be carried out under this assignment;
- Draft Inception report of the Project;
- Quarterly reports of the activities carried out under this assignment (three reports per year);
- Comments reports and supervision reports as relevant for the different project activities;
- Draft TORs for the required project activities;
- Draft PIR, APR, QPR, AWP, QWP
- Mission report and debriefing for the field visit;
- Meeting minutes, with special reference to the technical parts.

Required Qualifications

The Technical Officer shall have as a minimum the following qualifications:

- University Degree in Engineering, Industrial Chemistry, Environmental Science, Biology;
- Sound experience on POPs and Stockholm Convention;
- At least 5-year experience in the field of chemical risk assessment, or in projects related to the implementation of Stockholm Convention on POPs, or in the management of hazardous chemicals and waste;
- Previous experience as supervisor / Technical Officer in projects related to environmental protection or hazardous waste management;
- Previous experience in the implementation or supervision of projects related to the management and disposal of POPs or PCBs is an asset.

ANNEX F - UNDP Social and Environmental and Social Screening Template (SESP)

Please find it submitted as a separate document.

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ANNEX G - Environmental and Social Management Plan (ESMP) for moderate and high risk projects only (to be completed after GEF CEO Endorsement)

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ANNEX H - UNDP Project Quality Assurance Report (to be completed after GEF CEO Endorsement)

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ANNEX I - UNDP Risk Log

Description	Type	Impact & Probability (from 1 - low to 5 - high)	Mitigation Measure	Owner	Status
Electrical companies cannot afford the replacement and costs of PCB contaminated equipment	Financial	Incomplete achievement of project's goal I 3 P 3	Government will assess feasibility of establishing a financing mechanism for equipment replacement. Project will finance treatment of 1,500 MT of PCB contaminated material and disposal of 200 MT of pure PCBs equipment	PCB owners	N/A at this time
Lack of commitment of PCB owners preventing prompt identification of PCB equipment	Strategic	Incomplete achievement of project's goal I 4 P 2	Proper communication between PMU and electrical utilities and the ultimate mandate to test of electrical	PCB owners	N/A at this time

			transformers will minimize this risk Key National Project Partners will be invited to participate in the project steering committee and to participate actively in the project development and implementation		
Improper or unsafe technology selected for the dechlorination of PCBs and transformer decontamination	Environmental Social	Incomplete achievement of project's goal Health and environmental hazard I 4 P 1	Selection will be based on specific needs of Nigeria and using evaluation criteria that were widely applied by other GEF-supported projects	UND P, PMU	N/A at this stage
Accidental release of PCBs	Environmental Social	Delay I 4 P 3	Handling of PCBs and operation of PCB treatment and dechlorination system will be carried out using strict operating procedures. Operators will be properly trained	PMU	N/A at this stage
PCB-contaminated material is not made available to the project	Environmental Organizational	Incomplete achievement of project's goal I 4 P 1	Commitments from PCB owners will be sought early in the project. Treatment of PCB wastes will be free or low cost to PCB owners	PCB Owners PMU	N/A at this time
Potential resistance from NGOs and public for establishing PCB treatment facilities	Social	Delay I 3 P 2	Open and direct communication between PMU and concerned groups	PMU NGOs	N/A at this time

Difficulties in establishing new PCB regulations	Regulatory Strategic	Delay I 3 P 2	The project will provide sufficient resources and support to achieve the targeted results	FME nv PMU	N/A at this time
Failure to reach an agreement on the location of the temporary storage of PCB equipment.	Environmental, legal, social	Delay or incomplete achievement of project goals I 3 P 2	Lessons learnt from the previous PCB project will be considered to reduce this risk. The approval of the PCB storage sites will be the first task to undertake and will be discussed already at project inception, to ensure that any possible change in the ownership of the candidate storage areas, would not prevent their use by the project.	FME nv PMU Local administration	N/A at this stage

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ANNEX J - Results of the capacity assessment of the project implementing partner and HACT micro assessment
(to be completed after GEF CEO Endorsement)

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ANNEX K - Additional agreements



