



Brief on the Environmentally Sound Management and Disposal of Polychlorinated Biphenyls Project

Delivered at the
Sensitisation/Consultative Workshop for
Representatives of Power Sector Operators
Held at
JVM Hotels, Karu Road, Mararaba, Nasarawa State
(8th -9th April, 2021)



Highlight

- Introduction
- Environmental and Human Health Effects of PCBs
- Global Control Action of PCBs
- An overview of the Environmentally Sound Management and Disposal of PCBs Project

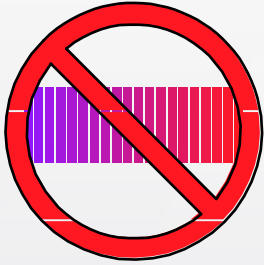
Introduction



- Nigeria is a Party to the Stockholm Convention on Persistent Organic Pollutants (POPs) which was adopted 22 May 2001 in Stockholm, Sweden and entered into force on 17 May 2004.
- Its objective is to protect human health and the environment from POPs.
- POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife..

Introduction (Cont'd)

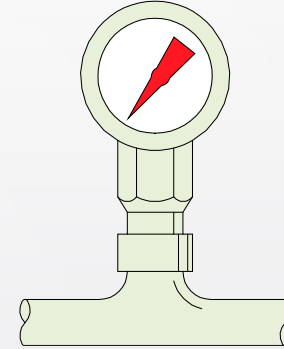
- This group of chemicals include some industrial chemicals (such as **Polychlorinated biphenyls (PCBs)**), pesticides (such as DDT), and unintentional by-products of industrial processes (such as dioxins and furans).
- PCBs are chemically stable, relatively heat-stable, oil-miscible, water-immiscible, have high boiling point, low flammability and good insulating properties.
- These unique properties which make PCBs suitable for various industrial and commercial applications.



