PROJECT IMPLEMENTATION PLAN

FOR THE

PHILIPPINES:
INTEGRATED PERSISTENT ORGANIC POLLUTANTS (POPS) MANAGEMENT PROJECT

GEF Grant No. TF095839

December 2010

Volume 6
Environmental and Social Assessment Framework

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
ENVIRONMENTAL MANAGEMENT BUREAU
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PHI: Integrated Persistent Organic Pollutants Management Project
**ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO</td>
<td>Administrative Order</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>BAS</td>
<td>Bureau of Agriculture Statistics</td>
</tr>
<tr>
<td>BAT</td>
<td>Best Available Technology</td>
</tr>
<tr>
<td>BEP</td>
<td>Best Environmental Practice</td>
</tr>
<tr>
<td>CADT</td>
<td>Certificate of Ancestral Domain Title</td>
</tr>
<tr>
<td>CCO</td>
<td>Chemical Control Order</td>
</tr>
<tr>
<td>CDC</td>
<td>Clark Development Corporation</td>
</tr>
<tr>
<td>CENRO</td>
<td>Community Environment and Natural Resources Office</td>
</tr>
<tr>
<td>CFZ</td>
<td>Clark Freeport Zone</td>
</tr>
<tr>
<td>CIDA</td>
<td>Canadian International Development Agency</td>
</tr>
<tr>
<td>CSM</td>
<td>Conceptual Site Model</td>
</tr>
<tr>
<td>DAO</td>
<td>DENR Administrative Order</td>
</tr>
<tr>
<td>DDT</td>
<td>Dichloro-diphenyl-trichloroethane</td>
</tr>
<tr>
<td>DENR</td>
<td>Department of Environment and Natural Resources</td>
</tr>
<tr>
<td>DOLE BUC</td>
<td>Department of Labor and Employment Bureau of Unemployment Compensation</td>
</tr>
<tr>
<td>DOST</td>
<td>Department of Science and Technology</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>ECC</td>
<td>Environmental Compliance Certificate</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>EMB</td>
<td>Environmental Management Bureau</td>
</tr>
<tr>
<td>EMB CO</td>
<td>Environmental Management Bureau Central Office</td>
</tr>
<tr>
<td>EMB RO</td>
<td>Environmental Management Bureau Regional Office</td>
</tr>
<tr>
<td>EMD</td>
<td>Environmental Management Division</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>EO</td>
<td>Executive Order</td>
</tr>
<tr>
<td>ERA</td>
<td>Environmental Risk Assessment</td>
</tr>
<tr>
<td>ESA</td>
<td>Environmental and Social Assessment</td>
</tr>
<tr>
<td>ESAF</td>
<td>Environmental and Social Assessment Framework</td>
</tr>
<tr>
<td>FASPO</td>
<td>Foreign-Assisted and Special Projects Office</td>
</tr>
<tr>
<td>FPA</td>
<td>Fertilizer and Pesticides Authority</td>
</tr>
<tr>
<td>FPIC</td>
<td>Free and Prior Informed Consent</td>
</tr>
<tr>
<td>GEF</td>
<td>Global Environment Facility</td>
</tr>
<tr>
<td>GNP</td>
<td>Gross National Product</td>
</tr>
<tr>
<td>GOP</td>
<td>Government of the Philippines</td>
</tr>
<tr>
<td>HCB</td>
<td>Hexa-chlorobenzene</td>
</tr>
<tr>
<td>HDPE</td>
<td>High-density polyethylene</td>
</tr>
<tr>
<td>HRS</td>
<td>Hazard Ranking System</td>
</tr>
<tr>
<td>IEC</td>
<td>Information, Education, Communication</td>
</tr>
<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
</tr>
<tr>
<td>IPs</td>
<td>Indigenous Peoples</td>
</tr>
<tr>
<td>IPOPs</td>
<td>Integrated POPs Management</td>
</tr>
<tr>
<td>IRR</td>
<td>Implementing Rules and Regulations</td>
</tr>
<tr>
<td>ITDI</td>
<td>Industrial Technology Development Institute</td>
</tr>
<tr>
<td>LGU</td>
<td>Local Government Unit</td>
</tr>
<tr>
<td>MC</td>
<td>Mechanochemical</td>
</tr>
<tr>
<td>MT</td>
<td>Metric ton</td>
</tr>
</tbody>
</table>
1.0 INTRODUCTION

The framework provides guidance to assure each site-specific activity to be defined or firmed up and proposed under each project component will be implemented in an environmentally and socially sound manner. The framework provides a screening of impacts of the project and its implications on environmental and social management with reference to relevant Word Bank (WB) and Government of the Philippines (GOP) environmental and social policies, as well as to local and international good practices.

The WB Operational Policy (OP) 4.01 is the umbrella policy for environmental and social assessment but this framework also covers the other policies like OP 4.12 on involuntary resettlement and OP 4.10 on Indigenous Peoples. Based on the relevant requirements of the WB Operational Policy (OP) 4.01, this framework provides a POPs sector background, describes the project and activities, identifies the impacts of activities, sets out the strategies for mitigation of impacts, provides environmental and safeguards frameworks and instruments with guidance documents, sets roles and responsibilities of key stakeholders, guides the key stakeholders in preparing and reviewing of safeguards instruments, provides guidance in monitoring and supervising the implementation of environmental management plan, presents the public disclosure and presentation conducted, and states the requirements and cost for capability building and training.

2.0 SECTOR BACKGROUND

The GOP ratified the Stockholm Convention on POPs in February 2004, thus, committing itself to the reduction and elimination of POPs in the country. Thereafter, the GOP submitted in June 2006 the Philippine National Implementation Plan (NIP), which contains an assessment of the POPs issues in the country; the institutional, policy and regulatory frameworks; and the strategy and action plan elements of the national implementation plan.

The more important POPs issues were identified as follows\(^1\):

- Completion of the inventory of POPS including stockpiles and wastes
- Lack of understanding and knowledge on POPs
- Screening, enforcement, and monitoring of present and potential POPs chemicals
- Monitoring and surveillance of health status relevant to potential impacts of POPs
- Limited capacity to monitor dioxins and furans releases
- Enforcement of existing laws relative to dioxin and furan emissions
- Management and disposal of POPs-contaminated equipment (PCBs)
- Identification and management of POPs-contaminated sites

These are discussed under the following sub-sections below:

- Production, Emissions, Stockpiles and Contamination of POPs
- POPs Management Practices
- Analysis of Regulatory Framework for Philippine POPs Management and Monitoring

2.1 POPs Production, Emissions, Stockpiles and Contamination

2.1.1 Overview on POPs

The Stockholm Convention on POPs identified twelve (12) initial POPs, categorized into pesticides POPs, industrial POPs and Unintended by-products (UPOPs) as follows:

**Pesticides POPs:** aldrin, dieldrin, endrin, chlordane, heptachlor, 1,1,1-trichloro-2,2-bis (4-chlorophenyl) ethane (DDT), toxaphene, and mirex

**Industrial POPs:** hexachlorobenzene (HCB)*, polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins (PCDD or dioxins), and polychlorinated dibenzofurans (PCDF or furans); * also a pesticide

**Unintended by-products:** polychlorinated dibenzo-p-dioxins (PCDD or dioxins), polychlorinated dibenzofurans (PCDF or furans), polychlorinated biphenyls (PCBs), hexachlorobenzene (HCB)

2.1.2 POPs Sources in the Philippines

A survey revealed the following sources of POPs in the Philippines: (1) POPs pesticides reformulations; (2) POPs pesticides use, and dioxins and furan releases from open burning in agricultural farms; (3) dioxins and furans from pulp and paper mills, fuel burning facilities, iron and steel industry, cement manufacturing industry, and waste processing facilities; (4) PCB from transformer servicing facilities; and (5) PCBs, dioxins and furans from electric utilities, and hospitals. Table 2.1 provides an idea on the occurrence and distribution of POPs in the Philippines through the economic profiles of the sources.

Table 1. Economic profiles of POPs sources in the Philippines*

<table>
<thead>
<tr>
<th>Relevant POPs Chemicals</th>
<th>Philippine Sources</th>
<th>Economic Profiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>POPs pesticides Reformulators</td>
<td>No. of facilities: 10 – household pesticide formulators and repackers 15 – agricultural pesticide formulators and repackers Location: Regions 4, 6, 10</td>
<td></td>
</tr>
</tbody>
</table>
| POPs pesticides Farms | • Based on the 1991 data provided by the Bureau of Agricultural Statistics (BAS) there are 4,610,000 farm lands all over the country. Breaking it down according to land size, the numbers are as follows:  
  o Under 1.00 ha. – 1,680,000  
  o to 2.99 ha. – 1,960,000  
  o 3.00 to 4.99 ha. – 520,000  
  o 5.00 to 9.99 ha. – 320,000  
  o 10.00 ha. and over – 100,000  
  • Gross agricultural crop production for 2003 was reported to be at 71,610,000 MT with an equivalent value around PhP 330 Billion  
  • The 2003 data from the BAS reports that there are |
| Dioxins and furans (open burning) Farms | |

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Relevant POPs Chemicals | Philippine Sources | Economic Profiles
--- | --- | ---
Dioxins and furans | Pulp and paper mills | 11,220,000 persons employed in the agricultural sector
• Farms are scattered through the Regions of Luzon, Visayas, and Mindanao

Dioxins and furans | Fuel burning facilities | • The 2004 Philippine Statistical Yearbook reports that in 1999, there are a total of 203 paper and paper products manufacturing facilities.
• The same source reports a total number of 24,043 employees in this sector.
• The volume of sales reported is PhP 33.793 Billion

Dioxins and furans | Iron and steel industry | • The 2004 Philippine Statistical Yearbook reports that there are 253 iron and steel industry facilities in the country.
• This industry employs 28,040 personnel
• The reported volume of sales, based on the 2004 PSY, is PhP 49.876 Billion

Dioxins and furans | Cement manufacturing industry | • No. of facilities: 23
• Volume of production: 24,893 Billion Pesos
• No. of employees: 6,722

Dioxins and furans | Wastes Processing Facilities (wastes facilities) | • As of January 2005, there are 68 registered hazardous wastes processing facilities nationwide. Most of these are medium size industries.
• Based on January 2005 data from the National Solid Wastes Commission, there are 734 open dumps and 262 controlled dumps nationwide

PCBs, dioxins and furans | Transformer Servicing facilities | These are non-formal sectors in the country. Most are not even registered in any of the corresponding appropriate government agencies

PCBs, dioxins and furans | Electric utilities (electric cooperatives, power transmission, and distribution) | There are 139 electric utilities in the country, identified as follows:
• 119 – Electric Cooperatives
• 19 – Private Electric Utilities

PCB, dioxins and furans | Hospitals | • As of 2002, there are a total of 661 government and 1,077 private hospitals registered with the Department of Health.
• The 2004 Philippine Statistical Yearbook reports that in October 2003, there were 307,000 persons employed under the health and social work sector.
• The reported health expenditure in 2002 was PhP 31.886 Billion
### Relevant POPs Chemicals

<table>
<thead>
<tr>
<th>Economic Profiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>115.448 Million</td>
</tr>
<tr>
<td>• Share to GNP is 2.7% (based on 2004 PSY)</td>
</tr>
</tbody>
</table>

*Source: Adapted from DENR (2006). National Implementation Plan from Stockholm Convention*

### 2.1.3 Estimates of POPs Stockpiles in the Philippines

A survey on POPs stockpiles was included in the “Inventory of Persistent Organic Pollutants,” as part of the Philippine Enabling Activity Project of the DENR-EMB. The result was used in selecting the POPs and their sources considered in the IPOPs Project.

**POPs Pesticides.** Through various regulations, POPs pesticides stock dropped significantly, leaving the priority POPs issues on dioxins, furans and PCB.

**Dioxins and Furans.** In the absence of the Philippine-specific emission factors, the UNEP Toolkit was used to estimate the quantity of POPs in the Philippine in 1999 (Table 1.2). The estimated emission totaled 534.06 g TEQ/a. Uncontrolled combustion processes released the highest level of dioxins and furans at 187.05 g TEQ/a (or 35% of the total annual releases), that 135.46 g TEQ/a of the releases went air. The second highest emission of 157.23 g TEQ/a was found from power generation and cooking. Releases to air was found highest at 327.67 g TEQ/a that 35 percent of the releases was attributed to uncontrolled combustion of agricultural residues, 30 percent from firewood cooking, and 18 percent from biomass fired boilers sub-categories.

By 2004, the Philippine Second National Inventory of PCDD/PCDF showed a lower total PCDD/PCDF emission of 457.73 g TEQ/a. The Philippines will attempt to establish its own emission factors for a planned third inventory of PCDD/PCDF.

### Table 2. Philippine National Source Inventory of Dioxins (PCDD) and Furans (PCDF), 1999

<table>
<thead>
<tr>
<th>Sector</th>
<th>Source Category</th>
<th>Annual Releases (g TEQ/a)</th>
<th>Total/Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Air</td>
<td>Water</td>
</tr>
<tr>
<td>1</td>
<td>Waste Incineration</td>
<td>37.8320</td>
<td>0.0000</td>
</tr>
<tr>
<td>2</td>
<td>Ferrous and Non-ferrous Metal Production</td>
<td>8.6640</td>
<td>0.0000</td>
</tr>
<tr>
<td>3</td>
<td>Power Generating and Cooking</td>
<td>142.8408</td>
<td>0.0000</td>
</tr>
<tr>
<td>4</td>
<td>Production of Mineral Products</td>
<td>2.5345</td>
<td>0.0000</td>
</tr>
<tr>
<td>5</td>
<td>Transportation</td>
<td>0.1158</td>
<td>0.0000</td>
</tr>
<tr>
<td>6</td>
<td>Uncontrolled Combustion Processes</td>
<td>135.4576</td>
<td>0.0000</td>
</tr>
<tr>
<td>7</td>
<td>Production of Chemicals and Consumer Goods</td>
<td>0.0000</td>
<td>0.5995</td>
</tr>
<tr>
<td>8</td>
<td>Miscellaneous (Drying of biomass, green fodder, wood)</td>
<td>0.2301</td>
<td>0.0000</td>
</tr>
</tbody>
</table>
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### Environmental and Social Assessment Framework

#### Project Implementation Plan – VOLUME 6

**Annual Releases (g TEQ/a)**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Source Category</th>
<th>Air</th>
<th>Water</th>
<th>Land</th>
<th>Product</th>
<th>Residue</th>
<th>Total/Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>chips, smoke houses, dry cleaning residues, tobacco smoking</td>
<td>0.0000</td>
<td>43.2016</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>43.2016</td>
</tr>
<tr>
<td>Disposal/Landfilling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>327.6748</td>
<td>43.8011</td>
<td>46.8578</td>
<td>77.6398</td>
<td>38.0876</td>
<td>534.0611</td>
</tr>
</tbody>
</table>

Source: Inventory of POPs, Environmental Management Bureau, April 2004

**PCBs.** Electric transformers, capacitors and circuit breakers are known to contain PCB. An inventory done in 2004 covered a total of 8,027 pieces of equipment. Only 143 or 1.78% of these equipment were positively identified as containing PCB oil, while about 98.22% were assumed to contain PCB oil and should be subject to further validation and sampling (Table 2.3). Of the equipment surveyed transformers totaled 7,854 units (Table 2.4). Around 84% of these transformers were found in electric utilities. A total of 6,658 units (85%) of the transformers were reported online and 1,017 units (13%) in servicing facilities for retrofilling.

A collective weight of 2,400.5 MT was estimated for PCB oil and 4,478.8 MT for dry PCB equipment (Table 2.5). About 64% was found in electric utilities and cooperative. The PCB destruction facility of the UNIDO project is programmed to accommodate 1,350 MT of PCB oils and equipment.

