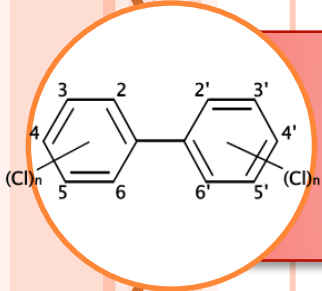
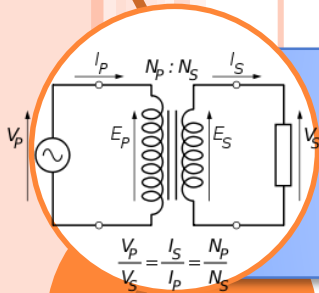


# “PCB – A FORGOTTEN LEGACY” STORAGE AND RISK

1



PCB is a persistent organic pollutant which is probable a human carcinogenic with toxic effects like endocrine disruption and neurotoxicity.



PCBs were used as a dielectric in electrical equipment and several other applications up to the late 1970s.



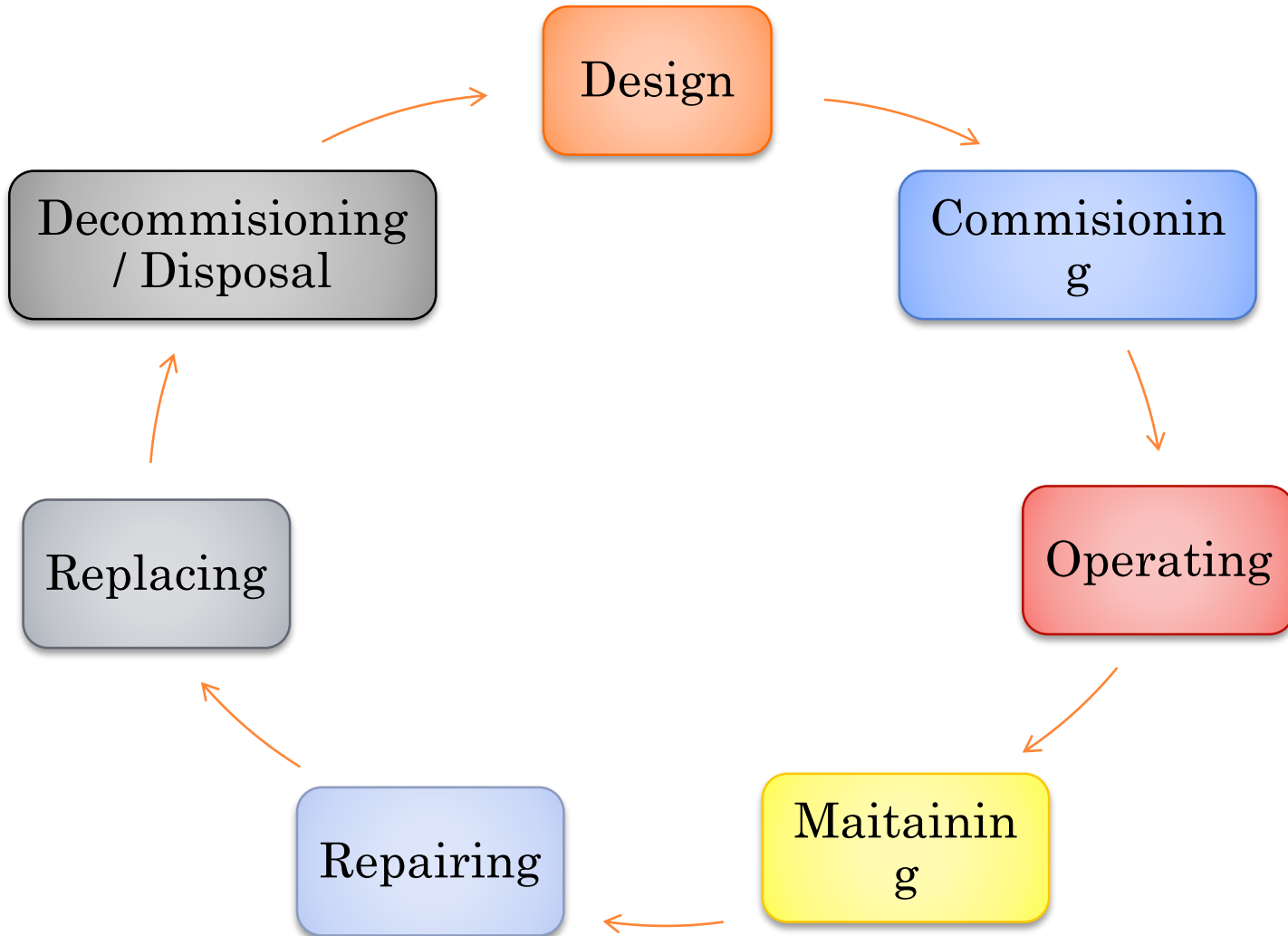
Despite the large PCB inventories since the implementation of regulatory controls, releases of PCBs to the environment through spills and fires continue to occur.