LETTER OF AGREEMENT BETWEEN UNDP AND THE GOVERNMENT FOR THE PROVISION OF SUPPORT SERVICES TO PROJECT 105607: SOUND MANAGEMENT & DISPOSAL OF PCB IN NIGERIA

Dear Mr. Tanko Amos Ibrahim

1. Reference is made to consultations between officials of the Federal Ministry of Environment, FMENV, (hereinafter referred to as “the Government”) and officials of UNDP with respect to the provision of support services by the UNDP country office for nationally managed programmes and projects. UNDP and the Government hereby agree that the UNDP country office may provide such support services at the request of the Government through its institution designated in the relevant programme support document or project document, as described below.
2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.
3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:
 - (a) Identification and/or recruitment of project and programme personnel;
 - (b) Identification and facilitation of training activities;
 - (c) Procurement of goods and services;
4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project the annex to the programme support document or project document is revised with the mutual agreement of the UNDP resident representative and the designated institution.
5. The relevant provisions of the Standard Basic Assistance Agreement (the “SBAA”) in February, 19888, including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the annex to the programme support document or project document.

6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SBAA.
7. The manner and method of cost-recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the programme support document or project document.
8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.
9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.
10. If you are in agreement with the provisions set forth above, please sign and return to this office two signed copies of this letter. Upon your signature, this letter shall constitute an agreement between your Government and UNDP on the terms and conditions for the provision of support services by the UNDP country office for nationally managed programmes and projects.

Yours sincerely,

Signed on behalf of UNDP

Samuel Bwalya
Country Director

For the Government

Mr. Tanko Amos Ibrahim

Director

Planning Research & Statistics Department

Federal Ministry of Environment

DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

1. Reference is made to consultations between Federal Ministry of Environment (Pollution Department), the institution designated by the Government of Nigeria and officials of UNDP with respect to the provision of support services by the UNDP country office for the nationally managed programme or project number 00105607, PIMS 5720: Environmentally Sound Management and Disposal of PCBs.

2. In accordance with the provisions of the letter of agreement signed on and the programme support document, the UNDP country office shall provide support services for the Programme [*or Project*] as described below.

3. Support services to be provided:

Support services (insert description)	Schedule for the provision of the support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
Support the recruitment of international/national consultants for the project	2018 - 2022	As per pro-forma: 30 days over 5 years of G5 procurement assistant - \$9,347.66; 50 days of NO-B procurement manager – \$25,374.16	UNDP will directly charge the project upon receipt of request of services from the Implementing Partner (IP)
Procurement of Project Vehicle for the project using UNDP LTAs	2018	One time procurement of vehicles for the project as per UPL costing - \$1133.12 (for 2 vehicles)	as above
Recruitment of one or two project personnel as needed for the PMU	2018	Staff Selection and recruitment process - \$633.00; recurrent personnel management services - \$2,390.96	as above
Support logistics for project personnel travels within/outside the country.	2018 - 2022	As per UPL – estimated 300 travel/logistics support over 5 years - \$13,400	as above
Services related to finance e.g. vendor payments, workshop payments etc	Ongoing throughout implementation	50 days over 5 years of finance specialist – \$25,374.16; 25 days over 5 years of finance assistant – 9,347.00	as above
Total		\$87,000	

4. Description of functions and responsibilities of the parties involved:

i. FMENv Obligations

- Prepare annual procurement plans based on the agreed annual work plans and submit to the UNDP Country Office.
- Provide the location for the Project Management Unit (PMU).

- Prepare Request for Direct Payments signed by project manager for project implementation.

ii. UNDP Obligations

- Upon receipt of request for support services and procurement plan, will verify it against approved work plans and if in line with available budget will commence the procurement.
- UNDP would inform the FMENv when payments have been made.
- UNDP would initiate spot-checks and monitoring visits on quarterly basis to ensure compliance with project implementation.

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ANNEX L – GENDER ACTION PLAN

Please find it submitted as a separate document.

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ANNEX M – GENDER RESULTS FRAMEWORK

Please find it submitted as a separate document.