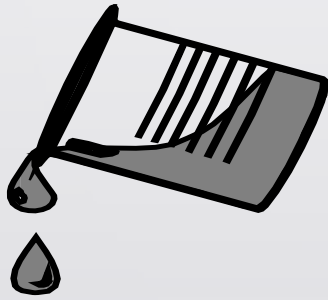
Colorless



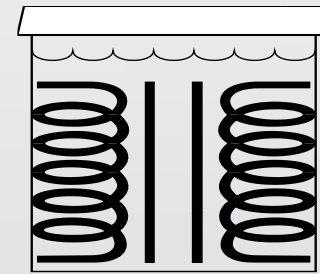
Odorless



Low vapor pressure



Viscous liquid or solid

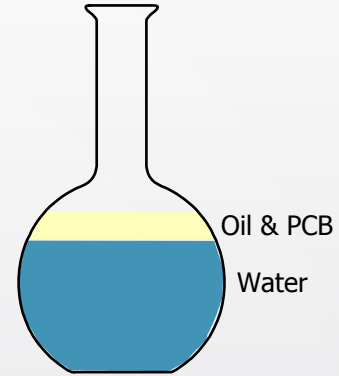


Low electrical conductivity

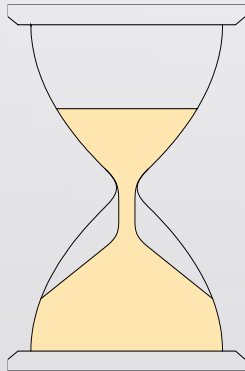
Physical Properties of PCBs



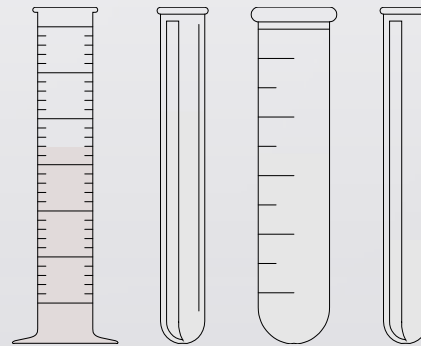
Flame retardant



Lipophilic

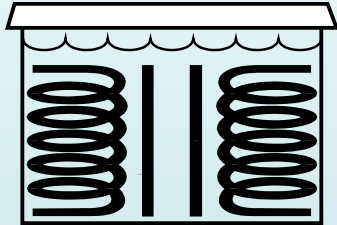


Stable to aging

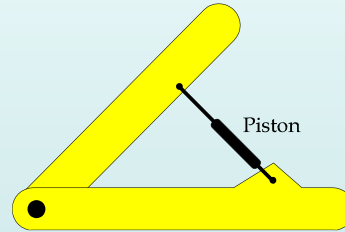


Technical grade mixtures

Chemical Properties of PCBs



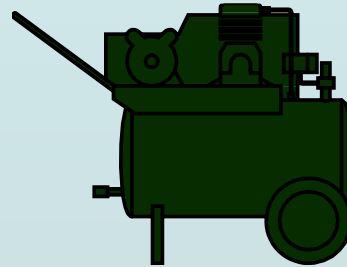
Coolants in Transformers



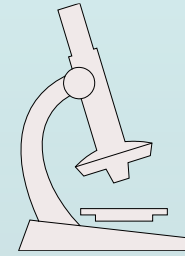
Hydraulic fluid



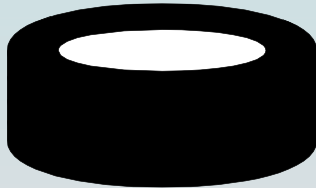
Plasticizer



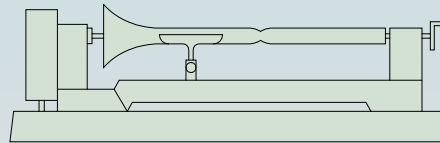
Vacuum pump fluid (mounting media & immersion oil)



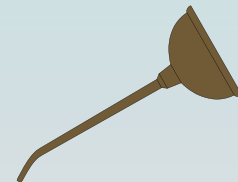
Microscopy



Gaskets & Damping felt

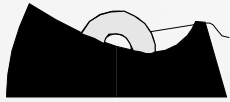


Cutting oils

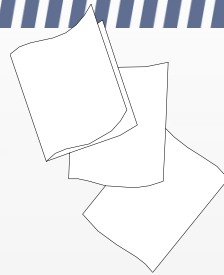
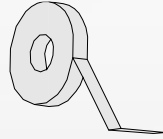


Lubricants

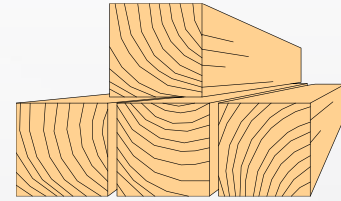
Some Applications of PCBs



Adhesives



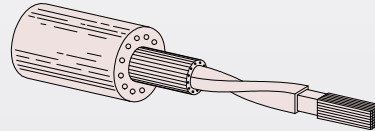
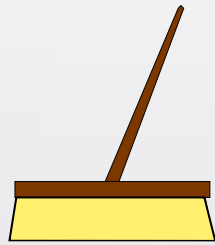
Carbonless
copy paper



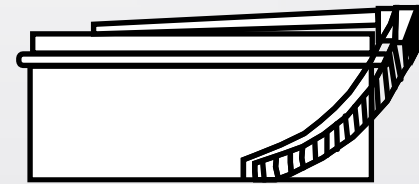
Construction
materials



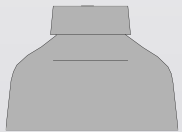
Dedusting Agents



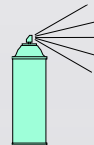
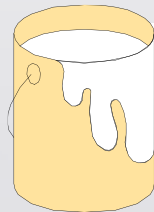
Electric cable
insulation



Fuel tank coatings



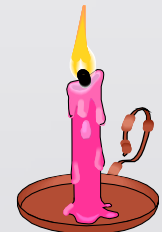
Inks and paint pigments



Pesticide extenders



Casting Wax



Some Applications of PCBs

Electrical

Applications of PCBs

Industrial

Capacitors & Transformers



Voltage regulators



Bushings & Electromagnet



Cable Insulations



Fluorescent Bulbs



Construction



Plasticizer



Window glazing



Sealants & finishing on floor



Caulking and grout in floor and joints



Paints



Printing Inks and Carbon less paper



Clothing pigments & dyes



Pesticides



Plastic water and baby bottles



Environmental and Human Health Effects of PCBs

- Unique physical and chemical properties which make PCBs suitable for industrial/commercial applications are also responsible for it detrimental to the environment and human health.
- Human exposure to PCBs can occur through contact with contaminated items, spills & leaks in workplaces or during transportation, nutrition, unprotected handling, etc.
- PCBs exposure risks in humans include some cancers, burdens on the immune system, reproductive system, nervous system, endocrine system, among others.