#### Table 3. Summary of Equipment Surveyed in 2004

<table>
<thead>
<tr>
<th>Source Category</th>
<th>No. of Equipment Containing PCB Oil</th>
<th>No. of Equipment Assumed to Contain PCB Oil</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
<td>%</td>
<td>Units</td>
</tr>
<tr>
<td>Electric Utilities</td>
<td>61</td>
<td>42.7</td>
<td>6,650</td>
</tr>
<tr>
<td>Commercial Buildings</td>
<td>11</td>
<td>7.7</td>
<td>14</td>
</tr>
<tr>
<td>Industrial Establishments and Manufacturing Plants</td>
<td>49</td>
<td>34.3</td>
<td>200</td>
</tr>
<tr>
<td>Military Camps and Bases</td>
<td>8</td>
<td>5.6</td>
<td>3</td>
</tr>
<tr>
<td>Servicing Facilities</td>
<td>0</td>
<td>0.0</td>
<td>1,017</td>
</tr>
<tr>
<td>Hospitals</td>
<td>14</td>
<td>9.8</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>143</td>
<td>100.0</td>
<td>7,884</td>
</tr>
</tbody>
</table>

Source: Inventory of POPs, Environmental Management Bureau, April 2004

#### Table 4. Status of Transformer Equipment.

<table>
<thead>
<tr>
<th>Source Category</th>
<th>In Use</th>
<th>Out of Service</th>
<th>For Retrofilling</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Units</td>
<td>%</td>
<td>Units</td>
<td>%</td>
</tr>
<tr>
<td>Electric Utilities</td>
<td>6,484</td>
<td>97.4</td>
<td>118</td>
<td>66.0</td>
</tr>
<tr>
<td>Commercial Buildings</td>
<td>13</td>
<td>0.2</td>
<td>12</td>
<td>6.7</td>
</tr>
<tr>
<td>Industrial Establishments and Manufacturing Plants</td>
<td>150</td>
<td>2.3</td>
<td>35</td>
<td>19.6</td>
</tr>
<tr>
<td>Military Camps and Bases</td>
<td>6</td>
<td>0.1</td>
<td>5</td>
<td>2.8</td>
</tr>
</tbody>
</table>

PHI: Integrated Persistent Organic Pollutants Management Project
Table 5. Summary of PCB Stockpile

<table>
<thead>
<tr>
<th>Industry Category</th>
<th>PCB Oil (MT)</th>
<th>Equipment Dry Weight (MT)</th>
<th>Total Weight (MT)</th>
<th>% of Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Utilities and Cooperatives</td>
<td>1,620.3</td>
<td>2,788.0</td>
<td>4,408.4</td>
<td>64.08</td>
</tr>
<tr>
<td>Commercial Buildings</td>
<td>34.7</td>
<td>83.5</td>
<td>118.2</td>
<td>1.72</td>
</tr>
<tr>
<td>Industrial Establishments and Manufacturing Plants</td>
<td>525.4</td>
<td>1,098.7</td>
<td>1,624.1</td>
<td>23.61</td>
</tr>
<tr>
<td>Military Camps and Bases</td>
<td>3.5</td>
<td>8.2</td>
<td>11.7</td>
<td>0.17</td>
</tr>
<tr>
<td>Servicing Facilities</td>
<td>191.4</td>
<td>445.1</td>
<td>636.5</td>
<td>9.25</td>
</tr>
<tr>
<td>Hospitals</td>
<td>25.3</td>
<td>55.2</td>
<td>80.4</td>
<td>1.17</td>
</tr>
<tr>
<td>Total</td>
<td>2,400.5</td>
<td>4,478.8</td>
<td>6,879.3</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The DENR-EMB has established a PCB inventory database with a support from CIDA Trust Fund. It was not completed because not all PCBs have been identified yet. As of June 2009, about 657 PCB owners have been identified/registered, but only 69 PCB inventory reports and PCB management plans were submitted. EMB plans to complete the inventory.

### 2.1.4 Contaminated Sites in the Philippines

The production, use and disposal of POPs resulted in the contamination of land resources of the Philippines. Some sites are heavily contaminated with PCB wastes and obsolete POP pesticides, attributed to the country’s very limited experience on identification, characterization, and remediation, and little financial resources for these courses of actions.

Potential PCB contaminated sites were found located in electrical utilities, old industrial plants, and transformer servicing facilities. The top three (3) PCB hotspots are the National Capital Region (NCR), having the highest accounted quantity of PCBs; Region 4 ranking second with most numbers of electric cooperative respondents; and, Region 3, where the former US military bases (Subic and Clark) are found. Site assessments were done in Clark Freeport Area and Subic Freeport Zone, as discussed below.

**Clark.** The Clark Field in Pampanga was once a US military base. It is now under the development of Clark Development Corporation (CDC), which identified the following contaminants in a soil baseline study:

- Polychlorinated biphenyls
- Pesticides – DDT, Aldrin, Dieldrin, Chlordane, Heptachlor
- Volatile Organic Compounds

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2 Environmental Planning and Management Department. Clark Development Corporation. Hazardous Waste Contamination in Clark.
• Total Petroleum Hydrocarbons
• Lead

The PCB Status Report on 18 March 1991 further disclosed that the 180 transformers found contained PCBs but 120 of these units have already been replaced. The rest of the 60 transformers await replacement. The withdrawal of the US troops in 1991 and the serious aftermath effects of the Mt. Pinatubo eruption exposed the base to looting of transformers with consequent PCB oil spills.

**Subic.** The Subic Bay Freeport Zone is a former US Naval Facility, the biggest US base outside continental USA. But unlike Clark Air Base, the Subic Naval Base was reportedly secured for turn over and there were less looting and vandalism. The Subic Bay Metropolitan Authority (SBMA) currently oversees all business operations around the Zone in compliance to the Sec. 13 of the Philippine Republic Act No. 7227.

Environmental baseline study conducted in 1995 by Woodward-Clyde International showed the dominance but at low concentrations of metals (arsenic, lead) and organic compounds (TPH, PCB, PAH, pesticides) in the contaminated soil, water, and sediment. The survey further revealed the groundwater as containing elevated concentrations of lead, arsenic and manganese and traces of petroleum hydrocarbons, benzene, chloro-benzene and vinyl chloride. Sediments were also found positive of arsenic, barium, copper, lead, mercury and zinc and organic compounds like TPH, tributylin oxide and PCB.

However, the study concluded the absence of widespread severe contamination, attributed to the following scenarios:

• Pavement in most areas;
• Effective sewerage and storm water system;
• Practice of good housekeeping and strict inventory control by the US Navy;
• Wet tropical climate which favors biodegradation of organics; and
• US Navy’s clean-up before leaving the Base.”

The following efforts were exerted for areas evaluated with contaminations

• Site assessment in 1 out of 5 areas in PWC
• Rehabilitation and upgrading of Subic landfill
• ERA for industries conducted by ITDI-DOST
• PNRI conducted radiological surveillance and survey

SBMA is continuously implementing strategies and action plans with the assistance from the Philippine government and foreign counterparts to address the issues on toxic waste contamination, including regular monitoring and regulatory activities by concerned Freeport zone entities. The strategies formulated include the following:

• Coordination with other national government agencies and non-government organizations on:
  o Hazard survey and mapping
  o Contaminant migration assessment
  o Environmental risk assessment
Health risk assessment

- Encourage academic institutions/research foundations to conduct studies on site remediation measures, and
- Encourage business activities that does not involve extensive site disturbance

Other Contaminated Sites. Other sites with PCB and PCB-contaminated materials include old urban and industrial areas of Cebu and Davao City and the Meralco warehouse at Barangay San Joaquin, Pasig City, where the PCB-contaminated equipment and materials excavated from the decommissioning of the former Rockwell Power Plant in Makati City were encapsulated.

2.1.5 POPs Monitoring Capacity in the Philippines

With its limited technical infrastructure for POPs monitoring, the Philippines conducts POPs monitoring and related activities on a limited basis. Among the government agencies, which have the capacity and mandate to conduct research and development work related to POPs are the following

- Research and Development Division of DENR-EMB
- Ecosystems Research and Development Bureau of DENR
- Industrial Technology Development Institute of DOST
- Bureau of Food and Drug Administration of DOH
- Bureau of Plant Industry of the Department of Agriculture
- Occupational Health and Safety Center of DOLE

Monitoring of POPs generation and releases to the environment is a primary function of the DENR-EMB and, to a certain extent, the FPA (Fertilizer and Pesticide Authority). Both agencies have trained technical personnel to conduct environmental monitoring but they lack the technical infrastructure in terms of performing the actual measurements and analysis of POPs in various samples. Monitoring of POPs impacts on human health is the function of the DOH. Other national government agencies and the academe face similar issues. They rely on the existing foreign-funded monitoring activities to perform research and monitoring on POPs.

UPOPs Monitoring. Technical infrastructure for POPs monitoring, existing government and private laboratories do not have the ability to monitor UPOPs in the Philippines, particularly on the emissions of dioxins and furans. EMB does maintain equipment for monitoring unintentional releases of POPs. Sample collection and analysis are highly dependent on the capability of foreign laboratories based in Singapore, Australia, Japan, and Belgium. Although institutions such as universities and colleges, government organizations and agencies may have academic backgrounds, experience and training on research and development works, they lack laboratory equipment to measure and analyze POPs in the Philippines.

Thus, one of the objectives of the Philippine action plan in addressing unintentional POPs is the preparation of “an updated inventory of dioxin and furan releases from all significant sources by obtaining the best-estimate activity data nationwide and the most appropriate emission factors within three years from the approval of the National Implementation Plan.
Such an objective would require a comprehensive and institutionalized data collection and monitoring system.

**PCB Monitoring.** Reports showed the presence of PCBs in the country but there was no full account on the quantity, types and location due to the absence of proper records. Monitoring of PCBs is limited due to lack of equipment and the high cost of PCB concentration analysis and PCB test kits. Thus, monitoring activities are done only as part of research or foreign-funded projects as in the case of a UNDP-GEF assistance that provided the EMB with training and PCB test kits for the determination of the levels of PCB in oil at a certain detection limit. There are laboratories capable of analyzing PCBs located mostly in the industrial regions like Metro Manila but were not identified and properly recorded.

**Pesticide Monitoring.** Monitoring of environmental and health impacts of pesticides, or POPs pesticides in particular, are being performed mostly by the academe and other non-government organizations. FPA designates laboratories in the analysis of pesticides residues in fresh agricultural crops and in the environment on a quarterly basis. FPA utilizes the laboratory of the Bureau of Plant Industry for its analytical requirements. The FPA conducts licensing and registration of pesticides to ensure that standards are met based on their regulatory policies and implementing guidelines, but the FPA is not able to perform authentic laboratory evaluation of these products due to inadequate facilities.

### 2.2 POPs Management Practices

#### 2.2.1 Control of Dioxins and Furans Releases

Uncontrolled burning, which is a source of dioxins and furans, includes the natural and deliberate burning at dumpsites, biomass burning, waste incineration, accidental fires, and unregulated backyard burning in rural areas. Despite of laws and regulations solid waste landfill operations lacks in controlling and preventing the burning of wastes like regular compaction of waste, regular soil cover and gas management in which the LGUs, in general lack the financial capability, technical capability, and available space to fully comply with the requirements.

At the upstream side of solid waste management, there is a low collection rate of household wastes in all regions (except the National Capital Region), indicating that the waste is burned in the open where cost, convenience or local custom and social acceptability make that option attractive.

The Action Plan in the NIP addresses the unintentional POPs as follows:

- Develop and implement BAT/BEP promotion, adoption and monitoring programmes within three years across the most significant dioxin and furan source categories (based on updated inventory);
- Formulate by the end of year 3 (from the approval of NIP) and continuously enforce thereafter appropriate policies and regulations to control dioxins and furans releases; and
- Develop and implement a programme for information on the prevention of environmental and health effects of dioxin and furan by the end of year 2.
Moreover, there are relevant on-going government initiatives on cleaner production that avoids burning, which includes encouraging the adoption of best environmental practice in industrial facilities and providing guidelines for best available technologies or techniques.

### 2.2.2 PCB Management

Surveys showed that electrical and industrial companies normally seek the services of PCB transformers servicing facilities for the repair and maintenance of transformers and other equipment. Servicing activities include retrofilling of transformers on-site. The transformer is removed of existing oil then refilled with a dielectric fluid. The fluid refilled is either the same oil removed but filtered, or other alternative dielectric oil such as silicones, synthetic hydrocarbons, and ester-based materials. Moreover, these servicing facilities can also decommission and process equipment into second hand transformer units. However, the servicing facilities do not properly decontaminate equipment, and as disclosed, the filtering machines used for PCB oil were also used in filtering mineral oil, resulting to the spread of contamination. The oil removed from a transformer is tested for its dielectric strength to determine if the unit is still possible for reuse. Otherwise, the oil is discarded on ground or disposed on-site into drains and canals.

The survey also revealed that an electric utility company “buried and immobilized PCB contaminated soil in one of their compounds” while the contaminated equipment were being exported. In contrast, there are few companies, like one beer brewery and an electric utility company export to Europe their PCB wastes for disposal, in spite of the high cost of the activity.

The main issues associated with PCB management include:

- Low level of knowledge and awareness on PCBs and its threat to the environment and the public;
- Lack of available information and inventory on PCB use, types, volume and location;
- Lack of technical infrastructure for the conduct of regular monitoring resulting to improper waste management of PCBs by the industries

Above issues can be addressed by realizing the objectives of the Action Plan in the NIP, as follows:

- Prepare a comprehensive and complete national inventory of PCBs, PCB containing materials, and PCB wastes from year 0 to year 2 of the National Implementation Plan;
- Establish and implement a program on safe handling, storage, and transport of PCBs, PCB-containing materials and PCB wastes from year 1 to year 3;
- Develop and implement continuous integrated environmental and health monitoring program from year 1 onwards; and
- Eliminate and destroy all PCBs, PCB-containing materials, and PCB wastes not later than 2025.

The current motivating factor in the elimination of PCB involves the Canadian Kinectrics’ sodium-based chemical destruction process for PCB oil and equipment, which, from among

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3 Environmental Management Bureau/Department of Environment and Natural Resources with support from GEF and UNIDO. Code of Practice on the Management of Polychlorinated Biphenyls. DENR-EMB.
the competing technologies, was recently selected for the construction of PCB Destruction Facilities under the UNIDO project. The Philippine National Oil Company will house the facilities in a 4,000 m$^2$ lot and operate them with a license obtained from DENR. The facilities will remove PCB-contaminated insulating oil from electrical equipment, destroy the PCBs and return clean oil to equipment. The capacity of the UNIDO PCB Destruction Facilities is 1,000 tons per year and will destroy 1,500 metric tons PCB oil and equipment during a two-year demonstration period schedule in December 2009 to December 2011.

2.3 Analysis of Regulatory Framework for Philippine POPs Management and Monitoring

POPs exist in different media and their control can be addressed through various Philippine pollution control laws (developed according to environmental media) such as The Philippine Clean Air Act of 1999, (RA 9749), The Ecological Solid Waste Management Act of 2000 (RA 9003), and The Toxic Substances, Clean Water Act and Hazardous and Nuclear Wastes Act (RA 6969). However, the implementing rules regulations and enforcement of these laws with respect to POPs are underdeveloped.

Dioxins and Furans. There are laws governing the releases of dioxins and furans from combustion processes in dumpsites, agricultural areas, backyards, and biomass power plants. The Philippine Clean Air Act of 1999 prescribes an emission standard as follows: “Provided, That the emission of dioxins and furans into the air shall be reduced by the most progressive techniques: Provided, further, that all average values of dioxin and furans measured over the sample period of a minimum of 6 hours and a maximum of 8 hours must not exceed the limit value of 0.1 nanogram/m$^3$.”

“The Department shall, within a period of two (2) years after the enactment of this Act, establish an inventory list of all sources of Persistent Organic Pollutants (POPs) in the country. The Department shall develop short-term and long-term national government programs on the reduction and elimination of POPs such as dioxins and furans. Such programs shall be formulated within a year after the establishment of the inventory list.”

RA 8749 prohibits incineration, which is defined as the burning of municipal, bio-medical and hazardous wastes, which process emits poisonous and toxic fumes. Local government units are “mandated to promote, encourage and implement in their respective jurisdiction a comprehensive ecological waste management that includes waste segregation, recycling and composting. “ Further “no establishment, firm, company, government or private entity or organizations shall be allowed to burn or cause open burning of waste materials in their premises, area of jurisdiction, including recognized or unrecognized dumpsites in any quality or quantity.”

In regard to solid waste management, laws and regulations have been in placed to prevent fires at dumpsites, such as compaction, soil cover, gas vents and security. By virtue of different laws DENR issued DAO 98-49 Technical Guidelines For Municipal Solid Waste Disposal. Other laws and regulations are RA 9003, DAO 2001-34 (IRR of RA 9003), and DAO 2006-09 (General Guidelines in the Closure and Rehabilitation of Open Dumpsites and Controlled Dump Facilities). Regulations require the closure of open and controlled dumpsites given a set of technical standards in order to promote sanitary landfills and various ways in managing solid waste under the principle of reduce, reuse and recycle.
However, mechanisms are lacking to enforce the provisions of RA 8749 and RA 9003 on the control of unintentional POPs releases from the combustion process in dumpsites, agricultural areas, backyards, and biomass power plants.

