

## Operation of the Non-Combustion Destruction Facility for Persistent Organic Pollutants (POPs)

### PROJECT PROPONENT:

Natural Resources Development Corporation (NRDC)

### IMPLEMENTING PARTNER:

IPM Construction and Development Corporation (IPM)

### SUPERVISING INSTITUTION:

Department of Environment and Natural Resources—Environmental Management Bureau (DENR-EMB)

### PROJECT COST:

GEF	US\$ 4,108,500
UNIDO inputs	US\$ 650,000 (in-kind)
GOP (DENR)	US\$ 500,000 (in-kind)
Operating entity	US\$ 3,900,000 (in-kind/cash)
Private sector	US\$ 2,512,380 (in cash)
NGOs	US\$ 100,000 (in-kind)
<b>TOTAL:</b>	<b>US\$ 11,770,880</b>

### TOTAL GOP (DENR) Co-financing (CY 2008 to 2016)

**Php 38, 372, 750 or US\$ 886,344.84**



## OVERVIEW OF THE FACILITY

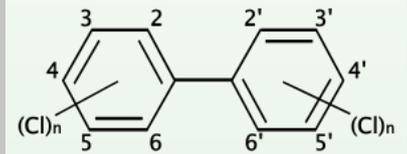
The PCB destruction facility consists of a dechlorination unit, two solvent extraction units, a sodium dispersion manufacturing unit, and a laboratory.

The dechlorination unit is where the PCB liquid waste will be chemically converted into non-toxic byproducts and reusable PCB-free mineral oil. The two solvent extraction units is where the removal of PCB contamination from metallic and porous (paper) components in transformers and other electrical equipment is undertaken.

The sodium dispersion manufacturing unit is where the manufacturing and handling of sodium and sodium dispersion is carried out using standard procedures to ensure the safety of the operation and to have the sodium dispersion reagent ready for injection into the reaction vessel in accordance to the prescribed requirements of the chemical destruction process.

Analysis of incoming and the treated oil and materials will be done in the laboratory.

The plant has a design capacity of 1,812 tons per year of PCB waste destroyed. On the average, 1,000 tons per year will be processed at 250 days per year.



## BACKGROUND

1. Twelve (12) persistent organic pollutants (POPs) termed as the “dirty dozen” were identified as hazardous causing adverse effects to the human health and the environment—recommended for corresponding international action in the Stockholm Convention (SC) last May 2001: reduction and eventual total elimination by 2025;
2. The SC was ratified by the Philippine Senate on 27 February 2004 and entered into force on 17 May 2004. The Philippines accordingly adopted the recommendation of the SC for POPs.
3. DENR-EMB and United Nations Industrial Development Organization (UNIDO) implemented the Global Environmental Facility (GEF)-funded project entitled “Demonstration of the Viability and Removal of Barriers that Impede Adoption and Successful Implementation of Available, Non-combustion Technologies for Destroying Persistent Organic Pollutants (POPs)” from 2008-2014.
4. The Philippine Government through DENR has the overall responsibility for environment management. DENR also serves as the GEF and POPs operational focal point. The Environmental Management Bureau (EMB) of the DENR implements regulations on environmental impact assess-

ment, toxic and hazardous waste and air quality management. As such, the DENR-EMB have the lead responsibility in coordinating with other institutions in the Philippines participating in the project and acts as the National Executing Agency, while UNIDO is the implementing international agency;

5. Other partners of the project included Philippine National Oil Company—Alternative Fuel Corporation (PAFC) as the original operating entity, NGOs (EcoWaste Coalition) which undertook the information awareness campaign, and major owners of PCBs, among others MERALCO, NGCP, PSALM and NPC;

(see page 3)

## WHAT IS PCB?

PCBs or Polychlorinated Biphenyls are hazardous chemicals that are among the priority persistent organic pollutants (POPs) targeted for worldwide elimination under the Stockholm Convention, a global agreement ratified by the Senate of the Philippines.

PCBs are oily liquids that may be found in old electrical transformers, capacitors, fluorescent ballasts, liquid-filled circuit breakers and voltage regulators. It has also been used as flame retardant, paint stabilizer, plasticizer, and in carbon-less paper.

PCBs are linked to serious illnesses like liver damage, skin disease, and sterility. PCBs are also considered as a “probable human carcinogen”.

Improper handling of PCBs and equipment or materials containing PCBs is a threat to public health and the environment.

## PCB Wastes in the Philippines

The currently known PCB inventories reported in the Philippine National Implementation Plan (NIP) of the Stockholm Convention dated January 2006 include 6,879 tonnes of PCB-containing equipment and wastes comprising of about 2,400 tonnes of PCB oil. The industries generating PCBs include electrical utilities and cooperatives, commercial buildings, industrial establishments and manufacturing plants, military camps and bases, servicing facilities and hospitals. Among the PCB generators, the electrical utilities and cooperatives contributes 64%, industrial establishments contributes 24% and the remaining goes to the other industries identified.



## BACKGROUND

6. After the project commissioning in February 2015, UNIDO issued the Transfer of Ownership of the Non-Com POPs Facility costing \$3 Million, more or less, to the DENR-EMB, which includes the building/warehouse, testing equipment, instrumentation, systems, etc.;
7. From August 2014-December 2014, the project suffered minor set-back when PAFC, the original operating entity, pulled out, leaving the facility in an idle condition;
8. EMB then assumed the interim maintenance and continuous looping of the facility and subsequently contracted IPM Construction and Development Corporation (IPM), the only licensee of Kinectrics from Canada and the UNIDO contracted technology owner and provider, to recalibrate all equipment which was completed last August 2016;
9. A Memorandum of Agreement (MOA) was entered into on 20 May 2016 between DENR-EMB and Natural Resources Development Corporation (NRDC), the corporate arm of DENR. NRDC was designated as the new operating entity replacing PAFC.
10. EMB, IPM and NRDC subsequently entered into a Tripartite Agreement last 20 May 2016 for the implementation of the start-up phase of the project covering 240 tons of PCB oil to be undertaken in four (4) months;
11. To date, EMB and NRDC has completed the official procurement process and has conducted necessary minor repairs, clean-up and coordination with the other government agencies for permits, licenses and other pre-operational requirements leading to such soft opening event;
12. As an off-shoot to the PCB Project development, the GEF has approved in December 2016 a new project that aims to sustain the operations of the facility, by providing subsidy to selected Electric Cooperatives for the treatment of their PCB-containing equipment and PCB oil. The project entitled "Implementation of PCB Management Program for Electric Cooperatives and safe E-waste Management". It was launched on 02 March 2017.

### Other salient features of the Project:

- Prior to this momentous event, the Philippines in general and the PCB generators in particular exports PCBs in France, Canada, USA and other countries, paying substantial dollar (\$) amount for its destruction and decontamination. The activity, aside from pioneering, therefore will result in dollar savings and/or dollar cost avoidance.
- The project will engage in a pioneering activity in the country—the destruction and decontamination of obsolete POPs, specifically PCBs.
- The Philippines, being a signatory to the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal is obliged to disallow the export of PCB



### Environmental Management Bureau (EMB)

Department of Environment and Natural Resources  
Air Quality Management Training Center Building  
Visayas Avenue, Diliman, Quezon City  
Tel: (02) 9281212  
www.emb.gov.ph

### Natural Resources Development Corp. (NRDC)

9th Floor, DENR By The Bay Bldg., Roxas Boulevard, 1515  
Cuarteles St., Ermita, Manila  
Tel: (02) 5219455  
nrdc.denr.gov.ph