Global Control Action of PCBs

- Against the background of its negative effects on human and environmental well-being, Parties to Stockholm Convention are required to:-
 - stop production & use of PCBs and equipment containing the chemical by 2025; AND
 - ensure sound disposal of waste generated therefrom by 2028.
- The universal focus is the Power Sector, which has been the largest user of PCBs formulations as dielectric, insulator and heat exchanger fluids in electrical equipment.

An overview of the Environmentally Sound Management and Disposal of PCBs Project

- Nigeria is implementing the **Environmentally Sound Management and Disposal of PCBs, with incremental supports of the Global Environment Facility (GEF) and United Nations Development Programme (UNDP).**
- The project objective is to reduce the effects of PCBs on human health and the environment and help Nigeria fulfil her obligations under the Stockholm Convention.
- It has the following Components

Project Components

Component	Outcome	Strategy
1.	Institutional capacity and training on PCBs;	Assessment and strengthening of capacities of local institutions and operators on PCB management;
		Development and implementation of rules and regulations on PCBs;
		Awareness raising and dissemination of project objectives and results.
2.	Inventory of PCBs in 22 states of Nigeria not previously covered by other inventories;	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;
		Sampling and analysis of 11,000 samples of oil from electrical equipment;
		Establishment of the PCB Management Information System for the 22 states covered by this inventory.
3.	Establishment of PCB collection and treatment center;.	Site 1: Neke Uno Interim Storage Facility Site, Enugu State
		Site No. 2: Epe Interim Storage Facility Site, Sala Village, Epe, Lagos State
		Site No.3: Sheda Science and Technology Complex (SHESTCO)

Project Components (cont'd)

Component †	Outcomes	Strategy
4.	Environmentally sound disposal of identified PCBs, and	<p>identify the most cost-effective , commercially available and technologies that meet Stockholm convention requirements</p> <p>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.</p> <p>Capacity building, transfer of technology and best practices in Nigeria.</p> <p>Development of partnership for the replication and upscaling of PCB treatment/disposal centres and equipment decontamination/dismantling, which will also help other countries design theirs.</p>
5.	Monitoring, Learning, Adaptive Feedback and Evaluation.	<p>Development of a web portal for disseminating project information such as project performance, guidance documents, environmental impact assessment report, PCB regulations, etc</p> <p>Printing and circulation of project information, so as to reach those who do not have internet access.</p> <p>Incorporating an integrated Geographic Information System (GIS) with the PCB Management Information System to enable mapping of electrical equipment contaminated by PCBs or containing PCB oil.</p>

Pictorials of Project Activities

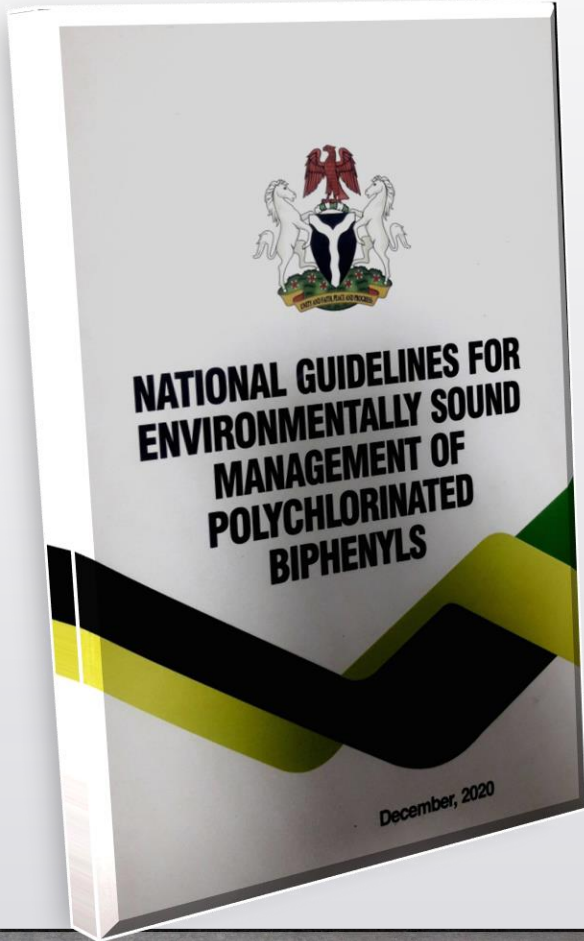
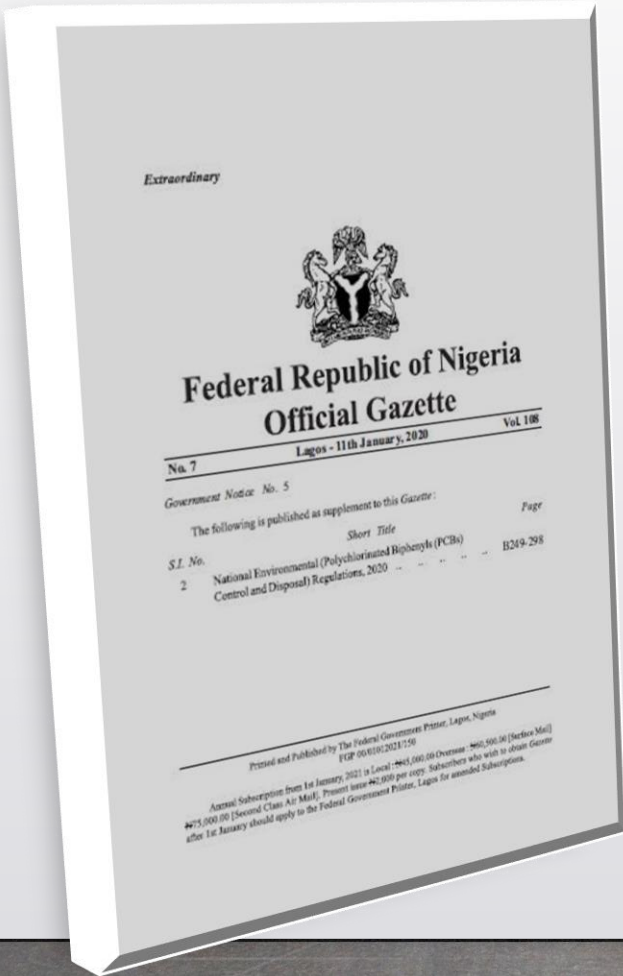