**PCB.** DENR issued a Chemical Control Order (CCO) for PCBs (DAO 2004-01) on February 19, 2004 (took effect on March 19, 2004), pursuant to the provisions its implementing rules and regulations of RA 6969 (DAO 29 Series of 1992), and other applicable laws, rules and regulations. The scope of this CCO cover the importation, manufacture, sale, transfer, distribution and the use of PCBs, PCB equipment, PCB contaminated equipment, non-PCB equipment, PCB articles and PCB packaging in commercial buildings and industrial facilities, including the use and possession by electric utilities and suppliers.

The CCO provides guidelines for the phase out of the use, sale, and importation of PCB electrical equipment; responsibilities and liabilities for the improper management and handling of PCBs and its wastes; and specific requirements for annual reporting, inventory, phase-out, storage, treatment, and disposal. To operationalize the ideas, PCB owners or holders are required to submit a PCB management plan.

The CCO also stipulates prohibition by March 19, 2014, or 10 years after the effective date of the Order, the use or storage for reuse of any PCBs, PCB equipment, PCB-contaminated equipment, or PCB article, including those in totally enclosed applications. Likewise, on the same date, the storage of PCB packaging and PCB wastes shall no longer be allowed.

Further, during the first year of implementation of the CCO for PCBs, the World Bank, as the trustee of the CIDA Trust Fund, helped the EMB/DENR to develop a *Guidance Document on PCB Management for Electric Cooperatives*. This document was prepared in guiding rural electric cooperatives across the country to manage their PCB equipment and/or PCB-contaminated equipment, in order to enhance the compliance of rural electric cooperatives to applicable provisions of the CCO for PCBs.

**Pesticides.** The Fertilizer and Pesticide Authority is the main agency tasked to manage pesticides importation, manufacture, use, reformulation, and distribution. The Environmental Management Bureau (EMB) provides the necessary enforcement for the management of hazardous wastes generated in pesticides manufacturing facilities, including formulating plants, as well as large-scale end-users of pesticides (large farms/plantations). The following agencies and organizations provide the necessary enforcement support:

- Bureau of Customs – enforces border controls in regulating the entry of banned pesticides or toxic chemicals in general
- Bureau of Plant Industry – monitors residual pesticides and evaluate pesticide application practices to ensure acceptable level of residues in agricultural products
- Research and Development Division of the Environmental Management Bureau – monitors POPs pesticides in fish and shellfish in selected areas of the country
- Croplife Philippines – as a plant and science industry association, provides partnership with the Fertilizer and Pesticide Authority in pesticides management
- Non-government organizations – provides support in monitoring, public awareness, and information dissemination
3.0 PROJECT DESCRIPTION

The Government of the Philippines has requested the assistance of World Bank in three critical areas in POPs management, which require immediate action. These areas are the reduction of PCDD/PCDF release, PCB management, and contaminated sites. To bolster the country’s capacity for POPs management in the three areas, the proposed project will also include a component to review, strengthen and further develop regulatory framework, and to build technical capacity for POPs monitoring with appropriate training activities. Five (5) components with activities and sub-activities were identified with the following themes in environmental management:

- Improvement in the POPs management regulatory framework
- Improvement in the knowledge on POPs through inventory and monitoring
- Introduction or adoption of best available technologies (BAT) or best environmental practice (BEP) for field activities, piloting or demonstration
- Performing field activities such as monitoring, mitigation, prevention, and remediation of POPs occurrence
- Training for capacity building in managing POPs and enforcement
- Information, education and communication on POPs

3.1 Component 1: Strengthening Regulatory Framework and Capacity Building for POPs Monitoring

The objective of this component is to strengthen the regulatory and monitoring capacity for phasing out the use of and reducing exposure to and releases of persistent organic pollutants (POPs). While the Philippines has established much of the legislative framework necessary for chemicals management and other activities related to POPs management, significant gaps remain, and in many cases existing legal mechanisms are not fully consistent with or do not specifically support implementation of the Stockholm Convention. In addition, the country has not established a system for monitoring these pollutants’ health effects. Component 1 will help address these issues through the activities described below.

Activity 1.1: Modification of the Regulatory Framework for POPs Management and Monitoring. This activity will enhance the legal basis for POPs management according to Stockholm Convention requirements and the overall chemical safety system for handling dangerous chemical substances and hazardous waste. It will include preparation of legal and regulatory instruments (laws and implementing rules, administrative orders, and amendments); support for the adoption of these instruments; and creation of appropriate legal documentation for technical guidelines and standards. This activity will coordinate with the outputs under components 2 to 4 by providing the legal basis for adopting the policies, standards, and guidelines developed and updated under these components.

Activity 1.2: National Exposure Monitoring Program for POPs. This activity will be led by DOH and will finance development of an exposure monitoring program. The program will undertake surveys and sampling of targeted groups to better understand exposure pathways

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4 The proposed project will not cover POPs pesticides per se as this area is targeted for the second phase of the long-term program. However, with the inventory of POPs contaminated sites collected in the proposed project, the GOP will gain a better understanding of the scope and magnitude of pesticide stocks.
and overall exposure to POPs in the country. It will use the inventory data and activities of the other components as a basis for targeting the surveys and sampling sites. The specific survey and sampling strategies will be tailored for different POPs groups (i.e., pesticides, PCBs, and dioxins and furans), for different purposes (e.g., source, ambient, and impacts monitoring), and for various media and components.

**Activity 1.3: Policy and Planning.** This activity will be undertaken just after mid-term and will involve a review of the status of implementation of the Stockholm Convention in order to outline activities that will need to be pursued in the future to scale up project initiatives, fill gaps, address unanticipated issues and tackle approach to new POPs chemicals.

### 3.2 Component 2: Reduction of Releases of Unintentionally Produced Persistent Organic Pollutants

Unintentional POPs (UPOPs), dioxins and furans most significantly, are produced unintentionally by industrial processes or incomplete burning. In the Philippines, the largest sources are agricultural burning and municipal solid waste. The objective of this component is to better understand and demonstrate the reduction of the releases of UPOPs. This will be done through improving the understanding of emissions from targeted sources and nationally; demonstrating implementation of best available technologies (BAT) and best environmental practices (BEP) for reducing emissions from the municipal waste management sector; and establishing BAT/BEP for other sources. This component will be implemented by DOST and supported by the DENR National Solid Waste Management Commission through guideline development, training, and dissemination. These component activities are described below.

**Activity 2.1: Establishment of Emissions Factors and Verification of Environmental Technology for Selected Sources in the Philippines.** This subactivity, to be led by DOST-ITDI, will provide technical assistance to better quantify the sources of dioxin and furan emissions in the Philippines through direct measurements from open burning in the Philippines. The data provided will be used as a basis for more accurate estimates of emissions factors for use in the inventory, will help verify the performance of technologies introduced to reduce dioxin and furan emissions and provide a basis for monitoring and estimating the impact of the demonstrations under activity 2.3. The activity will fund studies to measure emissions factors, develop environmental technology verification guidelines, conduct environmental technology verification and demonstrate reduction of PCDD/PCDF from open burning sources.

**Activity 2.2: Conduct of the Third National PCDD/PCDF Inventory.** This activity, led by DOST-ITDI, will undertake the Philippines’ third inventory of dioxins and furans. It will undertake improved data collection on sources through a more comprehensive survey of sources and will use the improved estimates of emissions factors under activity 2.1. At the end of this activity, DENR-EMB shall be able to submit the third national inventory to the Stockholm Convention. The inventory will also be disseminated to the public.

**Activity 2.3: Investments in BAT/BEP Demonstration for the Solid Waste Sector.** This activity, to be managed by National Solid Waste Management Commission (NSWMC) and implemented by a targeted six local governments, is designed to reduce this major source of dioxin and furan emissions by demonstrating practices that are able to prevent or suppress fires at disposal sites and reduce barriers to the cessation of backyard garbage burning. GEF
financing will focus on investments that will help address the current lack of knowledge and awareness of the operational practices that prevent or suppress fire at disposal sites and the lack of awareness, regulatory clarity and cultural and financial motivation to reduce backyard burning. The investments will be done in parallel with investments at the local government level in solid waste management systems. Technical assistance and investments will be provided to develop and implement practices that demonstrate the operational details that result in fire prevention and suppression including extinguishing current burning at disposal sites (fire fighting exercises using soil, fire suppression foams, and equipment); preventing burning (application of soil cover, compaction, improved administration, security, and safety and waste inspections as part of dumpsite closure and landfill operation); and reducing burning at households through advocacy programs, enforcement of burning ordinances, and improvements to infrastructure to collect the additional waste generated from the reduction of burning (collection trucks, bins, vehicle repair, and maintenance facilities). Monitoring of impact will be done using the analysis and data from activity 2.1 that will establish emissions factors for backyard garbage burning and dumpsite burning. Initially, three local governments will demonstrate the approach; the remaining phases will be undertaken yearly, based on readiness criteria applied to the remaining LGUs.

Activity 2.4: Technical Assistance for Preparation of BAT/BEP. This activity will provide technical assistance (TA) for the preparation of BAT/BEP guidelines for solid waste management and for updating them based on their successful implementation in a few demonstration projects. This activity will also prepare BAT/BEP guidelines for sources of open burning based on Stockholm convention guidance documents, experience in the country and the results of activity 2.1. BAT/BEP for health care waste management will not be covered under this component as it will be developed by a complementary GEF-UNDP project.

Activity 2.5: Training, Demonstration, and Dissemination. This activity will use the results of the component demonstrations and studies to develop materials, case studies, training courses, and dissemination workshops in order to raise awareness and replicate the demonstration activities.

3.3 Component 3: Management of Polychlorinated Biphenyls (PCBs)

The objective of this component is to assist in minimizing the risk of exposure of PCBs to humans and the environment by strengthening DENR-EMB oversight and improving the on-site management practices of PCB owners. PCBs were never produced in the Philippines, but they are used or stored in electrical equipment in the electric utility and manufacturing sectors, old commercial buildings, and transformer servicing facilities. A partial PCB inventory has been completed and standards for PCB management have been established; however, only a small percentage of operators has developed or implemented a PCB management plan. This component will support the DENR-EMB through the completion of the national PCB inventory, will offer technical assistance and training for PCB owners and DENR-EMB inspectors, and will facilitate demonstration of good on-site PCB management through implementation of PCB management plans. These PCB management activities will only cover PCB Management on the PCB owners facility site (“on-site” management) and any PCB treatment and disposal will be the responsibility of the PCB owners.
Activity 3.1: Completion of the National Inventory of PCBs. The following subactivities have been designed to help complete the national PCB inventory.

Subactivity 3.1.1: PCB Identification and Public Awareness. The first step in the process of updating the inventory is identifying potential PCB owners. This will be done through targeted national workshops and information dissemination implemented by a newly established PCB monitoring network. This effort will disseminate the technical guidelines for PCB management and identify new potential owners of equipment containing PCBs. Activities include establishing a PCB Monitoring Network, to be led by EMB; producing IEC materials; and holding public awareness seminars and other activities to disseminate the Revised Technical Guidelines on PCB Management and IEC materials useful in identifying new potential owners of PCB equipment.

Subactivity 3.1.2: PCB Testing and Registration. After potential PCB owners have been identified, they will be required to register with DENR-EMB; their equipment and oil will then be tested for PCBs and labeled accordingly. This subactivity will support the PMO’s responsibilities in reviewing and approving registration forms, annual reports, inventory reports and providing test kits to be used in screening for contamination; and by completing the labeling of PCB equipment.

Activity 3.2: PCB Management. PCB owners will implement on-site PCB management activities using the Revised Technical Guidelines on PCB Management.

Subactivity 3.2.1: Implementation of On-site PCB Management. PCB owners will be required to prepare and submit to EMB site-specific PCB management plans; EMB will review and endorse the plans within six months after registration. Under the Project, PCB owners will be trained using a template PCB management plan. PCB owners and registrants will be responsible for all costs of on-site management of the PCBs including identification, testing, labeling; establishing; decommissioning and safe storage. Technical assistance to PCB owners on PCB management will be provided by the Project under subactivity 3.2.2.

Subactivity 3.2.2: Training and Technical Assistance to PCB Owners on On-site PCB Management. This activity will provide assistance in preparing and implementing PCB Management Plans through: (1) training for the trainers selected from major PCB owning organizations and corporations; and (2) training for PCB owners, provided by the trainers, on preparation of PCB management plans and PCB management. The trainers will also provide onsite technical assistance to PCB owners for sound PCB management and technical support to local EMBs charged with validating the PCB management practices of each PCB owner.

Activity 3.3: Monitoring and Enforcement. The PCB owners have the obligation to report the presence of PCBs to EMB and implement the PCB management plans. To effectively enforce this obligation, however, independent inspections by a competent authority (such as EMB, NEA, or other PMN members) will be necessary. It will also support training DENR-EMB, NEA, and regional EMB inspectors to conduct inspections verifying effective PCB management, including site visits for validation, sampling and testing for PCBs.
3.4 Component 4: Identification and Remediation of POPs Contaminated Sites

The objective of this component is to strengthen the enabling capacity of the country to reduce risks posed by POPs contamination of the environment by identifying contaminated sites; establishing a strategic framework, technical guidelines, and professional capacity to help address them; and building public knowledge and awareness. Some sites within the Philippines have been confirmed to be contaminated with POPs, including areas that once housed electrical transformers; old dumpsites; former production facilities; and pesticide storage sites. Other sites are suspected to be contaminated, and many others have not yet been identified. The cleanup of these sites is not mandatory or otherwise regulated under Philippine law. Activities for this component include the development of a national inventory of sites and a national remediation strategy, including legislative and regulatory strengthening; establishment of site cleanup standards; national training and dissemination; demonstration of site control to reduce exposure; and the demonstration of contaminated site cleanup. All funding for site remediation will be provided by the counterpart land owners and the Philippine Charity Sweepstakes Organization (PCSO) through the President’s Social Fund allotted for hazardous waste management.

Activity 4.1: Inventory of Contaminated Sites. Activity 4.1 will establish a methodology for the systematic identification of contaminated sites. A Hazard Ranking System (HRS) will be developed to assess the relative risks of these sites.

Subactivity 4.1.1: Methodology for Developing an Inventory of Contaminated Sites. A methodology for the identification and classification of contaminated sites throughout the Philippines will be developed based on relevant national and international experiences including relevant POPs toolkits. This methodology will provide the procedures, requirements, and a toolkit for developing and updating a national list of contaminated sites. The identification methodology and guidelines will include: (i) collection of secondary data and survey information to identify potentially contaminated sites; (ii) undertaking site inspections; (iii) screening guideline to categorize sites based on potential hazards; (iv) site assessment of potentially high risk sites and assessment based on an exposure pathway model and relative health risk using internationally approaches; and (v) recommending management options for these sites.

Subactivity 4.1.2: Development of a National Inventory/Registry of Contaminated Sites. This subactivity will develop a list of contaminated sites using the guidelines provided. It will identify a list of potentially contaminated sites; undertake site inspection for verification; conduct site assessments including sampling and hazard ranking; and recommend management options for between 10 and 25 high-risk sites. The subactivity will also undertake communication and disclosure to support EMB’s inventory activities and training development to update the inventory to include other contaminated sites.

Activity 4.2: National Strategy for POPs Contaminated Sites. This activity will analyze options and develop an overall strategy for the proper management of contaminated sites in the Philippines based on experiences elsewhere and the Philippine context. The activity will finance the technical and consultation process to assess and come up with a strategy covering legal (including liability), regulatory, financing and cost sharing policies of cleanup, site control and prevention. In doing so it will assess worldwide experiences; Philippine institutional mandates and capacities; and the economic and financial viability, efficiency and
cost apportionment of different options. It will be implemented through by DENR through a multi-stakeholder process involving public and private sector landowners; NGOs; public agencies regulating or managing contaminated sites; financing agencies and decision makers and private sector groups involved in contaminated site management. CDC and SBMA will lead site cleanup demonstration activities.