# SPILLS

- Maintenance operations
- Decontamination operations
- Transport operations
- Draining, refilling operations
- Contamination of waste oil
- Drainage systems, storm water systems, discharge points, sumps, and areas adjacent to surface waters
- Disconnection/disassembly of railroad transformers
- Lack of spill containment provisions in work pits/servicing areas
- Poor housekeeping practices
- Improper storage

# LIFE CYCLE OF TRANSFORMERS



## IN EVALUATING A STORAGE FACILITY THE FOLLOWING ASPECTS MUST BE CONSIDER

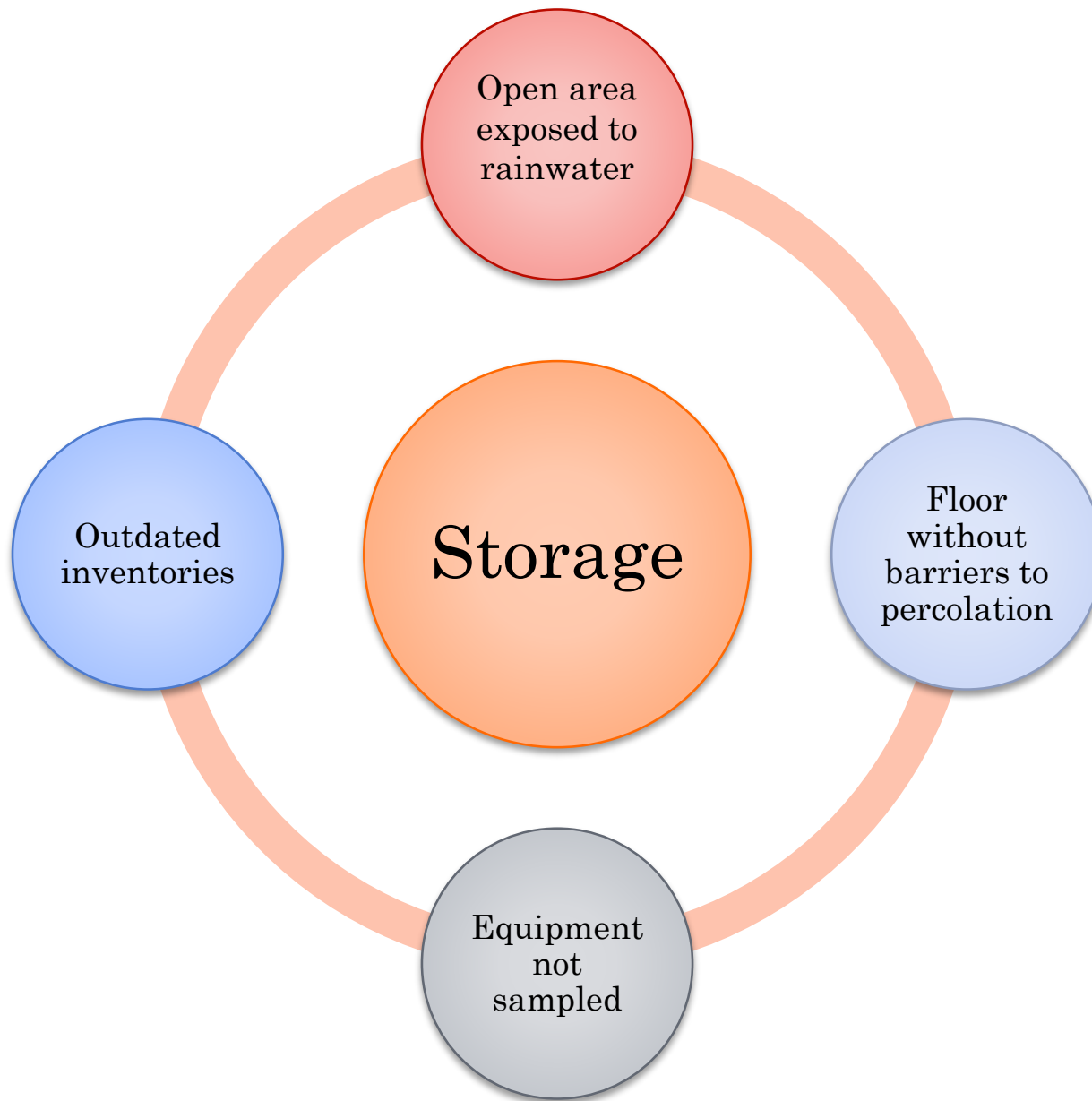
- Does the facility have adequate roof and walls to prevent rain water from reaching the stored PCBs?
- Is the containment volume sufficient for quantity of PCBs stored?
- Is the containment area free of drains, valves, joints, or other openings?
- Are flooring and curbing requirements met?
- Is the site above the 100-year flood elevation?