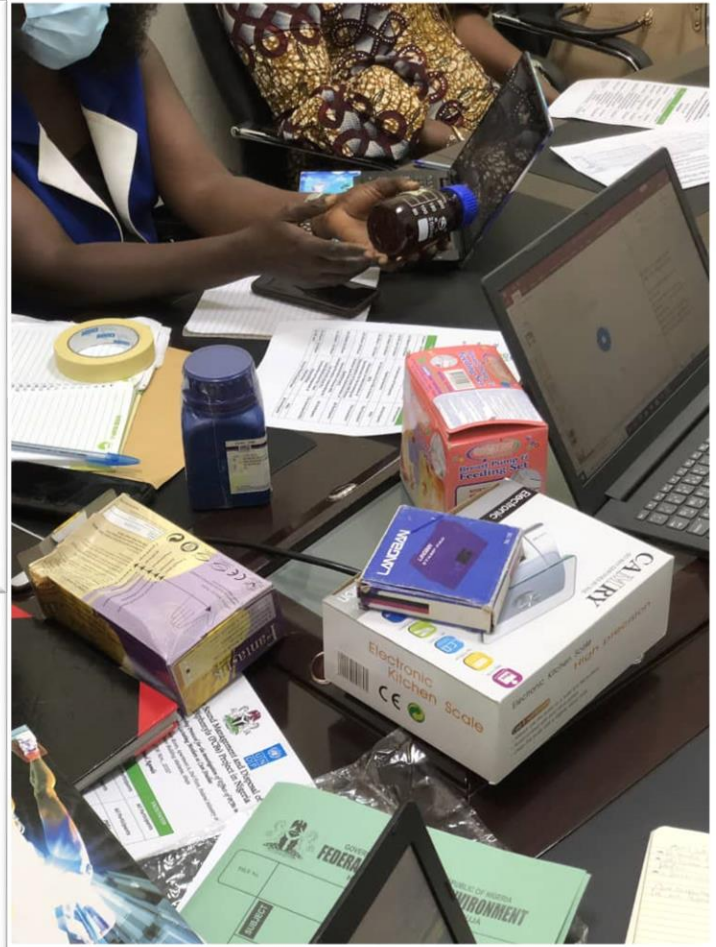






**Core Group Meeting on Finalisation of the PCBs Regulations
(Sawalino Hotel, September, 2020)**





Human Milk Sampling for the Assessment of Gender Impacts of PCBs









Conclusion



- Implementation of project components is being undertaken with inclusive participation of all relevant stakeholders.
All ongoing activities embarked upon from inception till date are to be completed and have been appropriately captured under the draft AWP 2021, for continuity.
- Continuous support of all stakeholders is being solicited to facilitate effective delivery of project products.

Thank you!