**Activity 4.3: Demonstration of Site Remediation and Site Control.** This component will demonstrate the process and implement site control and site remediation for use both in training personnel and in developing and revising guidelines for these activities. It will include the following subactivities:

**Subactivity 4.3.1: Site Remediation Demonstration.** Demonstrations of site remediation will take place at two sites: (i) the fire-fighting training area of Subic Bay Freeport (owned by Subic Bay Metropolitan Authority); and (ii) the PCB transformer site at Clark Freeport (owned by Clark Development Corporation). These sites were chosen as demonstration sites based on the willingness and capacity of the landowners who have experience in contaminated site management, availability of financing, manageable scope of the anticipated remediation at the sites and the ability to use the sites for demonstrations and training due to accessibility from Manila and available sites for workshops. The demonstrations will have four major phases: (1) site assessment, environmental assessment, and technology choice; (2) remedial design; (3) remedial action; and (4) operation and maintenance (including site closeout). Remediation will be designed so as to meet risk-based cleanup standards to be adopted for the project based on international guidelines. Remediation activities will be funded through the land owner’s counterpart and by the Philippine Charity Sweepstakes Organization (PCSO) through the President’s Social Fund allotted for hazardous waste management. Training will be provided during the activity as part of GEF grant financing.

**Subactivity 4.3.2: Site Control Measures for Potentially Highly Contaminated Sites.** Based on the output of activity 4.1, this activity will demonstrate the use of site control strategies to reduce exposure to contaminated sites with high health risks. It will fund the development and implementation of site control measures in one to three sites, including institutional and physical measures to limit access and exposure to these contaminated sites. The sites will be chosen based on risk (from the hazard risk assessment done under the inventory), costs (to ensure the project can afford it), implementation arrangements (willing land owner, access and technical feasibility), and demonstration potential. Training for this intensified site control will be provided to the site owners during this process.

**Activity 4.4: Guidelines and Standards Development.** This activity will establish and update guidelines and standards based on work under the strategy and demonstration projects. It will cover all technical standards and guidelines related to site remediation, site control, and inventory development including site cleanup standards, site remediation, and site control guidelines. These guidelines will be finalized for adoption as part of component 1.

**Activity 4.5: Training, Capacity Building, and Information Education Campaigns.** This activity will help build awareness of issues surrounding contaminated sites; develop professional capacity for site cleanup; and disseminate the results of the demonstration.

**Subactivity 4.5.1: Development of IEC Materials for Site Inventory, Contaminated Sites, and Training Materials for Site Remediation and Site Control.** This subactivity will support the
communication needs of DENR and of the project partners with regard to site remediation and site control, including necessary websites, brochures, workshop materials, and other dissemination materials.

Subactivity 4.5.2: Training in Site Inventory, Site Remediation, and Site Control. This subactivity will support training on the national level regarding the national inventory, site remediation, and site control. It will target consulting firms, academe, land owners, real estate developers, and chemicals users and will include the following elements: (i) guidelines for training in site remediation using demonstration sites; (ii) guidelines for training in site control using site control demonstration and through the development of a comprehensive site control plan; (iii) training of doctors and medical practitioners in diagnosis and treatment of chemical exposure and (iii) training in communication and consultation as part of site remediation and control.

Subactivity 4.5.3: Training for enforcement. This subactivity will support training and capacity building at DENR in their mandate regarding contaminated sites. It will cover (i) training on site inspections; (ii) training on dissemination and enforcement of guidelines and standards; and (iii) hands on training on review of documents (site assessments, remediation plans, etc.) submitted for regulatory review and approval.

3.5 Component 5: Project Management

Component 5 will support DENR in its management of the project. The following descriptions outline component activities.

Activity 5.1: Project Management and Coordination. This activity will assist DENREMB in its overall management and coordination of the project, including work and financial plan development, coordination, secretariat support to the interagency steering committee, technical advice, meeting organization, documentation support, and procurement management support.

Activity 5.2: Institutional Strengthening and Information, Education, and Communication. This activity will support the preparation and coordination of training; organization and assistance in the implementation of project consultations and conferences; and coordination and integration of IEC materials preparation and programs for different components.

Activity 5.3: Project Monitoring and Evaluation. This activity will support the implementation of the results-based project monitoring and evaluation plan, manual, and MIS; review of management and evaluation results; and preparation of associated reporting documentation.

Activity 5.4: Project Financial Management and Monitoring. Activity 5.4 will support DENR in project financial management, including expenditure reporting responsibilities, financial plans, and the financial reports required by the World Bank and GOP.
4.0 APPROACH TO ENVIRONMENTAL AND SOCIAL ASSESSMENT

The environmental and social assessment adopted for this project basically followed the requirements of WB Operational Policy (OP) 4.01 which is the umbrella policy for environmental and social assessment. The framework also covered other policies such as OP 4.12, 4.10. The project is a multi-component project and the activities covered under the framework are those with site works with potential environmental and social impacts (Section 5). The likely field operations of these activities were then described as a means to identify the impacts (Section 6), which became the basis of developing and focusing applicable mitigation strategies and measures (Section 7) with reference to the environmental and social policies of WB and GOP, and the local and international good practices. Roles and responsibilities of stakeholders were laid down for the implementation of measures and for environmental and social assessment for each component activity (Section 8). Environmental guidelines and social assessment frameworks were developed including the environmental and social assessment instruments containing the environmental management plans, which the proponent will prepare and for review and approval by EMB (Section 9). Monitoring and supervision statements were provided for the implementation phase of the project (Section 10). Consultations were also done with the public and other entities during the scoping phase and on the draft ESAF, including with those at the dumpsites and with NCIP (Section 11). Lastly, a capability building and training requirements and costs were outlined for different stakeholders (Sections 12 and 13), as part of the assurance for the effective implementation of the EA process and safeguards.

The assessment was conducted with data gathering from literature, project design technical reports and field survey. Guidance was provided by WB project preparation team.

5.0 PROJECT COMPONENT ACTIVITIES UNDER THE FRAMEWORK

5.1 Activities Covered under Environmental and Social Assessment

The IPOPs Project involves investment co-financing, technical assistance, demonstrations and training. The activities that will be covered under the environmental and social assessment framework are those having physical works at a site, which may directly alter the site, cause pollution and risk, and affect the local community, as shown in the following table.

Table 6. Project Activities Covered under Environmental and Social Framework

<table>
<thead>
<tr>
<th>Component</th>
<th>Activity/Sub-Activity</th>
<th>Activity Number</th>
<th>Estimated Number of Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 2</td>
<td>Investments in BAT/BEP demonstration for the solid waste sector</td>
<td>Activity 2.3</td>
<td>6*</td>
</tr>
<tr>
<td></td>
<td>• Works to stop burning at dumpsites</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dumpsite closure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improvement in landfill operations to prevent burning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component 3</td>
<td>Implementation of PCB Management</td>
<td>Sub-activity 3.2.1</td>
<td>800</td>
</tr>
</tbody>
</table>
Some specific sites have been identified during the project preparation stage for the startup of project implementation. For Component 2, the initial solid waste disposal sites identified are located in Iloilo City (Visayas), and General Santos City (Mindanao). For Component 4, the demonstration areas for site remediation are located in Clark Freeport Zone (CFZ) and Subic Bay Freeport Zone (SBFZ).

The first year of the project will entail following preparatory works:

- Component 2: Finalization of dumpsite closure plans with EMPs and SDPs for the three priority dumpsites
- Component 3: Preparation of updated PCB Management Plans
- Component 4: Site characterization and preparation of EA documents for the demonstration of site remediation

Other activities are scheduled in years 2 to 5 of the project.

5.2 Component 2, Activity 2.3: Investments in BAT/BEP demonstration for the solid waste sector

This component will cover the demonstration of BAT/BEP to stop burning at dumpsites, dumpsite closures, and improved landfill operations involving prevention of burning. Investments under the GEF will provide assurances that practices to prevent burning are incorporated (soil cover and proper sloping and security, signage etc.). Ten (10) LGUs will be accommodated out of 33 prospective LGUs.

The activity to stop burning will consist of a combination of fire suppression (excavation, applying foam, injecting inert gas, targeted water application) and dumpsite rehabilitation (applying soil cover, restructuring areas of the dumpsite, slope stabilization).

Dumpsite safe closure (according to DENR 2006-09) will include site assessment, site clearing, site grading and site stabilization of critical slopes, application and maintenance of soil cover and capping, provision of drainage control system, leachate management, gas management, fencing and security, putting up of signage, and future land use.

Improved landfill operations with prevention of burning will consist of technically and environmentally simple measures like improved screening and accounting of wastes, provision of security in preventing unauthorized burning, monitoring of portions to spot

<table>
<thead>
<tr>
<th>Component</th>
<th>Activity/Sub-Activity</th>
<th>Activity Number</th>
<th>Estimated Number of Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 4</td>
<td>Demonstration of Site Remediation and Site Control:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Site Remediation Demonstration</td>
<td>Sub-activity 4.3.1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Site Control Measures for Site Potentially Highly Contaminated Sites</td>
<td>Sub-activity 4.3.2</td>
<td>1 to 3</td>
</tr>
</tbody>
</table>

* from 33 prospective sites
susceptible areas to spontaneous combustion, reconfiguration of the dump to allow immediate compaction of loosening areas, slope stabilization, and application of soil cover.

5.3 Component 3. Implementation of PCB Management

The activity will involve the implementation of sound PCB Management by about 800 PCB owners. The government has set to phase out PCB by 2014. PCB management under the project covers improved equipment identification, testing, labeling, inventory, and safe storage. PCB owners will be provided with PCB testing kits.

5.4 Component 4, Activity 4.3. Site Remediation and Site Control

Site remediation will be undertaken in two sites: (i) a former PCB transformer site at Clark Freeport Zone (CFZ) under the administration of the Clark Development Corporation (CDC); and (ii) the fire training area of Subic Bay Freeport Zone (SBFZ) under the administration of the Subic Bay Management Authority (SBMA). Remediation activities will be funded by the GOP or by the project partners. Site assessment and training will be done during the activity as part of GEF grant financing.

Site remediation will entail cleaning of contaminated soil to a provisional standard developed in the course of the project. The demonstrations will have four major phases: (1) site assessment, environmental and social assessments, and remediation technology selection; (2) remedial design; (3) remedial action; and (4) site closeout. Site characterization, activities, design and approach to site cleanup, and environmental assessment will be undertaken during the first year of the project.

After site assessment, the activities may branch into two cases to clean the site:

Case 1 - in-situ treatment or immobilization of the contaminated soil
Case 2 - ex-situ treatment by removing the soil, extracting the contaminant onsite or offsite, destruction or immobilization of the contaminant onsite or offsite

Currently, the technology that will be used at the candidate site has not been selected and whatever technology is chosen, site remediation should not cause significant environmental impact at the demonstration level.

Among the technologies so far evaluated in this project are briefly described. The clean up technologies were grouped into 14, according to treatment process (physical, chemical, and biological), as follows:

1. In situ biological treatment for soil, sediment, bedrock, and sludge.
2. In situ physical/chemical treatment for soil, sediment, bedrock, and sludge.
3. In situ thermal treatment for soil, sediment, bedrock, and sludge.
4. Ex situ biological treatment for soil, sediment, bedrock, and sludge.
5. Ex situ physical/chemical treatment for soil, sediment, bedrock, and sludge.
6. Ex situ thermal treatment for soil, sediment, bedrock, and sludge.
7. Containment for soil, sediment, bedrock, and sludge.
8. Other treatments for soil, sediment, bedrock, and sludge.

9. In situ biological treatment for ground water, surface water, and leachate.
10. In situ physical/chemical treatment for ground water, surface water, and leachate.
11. Ex situ biological treatment for ground water, surface water, and leachate.
12. Ex situ physical/chemical treatment for ground water, surface water, and leachate.
13. Containment for ground water, surface water, and leachate.

Technologies to clean the site were explored, as listed below:

a. Alternative Remediation Technology of Pesticides and PCBs
   - Physicochemical Technologies
   - Combustion Systems
   - Bioremediation Processes
   - Phytoremediation
   - Emerging and Innovative Technologies – physicochemical technologies
   - Emerging/Innovative Thermal Technologies

b. Alternative Technologies for Dioxins and Furans Remediation
   - Radiolytic Degradation
   - Base Catalyzed Dechlorination
   - Subcritical Water Treatment
   - Thermal Desorption
   - In-situ Photolysis
   - Solvent and Liquefied Gas Extraction
   - Steam Distillation
   - Mechanochemical (MC)
   - Biodegradation Process

The more likely site scenario of clean up would consist of the following activities:

1. Site staging
2. Site surface clearing
3. Soil removal (for ex-site remediation)
4. Treatment of soil whether in-situ, or ex-situ (on-site or off-site) using physical, chemical, or biological means
5. Site Rehabilitation

The site control sub-activity will fund the development and implementation of demonstrating site control measures in one to three sites, including institutional and physical measures to limit access and exposure to these contaminated sites. The demonstration site will be selected from the inventory of contaminated sites that will be prepared in this project. Training on site control will be provided to site owners during this process.
Site control is a measure to reduce exposure to high health risk contaminated. Operationally, it aims to physically separate the public from the contaminated site. Site control also includes institutional controls such as well use restriction, title or deed restriction and/or land use planning. Options for engineering works for site control may include the following:

1. **Fences**: with warning or prohibiting signs for any unauthorized access;
2. **Caps**: Caps may be constructed of clay or chemically resistant geosynthetic materials.
3. **Engineered bottom barriers**: This is a recent development in which an impervious horizontal stratum is created below an existing contaminated site (i.e., landfill), when no aquitard exists, by grouting or other techniques.
4. **Immobilization processes**: These processes involve the binding of contaminants into a solid that is resistant to leaching. The following three processes are examples used for immobilizing contaminants in soil:
   a. **In-situ solidification**: In this process, contaminants are physically bound or enclosed within a stabilized mass.
   b. **In-situ stabilization**: Stabilization is accomplished by inducing chemical reactions between a stabilizing agent and the contaminated soil to reduce contaminant mobility.
   c. **Encapsulation**: Encapsulation involves the complete coating or enclosure of a toxic particle or waste agglomerate with a new substance, e.g., the additive or binder.
5. **Vertical barriers**: This type of barrier is used to prevent horizontal migration of groundwater. Vertical barriers are typically used to control sources of contaminants are soil-bentonite, soil-cement-bentonite, cement-bentonite, sheet pile (steel or high-density polyethylene [HDPE]), and clay barriers.

### 6.0 PROJECT-RELATED ENVIRONMENTAL/SOCIAL IMPACTS AND RISKS

This section outlines the potential environmental and social impacts and risks used in focusing mitigation measures and the overall EA as well as the social safeguards frameworks, which in turn will be used by proponents in developing safeguards instruments (EAs/EMPs/SDPs) for each proposed site-specific activity. In general, the significant impacts and risk posed by the activities are deemed at the neighborhood scale by the nature and scale of potential operations.

#### 6.1 Component 2, Activity 2.3: Investments in BAT/BEP demonstration for the solid waste sector

This Activity will cover demonstration of BAT/BEP to stop burning at dumpsites, dumpsite closure, and improved landfill operations to prevent burning. The issues for these three sub-activities relate to (i) environmental; (ii) social development of waste pickers; (iii) resettlement of structures or houses and (iv) indigenous peoples (who may be waste pickers) and ancestral domain.

Among the environmental issues in this component activity are as follows:

- Exposure of workers to fumes and natural explosions due to gas build up
- risk of slope collapse to nearby settlers during major waste movement activity
- Land disfiguration, soil erosion, water ponding and safety risk due to excavation of soil for dumpsite cover.
• Increase in airborne dust from soil excavation and on-site transfers especially during summer
• Accumulation of mud along transport route wet offsite soil to dumpsite.
• Chances of an increase in uncollected garbage without provisions for alternative receiving facility of garbage

Waste pickers may loss their livelihoods due to restriction of access at the dumpsites and picking areas. They and others may have structures to be dismantled in the course of operations. Structures at dumpsites are made of temporary materials and used as assembly points, temporary resting places of waste pickers, food stalls, and buying stations of junk shops; rarely are these structures made of permanent materials and used as residences by waste pickers.

The landfill operations may require land acquisition in the proximity of the dumpsite as staging and storage area for heavy equipment and other types of instruments, soil cover, barracks or temporary living quarters for workers, and for other purposes.

In addition, the operations may affect the IPs in two ways: a) the collective attachment that IPs may have on the proposed sites, and b) presence of IPs in the proposed site. In the latter case, the IPs live on or depend on the project area as a distinct and separate community, not just individuals or families blended within the mainstream or dominant group, and they are in the project area or practice their customary cultural, economic, social or religious, and political institutions that are separate from those of the dominant society and culture. Initial screening indicated the absence of the two cases in Cabanatuan City and Iloilo City.

6.2 Component 3. Implementation of PCB Management

Key issues on PCB Management toward PCB phase out in 2014 are the safety and health risk to workers, risk of water pollution due to suspected lack of good practices in the prevention of spillages, and disposal of contaminated articles, tools, equipment, and washing.