# IMPROPER STORAGE







# IMPROPER STORAGE PCB- CONTAMINATED EQUIPMENT

- Taking in mind that this type of practicing has been historically adopted
- And only to focussing on the actions should be taken to sort it
- We are going to analize one case of study



- The fire took place on 14<sup>th</sup> October 2015 in a transformer storage located in a densely populated metropolitan area 11 km from the capital Asuncion.
- The site covered approximately 27 hectares and has 20,000 transformers. The fire affected approximately 6,000.
- Equipment including stored transformers, capacitors, and other materials that may contain PCB, which can generate a large amount of dioxins and furans, were affected by the blaze.

- On 23<sup>rd</sup> October 2015 the Executive Secretary of the Paraguay Ministry of Environment officially requested the United Nations Environment Programme (UNEP) and the Secretariat of the Basel, Rotterdam and Stockholm (BRS) Conventions for technical assistance and guidance to assess the impact of the event and to appropriately deal with the resulting waste.
- A team was assembled, and the mission took place 9<sup>th</sup> – 22<sup>nd</sup> November 2015.

- The objective of the mission was to evaluate the extent of the environmental risk to the fire-affected sites, including the associated runoff, leaks, spills and waste, and provide recommendations for the management of the waste resulting from the incident.
- The objectives also included assessing the extent of human health risks at the fire-affected sites and provide guidance for reducing future risks. The evaluations and assessments by the team included interviews, aerial photography, and other assessment techniques used to evaluate the situation and develop recommendations.













Indice	Recommendations for short term
RCP-PCB-01	Perform a complete inventory of damaged equipment
RCP-PCB-02	Define and carry out the sampling
RCP-PCB-03	Sort equipment and oils by PCB concentration
RCP-PCB-04	Start an international tender for the management of equipment and PCB or PCB-contaminated oils
RCP-PCB-05	Management of equipment and PCB-free oils
RCP-PCB-06	Management of contaminated soils and sands with PCB

## Recommendations for medium term

RMP-PCB-08

PCB prevent entry system

RMP-PCB-09

Develop an inventory

RMP-PCB-10

Develop a database

RMP-PCB-11

Avoid cross-contamination

RMP-PCB-12

Develop of analytical skills and staff training

RMP-PCB-13

Study retrofilling

RMP-PCB-14

Implement an adequate storage of equipment and oils



# STORAGE MANAGEMENT

- Database

A structured set of data held in a computer, especially one that is accessible in various ways

- Sampling

Suspiciously and unknown transforms and oils must be sampled

- Classification

Creating a different storage for hazardous storage

- Firebreaks

# INFORMATION, CAPACITATION AND AWARENESS

Following people:

- Staff who works in handling, transport and storage of oil and containers (tanks, transformers, capacitors) containing or contaminated with PCB
- Firemen
- Medical doctors

must have the necessary information and training on the procedures to be used, personal protections should use and first aid measures against unwanted contacts.

## LEARNED LESSONS

- It is relevant that all of us understand that having environmental policies and pretty operational controls are not enough when we have improper storages.
- We urgently need to change historical practices. If not....
- Releases of PCBs to the environment through spills and fires will continue to occur;

THANK YOU!

Gracias!

Danke!