PCBs Project Products Delivery: The Need for Active Participation and Support of Power Sector Operators

Delivered at the

Sensitisation/Consultative Workshop for Representatives of Power Sector Operators

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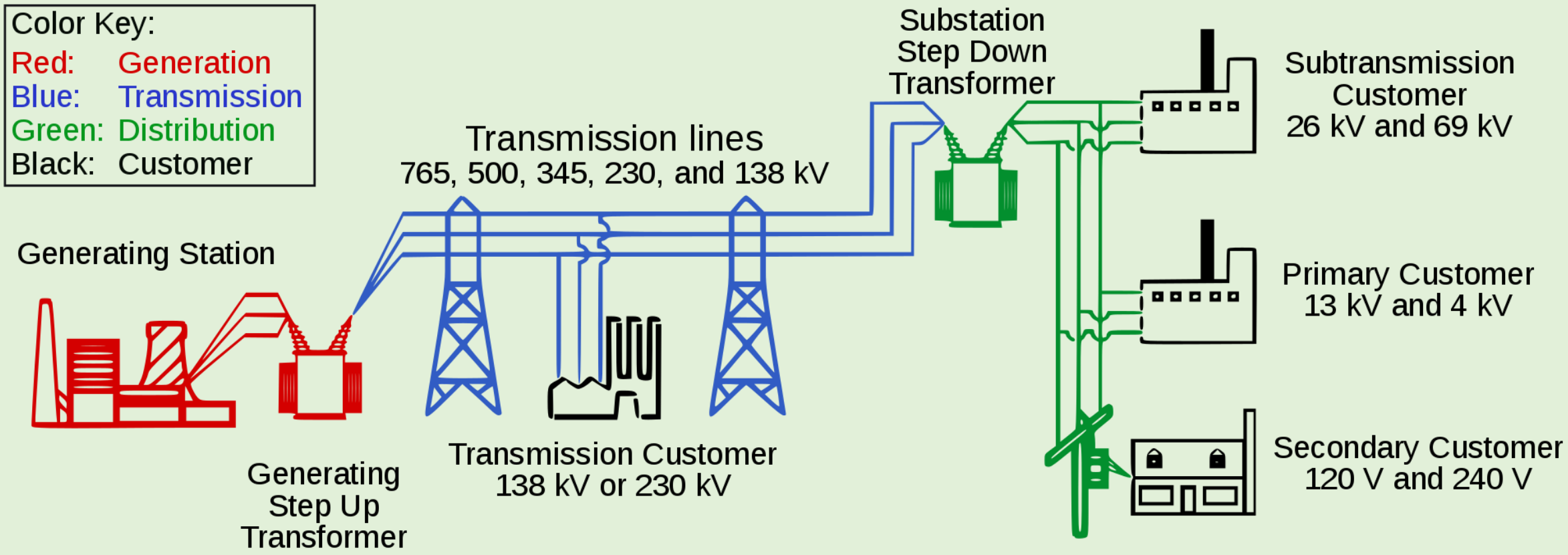
Highlight

- Introduction
- Baseline Information on PCBs in the Power Sector
- Roles and Responsibilities of Power Sector Operators
- Global Environmental and Socioeconomic Benefits of the PCB Project
- Last Note

Introduction

- The Environmentally Sound Management and Disposal of Polychlorinated biphenyls (PCBs) Project is intended to:-
  - build the national capacity for sound management of PCBs
  - protect the environment and citizenry against PCBs exposure risks
  - enable Nigeria meet her obligations under the Stockholm Convention
  - translate lessons learnt in this project to other countries experiencing similar challenges
- PCBs have ideal properties for industrial applications as one of the best dielectrics, insulators and heat transfer fluids in electrical utilities.
- Majority of PCBs manufactured and traded globally have been used widely in electrical equipment such as transformers, transformer bushings, capacitors, voltage regulators, fluorescent light ballasts, switches, breakers, gas turbines, among others.