6.3 Component 4, Activity 4.3. Demonstration of Site Remediation and Site Control

6.3.1 Site Remediation

Site remediation will involve clean-up, rehabilitation works, and post-clean up institutional control. The following are the potential impacts with area of influence largely confined within the demonstration site and immediate neighbors though diverse in nature:

1. Small land disfiguration or removal of aesthetics elements at the site
2. Removal of useful structures including the heritage structures
3. Removal of important trees, ornamental plants, crops
4. Chance find of cultural properties
5. Temporary increase in the local solid waste generation rate
6. Muddying of pathways due to run-off from soil stockpile
7. Structural impacts due to vibration, dewatering and groundwater pumping
8. Cross contamination of neighboring soil due to run-off of stockpile of soil excavated
9. Temporary surface water pollution due to run-off of stockpile of excavated soil
10. Cross contamination of groundwater due to leaching of contaminants from contaminated excavated soil, and chemicals used for on-site treatment of soil
11. Temporary elevated levels of odorous gases released from excavation (e.g. petroleum hydrocarbons, gasworks wastes, organic solvents or putrescible wastes) or released from using chemical (solvents, strong acids, strong bases) for on-site treatment like
12. Temporary increase in ambient total suspended particulates in air due to dust emission from excavation of dry soil and from dry stockpile of soil during windy situations
13. Temporary increase in the ambient noise level due to equipment operation like heavy equipment and motors used in the on-site treatment of soil
14. Short-term exposure of workers to physical, chemical or biological hazards depending on the technology to be applied
15. Risk to public and visitor safety and health
16. Temporary restriction of access to the current site use leading to loss of livelihood and economic loss and relocation of activities to another site
17. Location of a demonstration site in an IP area, specifically in Subic, where the identified remediation site is located in an ancestral domain
18. General apprehension of the activity due to lack of local courtesies, timely information dissemination, and timely updates to local key stakeholders

6.3.2 Site Control

Site control aims to separate the public from the contaminated site, requiring engineering works. Basically the activities resemble short-term construction works, which the locals may be familiar with, and may cause impacts similar to site remediation, as follows:

1. Small land disfiguration or removal of aesthetics elements at the site
2. Removal of useful structures including the heritage structures
3. Temporary increase in the local solid waste generation rate
4. Cross contamination of neighboring soil due to run-off of stockpile of soil excavated
5. Temporary surface water pollution due to run-off of stockpile of soil excavated
6. Temporary muddying of pathways due to run-off from soil stockpile
7. Temporary increase in ambient total suspended particulates in air due to dust emission from excavation of dry soil and from dry stockpile of soil during windy situations
8. Temporary increase in the ambient noise level due to equipment operation like heavy equipment and motors used
9. Temporary olfactory impacts due to gaseous emissions released from excavation or using chemical for on-site treatment
10. Removal of valuable trees, ornamental plants, and crops
11. Short-term exposure of workers to physical and chemical hazards depending on the technology to be applied
12. Risk to public and visitor safety and health
13. Long term restriction of access to the current site use
14. Encroachment in an IP area
15. General apprehension on the activity due to lack of local courtesies, timely information dissemination, and timely updates to local key stakeholders
7.0 PROJECT-RELATED MITIGATION STRATEGY

7.1 Overall Approach

Options for mitigation measures were identified corresponding to the identified impacts and risks presented in the preceding section. In developing the options, reference was made to the WB safeguards policies OP 4.01 on environmental assessment, OP 4.10 on Indigenous Peoples, and OP 4.12 on involuntary resettlement. These policies were supported by the: Philippine EIS System (PD 1586), and other environment and social laws of the Philippines like Ecological Solid Waste Management Act of 2000 (RA 9003), Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (RA 6969), Clean Air Act of 1999 (RA 8749), Clean Water Act of 2004 (RA 9275), and The Indigenous Peoples’ Rights Act of 1997 (RA 8371). Other local and international policies and good practices were references in developing the mitigation strategy.

Such safeguards were used to develop the project environmental and social assessment frameworks or guidelines, provide for as EAs, EMPs, Social Development Plan for Waste Pickers, Resettlement Action Plan, Indigenous People’s Development Plan SDPs, which will be prepared by proponents for site-specific activities. Some measures were listed to address the used are avoidance, prevention, preservation, minimization, rehabilitation, restoration, and compensation.

A communication strategy will be implemented through the main project funding with provisions for an effective information exchange on the project among policy and decision makers, industry and professional users and the general public. The communication strategy aims to the following:

- Increase the awareness and understanding of stakeholders on toxic chemicals such as POPs – its health and environmental risks, its economic and social costs and the alternatives to POPs;
- Mobilize policy and decision-makers to actualize government’s commitments to the Stockholm Convention as specified in the National Implementation Plan on POPs management, reduction and elimination;
- Define the process for conducting consultation and information disclosure for those involved in POPs management, reduction and elimination; and
- Promote public participation in addressing the health and environmental effects of POPs and in the reduction or elimination of the production, use and release of POPs

The communication strategy will be implemented using component communication plan outlining the list of target audience, objectives, activities, lead entities and source of funding.

7.2 Component 2, Activity 2.3: Investments in BAT/BEP demonstration for the solid waste sector

The three identified sub-activities (stop burning, dumpsite closure, and improved landfill operations to prevent burning) come with issues like safety and health of operators, hazards from unstable slopes, impacts of sourcing out and use of soil cover, security, impacts on waste pickers, and the potential for land acquisition, resettlement and impacts on IPs.
As a strategy, some criteria for investments were set out to ensure the project is a good demonstration and the issues of disposal are managed properly. To be part of the program, the LGU will need to commit to closing the dumpsite and making alternative arrangements for disposing and or the 3Rs (reduce, reuse, recycle) as per RA 9003. In order to begin the activities, the following will be confirmed: (i) draft dumpsite closure plan is updated to meet the requirements of the framework; (ii) financing for closure; and (iii) other arrangements and financing for disposing and 3Rs for the project.

Prospective LGUs are deemed to have submitted to EMB/NSWMC their respective dumpsite closure and rehabilitation plans in compliance with the requirements of DAO 2006-09. However, the review of the current dumpsite closure plan outline and the plans for three sample dumspites showed the need for the dumpsite closure plans to be updated to fill the gaps with reference to the WB EA requirement. The plans were found strong in the technical aspect of the closure, however weak or lacking in the different aspects of an EMP, in particular, the presentation of impacts, monitoring, roles and responsibilities, cost, and sources of fund. Thus, an Updated Dumpsite Closure Plan using an upgraded outline (Annex 2) is a recommended operative document for safeguard clearing purposes under this project. The development of the plan will also refer to the Guidebook for the Safe Closure of Disposal Sites. Final Edition 2006 by NSWMC and JICA

Beyond the environmental issues directly related to closure design, options to mitigate residual environmental issues were identified, as follows:

a. Minimize exposure of workers to smoke and gases by following safety and health protocols
b. Check collapse prone areas by undertaking confirmatory tests on stability of compacted site, and providing advance notice to nearby settlers of the work to be done
c. Apply terracing method in slope stabilization
d. Obtain cover soil in areas consistent with the intended land use including those from existing land development works
e. Minimize dust emission by regular watering of areas with high dust emission or avoiding earthmoving activities during windy conditions
f. Prevent soil spillage along soil transport route by filling trucks to the brim, cover soil with tarpaulin, and remove soil on its side and tires before the trucks are allowed to travel.
g. Provide security measures against intentional burning

Potential measures to address social issues were also developed. There are cases the social impacts like the impact on waste pickers and corresponding measures, though being addressed by the LGU, are not necessarily presented in the plans, and therefore a social development plan framework and a site specific social development plan for waste pickers (Annex 8) would be necessary. The social development plan will be required as part of the enhanced dumpsite closure plans. In addition, related issues like land acquisition and resettlement, and on IP will be addressed through frameworks and plans (Annexes 9 and 10). Communication plan will be implemented to ensure the understanding of the project and participation among affected persons.
For waste pickers, measures will aim at restoring livelihoods at the least, and at the most, improvement of standard of living. This will entail consultations to ensure their active participation and crafting of the social development plan.

Removal of structures will be at the expense of the proponent as the structure owner desires so. The scheme may entail full replacement value without depreciation and with no deduction of the value of salvage or salvageable material, which can still be owned by the affected person with transport assistance. Temporary land acquisition may entail rental payment and later restoration to former use if feasible, at the expense of the proponent.

On IP issues, where an overlap is found to exist or when the field-based investigation (FBI) determines that the project area is within an ancestral domain or claim, the project proponent shall abide by the Free and Prior Informed Consent Guidelines of 2006 under RA 8371 as applied by NCIP. Given the nature of the IPOPS project as enhancing environmental quality and improving health, efforts will be made by project proponents with the cooperation of the NCIP for the IPs to a) voluntarily solicit and initiate the sub-project or to b) include the sub-project in their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). Community-initiated activities (CIA) are allowed under the Free and Prior Informed Consent Guidelines of 2006.

There may be cases when the site is not located in an ancestral title or claim but hosts a distinct and separate IP community (not just individuals) who depend on the project area or practice their customary cultural, economic, social or religious, and political institutions that are separate from those of the dominant society and culture. As such, the project proponent with the guidance of WB safeguards staff will undertake a social assessment on how the proposed project activities can adversely or positively impact the situation of the IP community, their situation (vulnerabilities, especially cultural identity and poverty), and their coping mechanisms.

While the project will provide funding for all activities, the implementation of environmental and social safeguards contained in the EMP, Social Development Plan for Waste Pickers, Resettlement Action Plan, Indigenous People’s Development Plan will be the responsibility of the proponent.

The communication plan targets two groups of audience. One group consists of the activity implementers like LGU, NSWMC and landfill operations service providers. The other group consists of dumpsite waste pickers and nearby communities, where applicable.

### Table 7. Component 2, Activity 2.3 Communication Plan

<table>
<thead>
<tr>
<th>Target Audience No. 1: Activity Implementers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Local Government Units</td>
</tr>
<tr>
<td>• National Solid Waste Management Commission</td>
</tr>
<tr>
<td>• Service Contractors</td>
</tr>
</tbody>
</table>

**Objectives**

- Increase understanding of the Stockholm Convention, National Implementation Plan and national policies and regulations for IPOPs management, reduction and elimination.
- Generate resource support and local policy for the implementation of: sanitary landfill;
materials recovery facility; storage facility for non-hazardous materials; making of compost/fertilizer; non-hazardous industrial waste materials treatment facility.

- Increase readiness and capacity to mitigate negative effects of involuntary resettlement and marginalization of certain groups such as indigenous peoples

**Activities**
- Development Support Communication Seminars on Solid Waste Management and IPOPs Social Marketing Advocacy
- Meetings with key local officials, people key to the public involvement process
- Development of Policy Briefs to review gaps in local legislations and policy implementation on IPOPs

**Responsible Entity**: DENR, NSWMC, LGU

**Funding**: Through the project components

<table>
<thead>
<tr>
<th><strong>Target Audience No. 2: Project-Affected Entities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Dumpsite dwellers; waste pickers,</td>
</tr>
<tr>
<td>- Receiving communities if dumpsite is relocated,</td>
</tr>
<tr>
<td>- Indigenous People, where applicable</td>
</tr>
</tbody>
</table>

**Objectives**
Develop and increase public awareness on health and environmental risks of toxic chemicals such as IPOPs.

**Activities**
Develop and produce IEC materials Public information and education campaigns on solid waste management and IPOPs public consultations, television ads, radio ads, leaflets, comics, community meetings and the like.

**Responsible Entity**: LGUs

**Funding**: Through the project components

### 7.3 Component 3: Implementation of PCB Management

The mitigation strategy outlined to address the risk in managing PCB at the premises involves upgrading and updating of PCB management plans. Based on a review of the DENR PCB Management Plan Outline and existing PCB Management Plans submitted to EMB, the outline is weak or lacking in some EMP aspects of OP 4.01 like monitoring, personnel safety and health, roles and responsibilities, and costing. The recommended upgraded outline (Annex 4) addresses the gaps with reference to the WB EA requirement. The mitigation strategy is the preparation and submission of an updated and upgraded PCB Management Plan, which addresses various issues under the topics of PCB spill prevention, emergency and clean-up plan, pollution prevention program, and occupational safety and health management plan and program. The plan will take reference to the upcoming Revised Technical Guidelines for PCB Management (Annex 5).

Two groups of audience were identified. One group consists refers to the project supervision group such as EMB Central and Regional Offices, NEA, LGU, and TWG on Stockholm convention. The other group refers to the regulated community consisting of electric cooperatives, registered or non-registered PCB owners, service providers and PCB transport/treaters.
Table 8. Component 3 Communication Plan

<table>
<thead>
<tr>
<th>Target Audience No. 1: Project Supervision Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• EMB Central and Regional Offices</td>
</tr>
<tr>
<td>• National Electrification Administration</td>
</tr>
<tr>
<td>• Local Government Units</td>
</tr>
<tr>
<td>• Other regulatory agencies including TWG on the Stockholm Convention NGOs, PEPOA and PHILRECA</td>
</tr>
</tbody>
</table>

**Objective**
Increase technical know-how to enforce, monitor and validate compliance to laws and regulations on POPs.

**Activities**
- Briefings and/or workshops led by technical experts on specific areas of concern.
- Meetings, panel discussion and brain-storming sessions to identify problems/concerns and possible solutions. Internet-based information sharing and exchanges.

**Responsible Entity**
EMB Central and Regional Offices, NEA, TWG on Stockholm Convention

**Funding:** Through the project components

<table>
<thead>
<tr>
<th>Target Audience No. 2: Regulated Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Electrical Cooperatives</td>
</tr>
<tr>
<td>• Registered and non-registered PCB owners</td>
</tr>
<tr>
<td>• Service Providers (retro-fillers, dismantlers, etc.)</td>
</tr>
<tr>
<td>• PCB Transporters/Treaters</td>
</tr>
</tbody>
</table>

**Objectives**
Phase 1. Encourage PCB owners to either submit their annual inventory, or update their initial inventory.
Phase 2. Get other PCB owners to register and submit Inventory of PCB equipment.

**Activities**
Information, education campaign on health, decontamination and destruction technologies for PCB management

**Responsible Entity**
EMB Central and Regional Offices, NEA, TWG on Stockholm Convention

**Funding:** Through the project components

7.4 Component 4, Activity 4.3: Demonstration of Site Remediation and Site Control

7.4.1 Site Remediation

Site remediation poses various environmental and social issues. Environmental issues relate to land disturbance, water and air pollution, and health and safety. Social issues include removal of structures, land acquisition (leading to restricted access and loss of livelihood) and on IP.

A Category A Environmental Assessment (EA) Report will be prepared to address the diverse issues of site remediation including a presentation of environmental assessment of alternatives. An outline has been prepared for use (Annex 7). Identification of mitigation
strategies for the impact of site remediation involves a thorough profile of the site natural and human environment as well as the selected remediation technology. International guidelines will be used for all aspects under the component, in the absence of local guidelines or good practices. Clean up technologies will be selected through a risk-based approach taking into account the derived clean-up standards from a risk-based procedure and environmental and social considerations.

The EA Report will contain statements of measures under the topics of soils management, surface water protection, groundwater protection, and control of odor, gaseous substances, volatile chemical substances, dusts, noise, and safety and health. To assure of the public safety, the lot owners and neighbors will be consulted and regularly be informed of the progress of work through a communication plan. Important signs in the demonstration sites will be in place. Cultural property chance finds procedures will be part of the contract with site remediation service providers.

Issues on land acquisition will be addressed through a land acquisition and resettlement policy framework (Annexes 9). For the demonstration project, consent of the landowner is a pre-requisite for participation and inclusion. Without the consent, the project will not proceed to do site remediation. Landowners will sign a waiver for monetary compensation for any loss of structure or improvements resulting from remediation activities. The temporary disruption of the use and restoration of the site will be the responsibility of the private or government landowner as their counterpart to the project. Due diligence will be conducted for demonstration site which are sensitive or for general use (such as utilities and institutions). The project will provide assistance in transporting equipment, other moveable items to a new site.

IP issues will be addressed through a framework. (Annex 10). Where an overlap is found to exist or when the field-based investigation (FBI) determines that the project area is within an ancestral domain or claim, the project proponent shall abide by the Free and Prior Informed Consent Guidelines of 2006 under RA 8371 as applied by NCIP. Given the nature of the IPOPS project as enhancing environmental quality and improving health, efforts will be made by project proponents with the cooperation of the NCIP for the IPs to a) voluntarily solicit and initiate the sub-project or to b) include the sub-project in their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). Community-initiated activities (CIA) are allowed under the Free and Prior Informed Consent Guidelines of 2006.

One of the two candidate remediation sites, particularly the Fire Station 6 of the Subic Bay Freeport Zone (SBFZ), is located in an ancestral domain (under Certificate of Ancestral Domain Title now covered by a Certificate of Ancestral Domain Title (CADT R03 HER 0703 0008 A). Under the IPRA law and its FPIC guidelines, the SBMA will secure a local FPIC and forge a MOA on the participation of the local IP.

While the project will fund all activities, the implementation of environmental and social safeguards contained in EMP, Resettlement Action Plan and Indigenous People’s Development Plan, which is the responsibility of the proponent.

The communication plan for the entire life cycle of the activity will cover two groups of audience. One group refers to the activity proponents consisting of CDC, SBMA and service providers. The other group refers to the affected community consisting of the locators of CFZ
and SBFZ, community in and near the contaminated sites, and where applicable, the indigenous people. It also includes the Category A safeguards requirement of consultation of potentially affected groups at each site at the scoping stage of the EA report and after a draft EA report has been prepared.

Table 9. Component 4, Activity 4.3 (Site Remediation Demonstration) Communication Plan

<table>
<thead>
<tr>
<th>Target Audience No. 1: Activity Implementers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clark Development Corporation (CDC)</td>
</tr>
<tr>
<td>• Subic Bay Metropolitan Authority (SBMA)</td>
</tr>
<tr>
<td>• Service providers, contractors hired for site remediation</td>
</tr>
</tbody>
</table>

**Objectives**

Improve capacity to undertake risk communication to address health and safety concerns of locators, communities and people working in and around the contaminated sites

**Activities**

- Briefings and workshops led by technical experts on specific areas of concern.
- Training and orientation session on risk management and communication
- Meetings, panel discussion and brain-storming sessions to identify possible health, safety and environmental risk/concerns and how to communicate these risks/concerns with relevant the stakeholders
- Web-based, information sharing and exchanges
- Coaching support to implementing agencies through follow up workshops and meetings.

**Responsible Entity:** EMB, CDC, SBMA

**Funding:** Through the project components

<table>
<thead>
<tr>
<th>Target Audience No. 2: Activity-affected Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Locators and residents in CFZ and SBFZ, where applicable</td>
</tr>
<tr>
<td>• Communities in proximity of highly contaminated sites</td>
</tr>
<tr>
<td>• Indigenous People, where applicable</td>
</tr>
</tbody>
</table>

**Objectives**

Develop and increase awareness on health and environmental risks of toxic chemicals such as IPOPs

**Activities**

- Audience-specific information and education campaigns
- Public consultations at EA scoping stage and when a draft EA has been prepared
- Public notices and signage in contaminated sites
- Bulletin boards, fact sheets that summarize the status of contaminated sites and remediation measures being undertaken

**Responsible Entity**

CDC, SBMA

**Funding:** Through the project components

### 7.4.2 Site Control

The issues relating to site control are land disturbance, short-term localized water and air pollution, safety and health, discontinued access and use of the site and the resources on site like water, removal of structures, encroachment in an IP area and general apprehensions about the impact of the activity.
A full Category A EA Report will be prepared for each site containing the applicable environmental and social safeguards plans, using an outline prepared under this project (Annex 7). Two local consultations will be done, one at one scoping stage, and another for the finalization of the draft EA.

The technical measures focus on pollution prevention and observance of safety and health protocols. The social safeguards may include just compensation for the removed structures and vegetation, payments for the use of the lot, and attendance to IP and general public issues. International guidelines will be used for all aspects under the component, in the absence of local guidelines or good practices.

For the demonstration of site control, consent of lot owner is a pre-requisite for participation and inclusion. Without the consent, the project will not proceed to do site remediation. Landowners will sign a waiver indicating that any loss of structure or improvements resulting from remediation activities shall not receive any monetary compensation. The temporary disruption of the use and restoration of the site will be the responsibility of the private or government landowner as their counterpart to the project. Due diligence will be conducted for demonstration site which are sensitive or for general use (such as utilities and institutions). The project will provide assistance in transporting equipment, other moveable items to a new site. (See Annex 9)

IP issues will be addressed through a framework. (Annex 10). Where an overlap is found to exist or when the field-based investigation (FBI) determines that the project area is within an ancestral domain or claim, the project proponent shall abide by the Free and Prior Informed Consent Guidelines of 2006 under RA 8371 as applied by NCIP. Given the nature of the IPOPS project as enhancing environmental quality and improving health, efforts will be made by project proponents with the cooperation of the NCIP for the IPs to a) voluntarily solicit and initiate the sub-project or to b) include the sub-project in their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). Community-initiated activities (CIA) are allowed under the Free and Prior Informed Consent Guidelines of 2006. (See Annex 10)

There may be cases when the site is not located in an ancestral title or claim but hosts a distinct and separate IP community (not just individuals) who depend on the project area or practice their customary cultural, economic, social or religious, and political institutions that are separate from those of the dominant society and culture. As such, the project proponent with the guidance of WB safeguards staff will undertake a social assessment on how the proposed project activities can adversely or positively impact the situation of the IP community, their situation (vulnerabilities, especially cultural identity and poverty), and their coping mechanisms.

While the project will fund all activities, the implementation of environmental and social safeguards contained in EMP, Resettlement Action Plan and Indigenous People’s Development Plan, which is the responsibility of the proponent.

The communication plan for the entire life cycle of the activity will cover two groups of audience. One group refers to the activity proponents consisting of proponents and service providers. The other group refers to the affected community consisting of the locators of CFZ and SBFZ, community in and near the contaminated sites, and where applicable, the
indigenous people. It also includes the Category A safeguards requirement of consultation of potentially affected groups at each site at the scoping stage of the EA report and after a draft EA report has been prepared.

Table 10. Component 4, Activity 4.3 (Site Control Demonstration) Communication Plan

<table>
<thead>
<tr>
<th>Target Audience No. 1: Activity Implementers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proponent (to be determined)</td>
</tr>
<tr>
<td>Service providers, contractors hired for site remediation</td>
</tr>
</tbody>
</table>

Objectives

Improve capacity to undertake risk communication to address health and safety concerns of locators, communities and people working in and around the contaminated sites.

Activities

- Briefings and workshops led by technical experts on specific areas of concern
- Training and orientation session on risk management and communication
- Meetings, panel discussion and brain-storming sessions to identify possible health, safety and environmental risk/concerns and how to communicate these risks/concerns with relevant the stakeholders
- Web-based, information sharing and exchanges
- Coaching support to implementing agencies through follow up workshops and meetings.

Responsible Entity: EMB, Proponent

Funding: Through the project components

<table>
<thead>
<tr>
<th>Target Audience No. 2: Activity-affected Entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locators and residents, where applicable</td>
</tr>
<tr>
<td>Communities in proximity of highly contaminated sites</td>
</tr>
<tr>
<td>Indigenous People, where applicable</td>
</tr>
</tbody>
</table>

Objectives

Develop and increase awareness on health and environmental risks of toxic chemicals such as IPOPs

Activities

- Audience-specific information and education campaigns
- Public consultations at EA scoping stage and when a draft EA has been prepared
- Public notices and signage in contaminated sites
- Bulletin boards, fact sheets that summarize the status of contaminated sites and remediation measures being undertaken

Responsible Entity

Proponents

Funding: Through the project components

8.0 ROLES AND RESPONSIBILITIES

8.1 Overall Roles and Responsibilities of Key Stakeholders

Roles and responsibilities of concerned parties were identified in preparing and clearing of the EA/SA instruments, in the performance monitoring of environmental safeguards instituted during project implementation, and in funding for safeguards. The key players in
implementing the proposed activities are the DENR-EMB, partner agencies, activity proponents (site owners and operators), affected persons or communities, and to an extent the proponents service providers. They will use various instruments to ensure that the IPOPs project implementation is in accordance with the WB safeguards policies, and GOP environmental and social laws and regulations. The roles and responsibilities of proponent, EMB and other entities in the different EA activities are shown in the following table.

<table>
<thead>
<tr>
<th>Table 11. Roles and Responsibilities of Key Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EA Activity</strong></td>
</tr>
<tr>
<td>EA Documents Preparation</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>EA Documents Review Approval</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>EMP implementation</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

8.2 **Component 2, Activity 2.3: Investments in BAT/BEP demonstration for the solid waste sector**

The LGUs will prepare the relevant safeguards documents in consultation with EMB. Service providers of the LGUs for the landfill operations will comply with the environmental and social safeguards provisions in their service contracts. For safeguards document preparation, the GEF will fund the cost of consultant, while the LGUs will provide management and data collection. The funding for the communication plan will be included in the safeguards preparation and in the project component budgets for training and dissemination.

The LGUs, at their expense, will implement the environmental and social safeguards contained in the EMP, Social Development Plan for Waste Pickers, Resettlement Action Plan, Indigenous People’s Development Plan. Safeguards training is included as part of the preparation of the documents and supervision budget. It is also included in the training and dissemination for the component.
The LGUs will submit progress reports to EMB, in a manner to be programmed in the course of project implementation.

EMB will undertake screening of safeguards, assist the LGUs in preparing the documents, review the documents, monitor the implementation of the safeguards, and guides the LGUs in the reportorial requirements. EMB counterpart and GEF project management budget will cover the cost for safeguards screening, review and clearance. The project management budget will cover the EMB monitoring tasks. EMB Regional Offices and the National Solid Waste Management Commission will assist EMB CO as may be necessary.

8.3 Component 3. Implementation of PCB Management

The PCB owners will prepare their respective PCB Management Plan, with the assistance from EMB. The GEF will fund the cost of consultant for the preparation of safeguards documents while the PCB owners will provide support and in kind funding. Training will be funded under this project component. The funding for the communication plan will be included in the safeguards preparation and in the project component budgets for training and dissemination.

The PCB owners will cover the cost for implementing the PCB Management Plan. Resettlement (if any) and EMP implementation will be the responsibility of the proponent. Training will be funded under this project component.

EMB will assist the PCB owners in preparing PCB Management Plan, review the plan, and monitor the implementation of the safeguards. EMB counterpart and GEF project management budget will cover the cost for safeguards screening, review and clearance. The project management budget will cover the EMB monitoring tasks. EMB will seek the assistance of its regional offices for this component, as may be necessary.

8.4 Component 4, Activity 4.3. Demonstration of Site Remediation and Site Control

The activity proponents or landowners (e.g. CDC, SBMA), at their cost, will prepare environmental and social assessment documents. The GEF will fund the cost of consultant while the proponents will provide support and in kind funding. The training to be funded for the specific sites and nationally, under this component, includes the safeguards aspects. Funding for the communication plan will form part in the safeguards preparation and in the project component budgets for training and dissemination.

The activity proponents or landowners will implement applicable environmental and social safeguards contained in the EMP, Resettlement Action Plan and Indigenous People’s Development Plan. In addition, the cost for safeguards implementation, as appropriate, will be included in the contracts for remediation and site control and are part of the project budget.

The proponents or landowners will submit progress reports to EMB, in a manner to be programmed in the course of project implementation.

EMB will orient the proponent on the safeguards requirements, will review and approve the EA, and will undertake supervision of the activities for safeguards compliance including
verification of the meeting of clean-up standards. EMB counterpart and GEF project management budget will cover the cost for safeguards screening, review and clearance. The project management budget will cover the EMB monitoring tasks. EMB RO will support EMB CO through site inspection on the progress of safeguards implementation.

9.0 PREPARATION AND APPROVAL OF EA/SA INSTRUMENTS

9.1 Overall Approach

The central documents in environmental and social assessments are the EA/SA instruments, which the proponent will prepare and EMB will review for safeguards clearing. A summary of preliminary screening of activities for EA instruments, guidance documents for EA instruments preparation are presented below.

Preliminary screening of the activities was undertaken in order to assign an EA category and identify the necessary EA instruments and are summarized in the following table.

Table 12. EA Category and EA Instruments for the Project Activities

<table>
<thead>
<tr>
<th>Component</th>
<th>Activity/Sub-Activity</th>
<th>WB EA Category</th>
<th>EA/SA instrument *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 2</td>
<td>Investments in BAT/BEP demonstration for the solid waste sector</td>
<td>B</td>
<td>EMP, including SDPW, RAP, IPDP, as appropriate</td>
</tr>
<tr>
<td></td>
<td>• Works to stop burning at dumpsites</td>
<td>B</td>
<td>Dumpsite Closure Plan including EMP, and SDPW, RAP, IPDP as appropriate</td>
</tr>
<tr>
<td></td>
<td>• Dumpsite closure</td>
<td></td>
<td>Operational Plan including EMP, RAP, and SDPW, IPDP as appropriate</td>
</tr>
<tr>
<td></td>
<td>• Improvement in landfill operations to prevent burning</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Component 3</td>
<td>PCB Management</td>
<td>B</td>
<td>PCB Management Plan including EMP</td>
</tr>
<tr>
<td>Component 4</td>
<td>Demonstration of Site Remediation and Site Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Site Remediation</td>
<td>A</td>
<td>EA, including RAP, IPDP, as appropriate</td>
</tr>
<tr>
<td></td>
<td>b. Site Controls</td>
<td>A</td>
<td>EA, including RAP, IPDP, as appropriate</td>
</tr>
</tbody>
</table>

* SDPW means Social Development Plan for Waste Pickers RAP means Resettlement Action Plan, and IPDP means Indigenous People’s Development Plan

Further screening will be done for individual subprojects as they are identified in order to flag project issues that need special attention, including those related to impacts on livelihood of
waste pickers, and temporary or permanent land acquisition and dismantling or relocation of structures. This is outlined in the framework for each component.

Guidance documents were prepared as reference of proponents in preparing project-required EA documents or instruments for review and clearance. These documents consist of templates, standards and guidelines, which were adopted, developed or customized from Philippine regulations, or from international guidelines, in cases where no Philippine regulations exist, as follows:

Table 13. Reference/Guidance Documents for the Preparation of EA Documents

<table>
<thead>
<tr>
<th>Applicable Component Activity</th>
<th>Guidance Document(s)</th>
<th>Basis</th>
<th>Relevant Annex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 2: Works to stop burning at dumpsites</td>
<td>EMP template for activities to stop burning at dumpsites</td>
<td>Based on DAO 2006-09, OP 4.01</td>
<td>Annex 1</td>
</tr>
<tr>
<td>Component 2: Dumpsite closure</td>
<td>Guidance for the preparation of a social development plan for waste pickers</td>
<td>Provides detailed guidance to support the social aspects of dump closure under Philippine regulations. Based on good practice from other countries</td>
<td>Annex 8</td>
</tr>
<tr>
<td>Component 3: PCB Management</td>
<td>Technical guidelines on PCB management</td>
<td>Various local regulations, and international references</td>
<td>Annex 5</td>
</tr>
<tr>
<td>Component 4: Site</td>
<td>Outline for the preparation of</td>
<td>Based on PD 1586 Revised Procedural Manual,</td>
<td>Annex 6</td>
</tr>
<tr>
<td>Applicable Component Activity</td>
<td>Guidance Document(s)</td>
<td>Basis</td>
<td>Relevant Annex</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>Remediation.</td>
<td>environmental assessment for site remediation</td>
<td>USEPA and Canadian Guidelines *</td>
<td></td>
</tr>
<tr>
<td><strong>Component 4:</strong> Site Control</td>
<td>Outline for the preparation of environmental assessment of site control activities</td>
<td>Based on PD 1586 Revised Procedural Manual, USEPA and Canadian Guidelines *</td>
<td>Annex 7</td>
</tr>
<tr>
<td>All components (as identified in screening)</td>
<td>Land Acquisition and Resettlement Policy Framework</td>
<td>OP 4.12 and Philippine Laws</td>
<td>Annex 9</td>
</tr>
<tr>
<td>All components (as identified in screening)</td>
<td>Indigenous Peoples Policy Framework</td>
<td>OP 4.10 and RA 8371</td>
<td>Annex 10</td>
</tr>
</tbody>
</table>

For clean up standards and site characterization, see USEPA Risk-based Corrective Action (RBCA), ASTM Method for Phase 1 and Phase 2 Site Characterization.