Color Key:
Red: Generation
Blue: Transmission
Green: Distribution
Black: Customer
Generating Station
Generating
Step Up
Transformer
Transmission lines
765, 500, 345, 230, and 138 kV
Transmission Customer
138 kV or 230 kV
Substation
Step Down
Transformer
Subtransmission
Customer
26 kV and 69 kV
Primary Customer
13 kV and 4 kV
Secondary Customer
120 V and 240 V

Baseline Information on PCBs in the Power Sector

- The PCB inventories conducted in 2008 and 2009 established the presence of PCBs in the electrical power supply network.
- PCBs-contaminated oil was estimated at 421 tons, combined weight of PCB-contaminated equipment at 1,061 tons and total amount of PCB-contaminated wastes in Nigeria at 3,400 tons.
- The 2014 PCBs inventory conducted in Federal Capital Territory (FCT) and fourteen States (Kaduna, Kano, Sokoto, Bauchi, Benue, Niger, Lagos, Ogun, Oyo, Delta, Rivers, Abia, Anambra and Enugu) reported 1689.25metric tonnes (MT) of PCBs and 6137.71MT of PCBs-containing equipment.

Baseline Information on PCBs in the Power Sector (Cont'd)

- 2014 inventory reported indicated that the power sector had over 2,000 power generation transformers, about 250 transmission transformers and above 34,800 distribution transformers.
- Many of the PCB-containing electrical equipment 'observed' during the survey are likely to be in service, decommissioned or stockpiled.
- With increasing investments in electricity generation, transmission and distribution (G,T&D) and backbone infrastructures, it is tenable to assume that the situation must have significantly escalated over the last decade.
- A lot of online/offline transformers and other electrical equipment potentially contain PCBs by default, contamination or cross-contamination. There is therefore the need to identify such equipment and select the most appropriate steps to 'rid them' of PCBs.

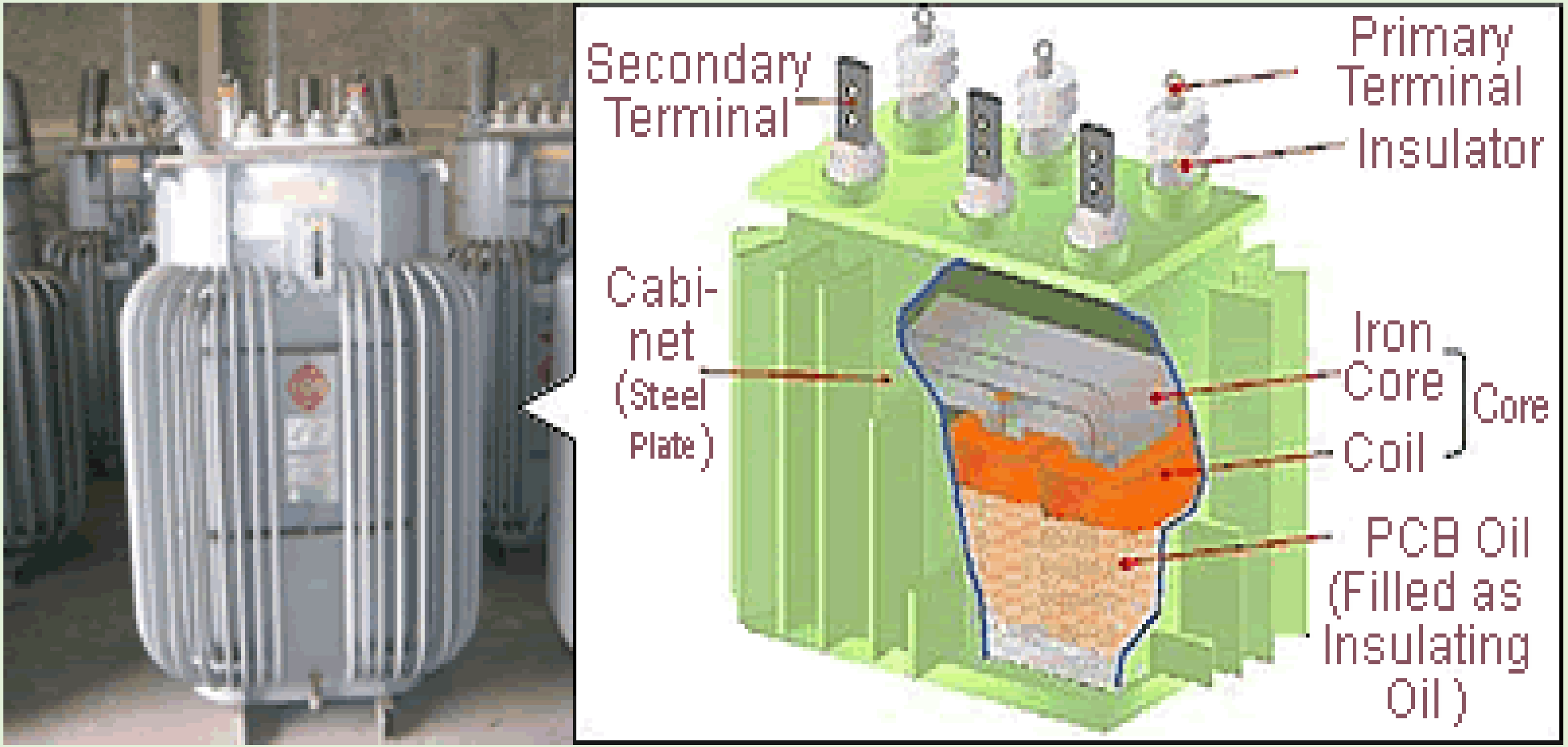
Baseline Information on PCBs in the Power Sector (Cont'd)