9.2 **Component 2, Activity 2.3: Investments in BAT/BEP demonstration for the solid waste sector**

9.2.1 **Screening for EA Instruments**

All the sub-activities are categorized as Category B. The activity proponent will prepare the EA documents, identified by EMB, with financing assistance under the project and using the guidance provided in this document. In particular:

<table>
<thead>
<tr>
<th>Sub-Activity</th>
<th>EA Instrument</th>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works to stop burning at the dumpsites</td>
<td>EMP</td>
<td>Annex 1</td>
</tr>
<tr>
<td>Dumpsite closure</td>
<td>Dumpsite Closure Plan including EMP, RAP and SDP as appropriate</td>
<td>Annex 2</td>
</tr>
<tr>
<td>Prevention of burning during operation</td>
<td>Operational plan including EMP</td>
<td>Annex 3</td>
</tr>
</tbody>
</table>

A screening of key issues will be done by EMB at the beginning of the sub-project preparation. Particular attention will be made on the following aspects:

a. If there are waste pickers active on the site that would be affected by the closure
b. If there are structures to be dismantled or relocated as part of closure
c. If there is temporary or permanent land acquisition as part of closure
d. If the dump site is located on an ancestral domain claim or title

Based on the screening, the documentation requirement with regard to social development, resettlement and environmental issues will be identified and the proponent will be advised.

9.2.2 Development of EA Instruments

The activity proponent may secure the assistance of EMB in identifying the detailed content of the required EA instrument or document, likened to scoping. Additional guidance which will go into dumpsite closure plan is provided for preparing the EA instruments in cases where:

a. Waste pickers are affected by dumpsite closure (Annex 8);

b. Structures are dismantled or relocated (Annex 9);

c. There is temporary or permanent land acquisition (Annex 9);

d. The site is located in an ancestral domain title or claim, and the IPs are also waste pickers (Annex 10)

9.2.3 Review and Approval of EA Instruments

The review and approval of the EA documents will follow the following steps:

1. The proponent submits to EMB the safeguards documents in print copies and an electronic copy in compact disk (CD).

2. EMB will review the documents for completeness and legibility.

3. Finding the document complete and legible, EMB notifies the NSWMC and EMB Regional Office of the submission.

4. The proponent provides print and electronic copies to EMB Regional Office for parallel review.

5. EMB reviews the documents substantively using a set of review criteria, may request the assistance of NSWMC, and may request the proponent for additional information.

6. EMB endorses the documents to WB for final clearing.

9.3 Component 3. Implementation of PCB Management

9.3.1 Screening for EA Instruments

PCB management is categorized as Category B. The environmental issues identified in this activity include human safety and health risk; accidental spillages during equipment decontamination, storage and transport leading to soil and water pollution, and disposal of PCB contaminated articles. The EA document will be the PCB Management Plan including an EMP. No specific WB social safeguard (involuntary resettlement or IP) is deemed necessary to be applied in this activity inasmuch as most of the activities will be done with be owners premises. All project specific screening will be done by the project proponent as part of the preparation of the PCB management plan and will only relate to the environmental issues outlined above.

9.3.2 Development of EA Instruments
The EMP is a PCB Management Plan using an outline (Annex 4) which is a revised version of the outline provided in the PCB Chemical Control Order (DAO 2004-01). The revision took into account all the basic components in an EMP prescribed in OP 4.01 and the PPG Draft Technical Guidelines for PCB Management (Annex 5).

The technical guideline indicates that Item No. 9 (Section IV) of CCO for PCBs states that ‘review and revision of the Management Plan should be done at least once every five (5) years. Thus, by CY 2010, the EMB-DENR will issue a Memorandum Circular which requires all registered PCB owners to update their PCB Management Plan, and for unregistered PCB owners to register and submit the PCB Management Plan within 6 months after registration. The memorandum will indicate that EMB can provide technical assistance by sending a PCB trainer to guide PCB owners prepare PCB Management Plan upon their request. The plan may be prepared through either of two following cases.

**Case 1:** The owner sends a request letter for assistance in preparing the plan. After receiving a request, EMB will assign to a PCB owner one or two PCB trainers trained by the project based on the PCB owner location and the number of PCB equipment. The assigned trainer, who must be independent from the PCB owner, will review the PCB management plan before the PCB owner submits the plan to EMB. The submitted PCB management plan will indicate that the PCB trainer has reviewed the plan.

**Case 2:** PCB owner prepares the PCB Management Plan without EMB assistance. The owner may opt to get assistance from a preparer who was not trained under the project. In such a case, EMB will assign the PCB trainer trained by the project to review after the submitted PCB Management Plan.

### 9.3.3 Review and Approval of EA Instruments

The review and approval of the management plan may take two possible routes:

**Case 1:** The PCB owner will submit print and electronic copies of the PCB Management Plan to EMB Regional Offices (EMB RO), which will then forward the plan to EMB Central Office (EMB CO) for final review and endorsement to WB.

**Case 2:** EMB CO will issue memorandum to EMB Regional Offices on the approval process of PCB Management Plans for information and reference. The memorandum will be posted at EMB Website. The PCB owner will submit print and electronic copies of the PCB Management Plan to EMB RO which will invite trainers (independent from the PCB owner) to review the plan and later forward the plan to EMB CO for oversight review and endorsement to WB. EMB will respond to PCB owners within 3 weeks on the approval or with request for more information.

### 9.4 Component 4, Activity 4.3. Demonstration of Site Remediation and Site Control

#### 9.4.1 Screening for EA Instruments

All the sub-activities are categorized as Category A. The EA instrument for a specific site under this component will require a separate full Category A EA report.


<table>
<thead>
<tr>
<th>Sub-Activity</th>
<th>EA instrument</th>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Remediation Demonstration</td>
<td>EA</td>
<td>Annex 6</td>
</tr>
<tr>
<td>Site Control Measures for Site Potentially Highly Contaminated Sites</td>
<td>EA</td>
<td>Annex 7</td>
</tr>
</tbody>
</table>

A screening of key issues will be done by EMB for each site after the site assessment is completed and in parallel with the development of the remedial design. The proponent will be advised on the document requirement based on the result of screening. Particular attention will be made on the following aspects:

- If there are structures to be dismantled or relocated as part of site remediation
- If there is temporary or permanent land acquisition as part of site remediation
- If the site is located on an ancestral domain claim or title;

9.4.2 Development of EA Instruments

The EA will take into account the scale and nature of the activity based on the results of site assessment, which should yield the conceptual site model (CSM) of the contaminated site showing geometry of the contaminated site, the concentration and quantity of the pollutants in the subsurface. The coverage of the assessment will also include the selection of the technology appropriate for the site, as part of minimizing the environmental and social impacts and risks of the activity.

The EA process will include two consultations: one for the scope of the study, and the other on the draft EA. A final EA will be prepared for review. The component communication strategy developed in the preparation of this project will support the consultations.

Additional guidance is provided for preparing the EA instruments in cases where:

- Structures are dismantled or relocated (Annex 9);
- There is temporary or permanent land acquisition (Annex 9); and
- The site is located on an ancestral domain or claim (Annex 10);

The preparation of the EA will take into account the requirements of pollution control laws like RA 6969 (Toxic Substances and Hazardous and Nuclear Wastes control Act of 1990), RA 9275 (Clean Water Act of 2004), RA 8749 (Clean Air Act of 1999)). Under RA 6969, licenses are issued to waste transporters, treaters and disposers after they pass certain requirements.

9.4.3 Review and Approval of EA Instruments

The review and approval of the EA documents will follow the following steps:

1. The proponent submits to EMB the safeguards documents in print copies and an electronic copy in compact disk (CD).
2. EMB will review the documents for completeness and legibility.
3. Finding the document complete and legible, EMB notifies EMB Regional Office of the submission,
4. The proponent provides print and electronic copies to EMB Regional Office for parallel review.
5. EMB reviews the documents substantively using a set of review criteria and may request the proponent for additional information.
6. EMB endorses the documents to WB for final clearing.

10.0 MONITORING AND SUPERVISION

10.1 Component 2, Activity 2.3: Investments in BAT/BEP demonstration for the solid waste sector

Approved activities will be subject to periodic performance monitoring to ensure that the safeguards are implemented. Site-specific monitoring parameters and arrangements will be developed as part of the safeguards documents. The proponent will be responsible implementing the EMP and the social measures. The proponent will report on the project outcomes. Constraints and remedial measures instituted will be stated in the last section of the report. EMB Regional Office will conduct site verification and provide feedback to EMB.

10.2 Component 3. Implementation of PCB Management

After the PCB Management Plans are approved by EMB, the PCB owners will participate in technical training workshops on PCB management and carry out PCB management according to the approved PCB Management Plan. EMB will provide technical assistance by sending PCB trainers trained by the project to guide PCB owners on PCB Management. The PCB trainer will supervise and confirm PCB equipment and waste are safely stored and the storage facilities meet the CCO/Technical Guideline requirements. PCB owners will be requested to notify EMB for the schedule of PCB management at least two weeks in advance. Then EMB can make arrangement for PCB trainers to be on site in providing technical support. PCB owners will be responsible for all operational costs of managing PCBs.

10.3 Component 4, Activity 4.3. Demonstration of Site Remediation and Site Control

EMB will conduct periodic monitoring of approved activities to ensure that the safeguards presented in the EMP are implemented. The proponent will be responsible implementing the EMP and the social measures. Monitoring of the activity will be done at least once at every stage of the activity, pre-activity social preparations, site-assessment, selection of site remediation/control technologies, preparation of the final design works, commissioning date of site control, and site engineering works. Upon completion of the activity, EMB will verify if the activity meets the adopted guidelines.
11.0 PUBLIC DISCLOSURE AND CONSULTATION

The ESA framework was strengthened through consultations. The first public consultation was undertaken at the scoping stage of the project, and second one was at review of the draft ESA. In addition, small group consultations and interviews with various concerned implementing parties, and project-affected groups like National Commission on Indigenous Peoples (NCIP), and dumpsite waste pickers were undertaken in various dates for the following:

- Secure a profile and status of the proposed components and the sites
- Surface environmental and social issues
- Screen and validate EA requirements
- Validate options and approaches on residual waste management and monitoring

11.1 Scoping Stage Consultation

A major scoping consultation was held on May 29, 2009, attended by 47 representatives of different agencies, as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPG Team</td>
<td>WB, PMO, EA, SA, Component 1, Component 2</td>
</tr>
<tr>
<td>DENR :</td>
<td>DENR FASPO&lt;br&gt; Office of the Undersecretary for Policy and Planning,</td>
</tr>
<tr>
<td>EMB Central</td>
<td>Air Quality Management Section&lt;br&gt; Environmental Quality Division&lt;br&gt; Chemical Management Section</td>
</tr>
<tr>
<td>EMB Region</td>
<td>Region 3, 4A, NCR</td>
</tr>
<tr>
<td>Partner Implementing Agencies for all the components</td>
<td>DOST-ITDI&lt;br&gt; National Solid Waste Management Commission&lt;br&gt; National Electric Administration&lt;br&gt; Clark Development Corporation&lt;br&gt; SBMA (Ecology Center)&lt;br&gt; National Power Corporation EMD&lt;br&gt; Power Sector Assets and Liabilities Management Corporation</td>
</tr>
<tr>
<td>Non-Government Organization</td>
<td>Innogy Solutions&lt;br&gt; Int'l. POPs Elimination Network&lt;br&gt; League of Municipalities of the Philippines</td>
</tr>
<tr>
<td>Other Government Agencies</td>
<td>Development Bank of the Philippines&lt;br&gt; National Economic Development Authority&lt;br&gt; DOF Bureau of Customs&lt;br&gt; DOLE Occupational Safety and Health Center</td>
</tr>
</tbody>
</table>

Topics discussed were as follows:

- The IPOPs project
- EA safeguard policies likely to be triggered by the project based on World Bank and Philippine Government Policies, and the environmental and social assessment activities per component
The issues raised, as presented below, dealt with the status of the PPG activities, coverage of mapping of dioxins and furan, sources of dioxins and furans, criteria for site assessment, compensation package for involuntary resettlement, and need for an IP framework. All the items raised within the EA and SA activities were addressed and included in the report.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If the activities and components in the PPG are final.</td>
<td>PPG activities are more or less final. It depends, but it has to be in before the WB mission.</td>
</tr>
<tr>
<td>2. If mapping of dioxins and furans are included in the activities, not just at the site but in outlying areas.</td>
<td>There is no actual analysis of dioxins and furans, just an estimation. Identification of dioxins and furans are dependent on ITDI-DOST. We have not included this but the toolkit identifies the specific areas.</td>
</tr>
<tr>
<td>3. Will there be identification of other sources of dioxins and furans that would be contributory to the dumpsite? Instead of verifying there should be actual testing for PCB inventory.</td>
<td>It will be included in the comprehensive survey. As of now we do not have enough facilities for testing of PCB.</td>
</tr>
<tr>
<td>4. In Component 4: Identification of contaminated sites should include criteria for site assessment.</td>
<td>Site assessment is not expected to be finished by July. Consultants will provide the standards for site assessment.</td>
</tr>
<tr>
<td>5. Do we intend to come up with compensation packages for the involuntary resettlement?</td>
<td>The project preparatory phase will cover only the framework for involuntary resettlement.</td>
</tr>
<tr>
<td>If intervention is needed while in the preparatory stage then a resettlement action plan should be included in the framework.</td>
<td>The timeframe of project preparation is not feasible for the formulation of resettlement action plan.</td>
</tr>
<tr>
<td>Who will handle the funding for Resettlement Action Plans?</td>
<td>Formulation of resettlement action plan will be in the implementation phase of the full-blown project, if there is indeed involuntary resettlement.</td>
</tr>
<tr>
<td>Will this be grant-funded or to be funded by LGUs?</td>
<td>A resettlement action plan is context-specific and that it will be in the implementation phase.</td>
</tr>
<tr>
<td></td>
<td>The framework will serve as a guideline should there be involuntary resettlement. It may not necessarily include compensation packages. There are no definite sites yet for IPOPs decontamination therefore we could</td>
</tr>
<tr>
<td>Issue</td>
<td>Response</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6. Is there any way of simplifying the project? Why the need for IP framework?</td>
<td>Social assessment cuts across all the other components therefore the presentation was made to clearly specify proposed activities per component. There is an IP framework because it is important that all stakeholders know what and how information disclosure will be handled if there are IPs involved.</td>
</tr>
</tbody>
</table>

### 11.2 Consultation on Draft ESA

Consultation on the Draft ESA was conducted on September 4, 2009, attended by 42 participants from different agencies, as shown below:

<table>
<thead>
<tr>
<th>Group</th>
<th>Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPG Team</td>
<td>WB, PMO, PMS, EA, SA</td>
</tr>
<tr>
<td>DENR :</td>
<td>Foreign Assisted Special Projects Office</td>
</tr>
<tr>
<td>EMB Central</td>
<td>Air Quality Management Section</td>
</tr>
<tr>
<td></td>
<td>Chemical Management Section</td>
</tr>
<tr>
<td></td>
<td>RDD</td>
</tr>
<tr>
<td>EMB Region</td>
<td>Region 4A</td>
</tr>
<tr>
<td>Partner Implementing Agencies for all the components</td>
<td>DOST-ITDI</td>
</tr>
<tr>
<td></td>
<td>National Solid Waste Management Commission</td>
</tr>
<tr>
<td></td>
<td>Clark Development Corporation</td>
</tr>
<tr>
<td></td>
<td>National Power Corporation EMD</td>
</tr>
<tr>
<td></td>
<td>Power Sector Assets and Liabilities Management Corporation</td>
</tr>
<tr>
<td>Non-Government Organization</td>
<td>Eco Waste Coalition</td>
</tr>
<tr>
<td></td>
<td>League of Municipalities</td>
</tr>
<tr>
<td>Other Government Agencies</td>
<td>Development Bank of the Philippines</td>
</tr>
<tr>
<td></td>
<td>National Economic Development Authority</td>
</tr>
<tr>
<td></td>
<td>DOLE BUC</td>
</tr>
<tr>
<td></td>
<td>DOLE Occupational Safety and Health Center</td>
</tr>
<tr>
<td>Business</td>
<td>Plantex Solution Corporation</td>
</tr>
<tr>
<td></td>
<td>Jefcor Lab</td>
</tr>
<tr>
<td></td>
<td>GAIA South</td>
</tr>
</tbody>
</table>

The comments covered the issues on participation of LGU and expansion of the IPOP project to more than 10 LGUs, complementation of IPOP and the UNIDO PCB destruction facility in Bataan, selection of remediation technologies, if there is really a necessity of an IP framework in CDC and SBMA, and lack of site remediation regulations, empowerment of people for the health and safety of workers and post clean up activities, as follows:
<table>
<thead>
<tr>
<th>Component 2</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Can we look into the provisions of sections 1-36 of the RA 9003 and avoid landfills?</td>
<td>Not only for landfills but the main focus is on the release of dioxin and furans through open burning.</td>
</tr>
<tr>
<td>2. Suggestions: Include leachate management; excavation; critical areas; better clean up plans; post closure monitoring</td>
<td>It is part of dumpsite closure plan</td>
</tr>
<tr>
<td>3. Where are the institutional linkages for us to see where the LGUs can help?</td>
<td>Can discuss institutional linkages to work on the details regarding the framework. It would be a great help if the LGUs could give out suggestions on how to move forward regarding the project. May it be technical, design, and LGU engagement.</td>
</tr>
<tr>
<td>4. How about municipalities that cannot afford landfills?</td>
<td>The project is not only for landfills but the main focus is on the release of dioxin and furans through open burning.</td>
</tr>
<tr>
<td>5. Also, some possible expansion of the project later, beyond the first 10 sites.</td>
<td>That might be possible depending on the outcomes of the project and other considerations; there have been previous cases of expansion/extension</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. With respect of the equipment used in IPOPs, does the technology used in removing/managing PCB comply with the standards? How does this IPOPs Management Project complement UNIDO?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. What are the criteria in the selection of the recommended remediation technologies?</td>
</tr>
<tr>
<td>8. Regarding the IP Framework in CDC and SBMA. I understand that this is a</td>
</tr>
<tr>
<td>Comment</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>framework and that it will be applied to all possible sites.</td>
</tr>
<tr>
<td>The contamination area in CDC will be in a limited area.</td>
</tr>
<tr>
<td>The far flung communities about 2-3 kms away may have some “magical” thoughts regarding the issue.</td>
</tr>
</tbody>
</table>

9. **Remarks**
- We have encountered lack of regulations regarding chemical clean-ups. There were no standards in protecting the people regarding clean-ups.
- Empower people who will run the program in ensuring health and safety of workers.
- Post clean up activities and follow up.