- Nigeria has capacity gaps in terms of economically and technically feasible and environment-friendly decontamination/treatment options for PCBs and PCBs containing electrical equipment.
- PCBs holders are thus burdened to resort to export of PCB wastes to disposal facilities in developed countries, which most power companies can hardly afford.
- The PCBs Project is therefore intended to address this barrier and others relating to human, legal and infrastructural capacities.

An On-line PCBs-filled Transformer and Empty Drums of PCBs Observed During a Previous Inventory.

Roles and Responsibilities of Power Sector Operators

- All Power Sector Operators, including the Integrated Power Project Owners, are potential holders/owners of PCBs and PCBs-containing equipment.
- At the project development stage, consultations were held with critical actors in the Power Sector as potential PCBs holders and target Project Beneficiaries.
- Pledges were made in support of the PCB Project implementation.
- All power sector operators are required to permit access to their facilities for PCBs Inventory in 22 States (not covered in 2014), gender analysis, treatment and support disposal activities, to facilitate effective project products delivery.



PCBs in a high-voltage transformer.
Source: Japan Environmental Storage and Safety Corporation (2018.

Roles and Responsibilities of Power Sector Operators (Cont'd)

- Provision for safe and secure Interim/temporary PCBs storage facilities, to reduce risks associated with stockpiles/abandonment, prior to evacuation to designated treatment and decontamination centres.
- An update and re-validation of the 2014 inventory data collected in, to reflect extant situation and form basis for an effective PCBs Management Plan. This is to be undertaken in liaison with PMU and funded by the affected power sector operators ;
- Representatives of Power Sector Operators are to benefit from human capacity building programmes and be actively involved in field activities.


Shared Responsibility

Global Environmental and Socioeconomic Benefits of the PCB Project

- The PCBs project is to decontaminate 1500 metric tons of PCB-contaminated electrical equipment and dispose of 200 metric tons of pure PCB from transformers and capacitors.
- The Disposal/Treatment Technologies being acquired will be deployed for an efficient and economically attractive decontamination of the dielectric fluid and its use as PCB-free oil in electrical transformers.
- This option will result in a net economic benefit for the PCB owners, as compared to cost-intensive shipment to developed nations.
- Abatement of harmful releases to the environment and mitigation of potential exposure risks to public health.

Global Environmental and Socioeconomic Benefits of the PCB Project (Cont'd)

- Resource recovery in terms of valuable arisings such as clean transformer oil, copper and carbon steel which can be procured by authorised recyclers.
- The technologies will continue to provide services to power facilities after project duration and there are opportunities for replication and upscaling by intending investors.
- Knowledge Capitalisation: skills and expertise acquired by representatives of/owners of electrical equipment can be applied to cognate projects and situations, thereby developing innovative solutions to environmental issues in the sector.

Last Words

- The Ministry and PCBs Project Management Unit will continue to promote an inclusive stakeholders' engagement at all stages of the project implementation.
- With collective action and continuous support of all critical actors, including power sector operators, the project set objectives are realisable.

Thank You