[No reply necessary for the remarks]

11.3 **Consultation with Dumpsites Stakeholders**

The stakeholders for three (3) sample sites (Iloilo City, Cagayan de Oro City, and Cabantuan City) were identified in part through field visit to each site. There were a series of consultation activities, interviews and direct observations, with the LGU, the administrative and operating units, the waste pickers, buyers, women, youth and other stakeholders around the dumpsite. The consultation for was done to better understand the wastepicker issues and the sites were chosen as a representative sample to learn from. A short life story interview was also undertaken by Cagayan de Oro to test the usefulness of the method, and the ability of the LGU to do the interview given limited inputs. Documents available from the Local Government Units such as Site Closure Plan, Social Development Programs (where available), and other sources of data were also utilized. A number of stakeholders were observed at each site. As a way to structure thinking, the value chain analysis was utilized, following the flow of the material from households to the various waste management options. In all the three sites, there were efforts to undertake removal of shanties within the dumpsites, as part of enforcing the land use of the site, for safety reasons (especially after the land slide in a major dump site in Metro Manila), and also for health reasons. A key consideration for the removal of the settlements by the LGU is in compliance with the Republic Act 9003, the Ecological Solid Waste Management Act which requires the closure of all dumpsites in the country. Following is a summary of salient points at the dump sites.
A. Cabanatuan City Dumpsite

Since the beginning of the dumpsite’s operation in 1948, the number of families surrounding the dumpsite grew from merely 10 to an estimated count of 100. Not all of these families, however, rely on waste picking for their living, as some of them have concrete and well-cemented houses. There have been about five demolition operations that took place, as part of the LGU’s closure plan. The first one was after the Payatas landslide incident. As a result of the operations, some 37 families were relocated to housing projects in Akpa and Gawad Kalinga sites. Some of these families then turned to pushing carts and peddling bikes to look for recyclable materials in their area while some opted to commute and collect materials still from the dumpsite. While the dumpsite has no fixed operating schedule so the waste pickers are free to access the area anytime.) Some micro-enterprises also arose from the waste-picking occurrence in the dumpsite such as carinderias and sari-sari store to cater to the waste pickers.

B. Iloilo Dumpsite

There are eight (8) key stakeholders in the Iloilo solidwaste stream, these are: (i) households, that generate the solid waste; (ii) the barangay which operates the barangay MRF; (iii) the itinerant waste pickers; (iv) the service provider (garbage collector, dump truck workers); (v) institutional and commercial waste generators; (vi) the souvenir shop and Holcim, with its Alternative Fuel Resources (AFR) Project; (vii) the City LGU; and (viii) the junkshops and major consolidators. Of these eight (8) key stakeholders in solid waste in Iloilo City, two (2) sub-groups are deemed to be likely affected significantly by the project: (1) the waste pickers from both the Holcim AFR project, and (2) the waste pickers/scavengers serving the local junkshops who rely on this for a living. The Holcim AFR Project currently employs 60 waste pickers who work on a rotation basis. As reported, there are roughly 600 waste pickers in Iloilo; 50% of whom are recognized by the LGUs while the other half is undetermined. The undetermined population of waste pickers could be temporal/incidental/seasonal, those who are not part of the Holcim AFR Project and/or those who turn to waste picking for a job during difficult times. The LGU should include this as part social assessment during sub-project preparation.

C. Cagayan de Oro Dumpsite

There are an estimated 400 waste pickers working at the Cagayan de Oro Dumpsite on a 12-hour schedule (from 3 a.m. - 3 p.m., as ordered by the LGU). There is a peculiar situation observed in the case of the informal settlers in the dumpsite present in Cagayan de Oro but not in the two other dumpsites. The residences of the waste pickers are located near the perimeter of the fence. Others who used to live within the dumpsite were relocated as part of a third party relocation, and housing program, with livelihood training and programs, sponsored by the private sector and implemented by a religious group. While practically all the residential shanties were demolished, because these are illegal in the area. However, there remained shanties as rest areas during the day and as temporary storage areas for their goods, which are later sold to junkshops. These are located in a designated zone within the dumpsite. Another on-site occurrence is the existence of “kiosks”—these are stands used by the collectors and on-site buyers. There are also buyers who bring in their trucks and staff to buy directly from the waste pickers. (Note: Some of the buyers pay cash to the waste pickers while some barter food and other items in exchange for the recyclables.)
D. Implications for Safeguards and Social Assessment

A number of key implications can be gleaned from the above summary of stakeholder concerns. These are:

a. The waste pickers in the three sites are the ones directly affected by the program, thus, any plan or course of action taken by the LGUs should be integrated with the SDP for waste pickers, and should contribute to the improvement and development of the livelihood and social condition of the waste pickers. Most of these waste pickers (even those who were already relocated) tend to rely on this practice as their primary source of living. As such, the social development programs (SDP) to be developed and implemented should also include sustainability as a design criteria.

b. The LGUs need to be clear about the participants of the SDP to set-up a clear sketch of their programs for the waste pickers or to those who are affected so as for them to understand better the programs. Any disparity in the registry of waste pickers could be problematic. As in the case of the waste pickers in Iloilo, some 300 waste pickers are not documented and could either be categorized as seasonal or emergent workers. It would be useful for the design of the appropriate plan if these could be verified and corrected. In the case of the waste pickers in Iloilo dumpsite where there are LGU-registered waste pickers who, at some point, benefit from the project, the LGU should articulate the set criteria in determining who can file for membership and what the benefits and responsibilities they have.

c. In terms of process, there is a need to undertake separate consultations among waste pickers (separately still among men, women, possibly young adults/ juveniles, and young children). There is also a need to deepen the understanding of the value chain and should include the waste aggregators. As part of the SDP, and assisting waste pickers, there is also a need to assess the market for recyclables, and the issues around it, probably at a project level.

11.4 Consultation with NCIP

Per interview with NCIP Commissioners, the project office will need to meet with the NCIP Regional Office – 3 to discuss the project, its scope, its potential impacts, the social issues that may arise, and the required mitigation, including compensation, and possible social development programs so as to provide a guide to proceeding within sub-project sites with project affected families. Subsequently a meeting with the NCIP Regional Office 3 happened. Based on the discussions with the Regional Director of NCIP, it is to be expected that the IPs will ask for some social development program in the form of labour-based contracting for the following activities: putting up the fences, putting up the signs, guide to detours, guarding the restricted site. (It must be noted that the process for SBMA already has an existing MOA with the IPs, as such the subsequent MOA that may be generated may, at the discretion of the IP leaders, given the discussions with the SBMA, be more simplified, compared to a full blown FPIC Process.)

Based on that meeting with the Regional Director, and the Head of the Field-Based Investigation Unit, the following was determined. The boundaries of the CFZ, and SBFZ are to be determined. Following this, the location of the remediation sites will be plotted, then
determine from the plot if the prospective sites are within ancestral domains or not. Once this is done, refer to the procedures in the Free and Prior Informed Consent (FPIC) guidelines being used currently for securing consent and agreement to the terms of the project.

Subsequently, the following was determined. The Clark Freeport Zone (CFZ) site for remediation is within the main zone of the CFZ which is under the jurisdiction of the Clark Development Corporation (CDC). The main zone of the CDC is outside the ancestral domain of the nearest IP group. This IP group, which holds a Certificate of Ancestral Domain Title, CADT to the adjacent area, issued on 21 January 2004, occupies the sub-zone of the CFZ. As such it does not require Free and Prior Informed Consent (FPIC) or Memorandum of Agreement (MOA) from or with any IP group.

However the Subic Bay Freeport Zone (SBFZ) situation is different. The SBFZ site for remediation is the Fire Training Station. This is within the main zone of the SBFZ. The SBFZ situation is peculiar, because, while the site is within the main zone under the jurisdiction of the Subic Bay Metropolitan Authority (SBMA), it is at the same time part of the Ancestral Domain of the indigenous peoples (under Certificate of Ancestral Domain Title, 27 March 2009).

Hence the indigenous Peoples Rights Act (IPRA) and the FPIC guidelines do not apply for the CDC, but it applies for the SBMA, because the site for remediation is within land that is part of a Certificate of Ancestral Domain Title (CADT).

For the FPIC and MOA requirement for site remediation at the SBMA, the SBMA, as the subproject implementer on the ground, will write to the representative of the IPs tribal leader who is also the barangay captain (Kapitan Condring Frenilla). Upon receipt of the letter, he in turn will organize the IPs for a briefing/disclosure on the remediation sub-project, to be organized and delivered by the SBMA, in a manner that is understandable and culturally-sensitive to the IPs. After which the community meets on its own to discuss and decide on their manner of participation in the project, if any, and their decision to give consent on the remediation of the project.

The FPIC Guidelines provides an indicative timeline for the activities relative to securing an FPIC and MOA. It also defines the MOA, and describes the elements of the MOA, including remedy and penal provisions for violations of a MOA. As a note, while the SBMA has been preparing drafts of MOAs for the IPs in the past, recently, the IPs have indicated that they can now be the one to prepare the draft MOA.

12.0 CAPACITY BUILDING AND TRAINING FOR EA/SA IMPLEMENTATION

EA/SA implementation covers the screening of proposed physical activities for the required safeguards documents or EA/SA instruments, preparation of these documents, review and approval of these documents, and monitoring and supervision on EMP implementation. The capacity building and training will cover these tasks and associated technical aspects. The success of EA/SA implementation would depend on the capacity and interplay of the project management (DENR and other partner government agencies) and activity proponents (LGUs and industries).
Table 14. Capacity Building Activities for EA/SA Implementation

<table>
<thead>
<tr>
<th>Capability Building/Training Topics</th>
<th>EMB</th>
<th>Proponent</th>
<th>Partner Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.0 Component 2. Reduction of PCDD/PCDF Releases</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Component Activity Technical Aspects (BAT/BEP to stop burning, dumpsite closure, and improved landfill operations)</td>
<td>CO/RO</td>
<td>LGU</td>
<td>NSWMC</td>
</tr>
<tr>
<td>1.2 Activity Screening for EA/SA instruments</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.3 Preparation of EA/SA instruments (EMP for stop burning, dumpsite closure plan, Operational Plan for the Improved Landfill Operation, SDP for Waste Pickers, Involuntary Resettlement Plan, IP Plan)</td>
<td>CO/RO</td>
<td>LGU</td>
<td>-</td>
</tr>
<tr>
<td>1.4 Review of EA/SA instruments</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.5 Environmental Measures (e.g. pollution control, health and safety SDP for Waste Pickers, Land Acquisition, Involuntary Resettlement, IP matters)</td>
<td>CO/RO</td>
<td>LGU</td>
<td>NSWMC</td>
</tr>
<tr>
<td>1.6 EMP Implementation Monitoring (performance indicators and report forms/templates)</td>
<td>CO/RO</td>
<td>LGU</td>
<td>NSWMC</td>
</tr>
<tr>
<td>1.7 IEC standard material development (Workshop)</td>
<td>CO/RO</td>
<td>LGU</td>
<td>NSWMC</td>
</tr>
<tr>
<td>1.8 Data Base and Record Keeping</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>2.0 Component 3. Implementation of Sound PCB Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Component Activity Technical Aspects (PCB Management Technical Guidelines and Technologies)</td>
<td>CO/RO, Trainers</td>
<td>Electric Utilities</td>
<td>NEA</td>
</tr>
<tr>
<td>1.2 Activity Screening for EA/SA instruments</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.3 Preparation of EA/SA instruments (PCB Management Plan with EMP)</td>
<td>CO/RO</td>
<td>Electric Utilities</td>
<td>-</td>
</tr>
<tr>
<td>1.4 Review of EA/SA instruments</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.5 Environmental Measures (Pollution Control, Health and Safety)</td>
<td>CO/RO, Trainers</td>
<td>Electric Utilities</td>
<td>NEA</td>
</tr>
<tr>
<td>1.6 EMP Implementation Monitoring (performance indicators and report forms/templates)</td>
<td>CO/RO/DENR PENRO/CENRO</td>
<td>Electric Utilities</td>
<td>NEA, staff of selected major city LGUs</td>
</tr>
<tr>
<td>1.7 IEC standard material development (workshop)</td>
<td>CO/RO</td>
<td>Electric Utilities</td>
<td>NEA, TWG on Stockholm Convention</td>
</tr>
<tr>
<td>1.8 Data Base and Record Keeping</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>3.0 Component 4. Demonstration of Site Remediation and Site Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Component Activity Technical Aspects</td>
<td>CO/RO</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Site Clean-up Standards</td>
<td>CO/RO</td>
<td>CDC/SBMA</td>
<td>DOST</td>
</tr>
</tbody>
</table>
### Capability Building/Training Topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>EMB</th>
<th>Proponent</th>
<th>Partner Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Remediation</td>
<td>CO/RO</td>
<td>CDC/SBMA</td>
<td>DOST</td>
</tr>
<tr>
<td>Site Control</td>
<td>CO/RO</td>
<td>CDC/SBMA, others to be identified</td>
<td>DOST</td>
</tr>
</tbody>
</table>

1.2 Activity Screening for EA/SA instruments

1.3 Preparation of EA/SA instruments (EA with Land Acquisition and Resettlement Plan, IP Plan where applicable)

1.4 Review of EA/SA instruments

1.5 Environmental Measures (pollution control, health and safety, land acquisition and resettlement, IP issues)

1.6 EMP Implementation Monitoring (performance indicators and report forms/templates)

1.7 IEC standard materials development (workshop)

1.8 Data Base and Record Keeping

### 13.0 COSTS AND BUDGETING FOR EA/SA IMPLEMENTATION

The cost and budgeting for the EA/SA implementation comes in a matrix of components and EA task, as shown below. In the preparation of safeguards documents, the GEF will cover the cost for consultant with the support and in kind funding of the proponents. The cost for EMB’s tasks (safeguards preparation guidance, screening, reviews, monitoring) will form part of project management budget. The cost of implementing environmental and social safeguards will be responsibility of the proponents. The cost of training, capacity building and developing and implementing the communication plans will be covered under the funds of safeguards preparation and project component budget for training and dissemination:

<table>
<thead>
<tr>
<th>EA Task</th>
<th>Component 2</th>
<th>Component 3</th>
<th>Component 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safeguards Document Preparation</td>
<td>Costs of consultants covered by GEF; Management and data collection inputs part of local government counterpart.</td>
<td>Consultants covered by the project GEF money with support and in kind funding from PCB owners.</td>
<td>Costs of consultants to prepare documents covered by GEF with support from in kind funding from CDC, SBMA and other landowners</td>
</tr>
<tr>
<td>Safeguards Screening, Review and Clearance</td>
<td>Costs covered by EMB counterpart and GEF project management budget;</td>
<td>Costs covered by EMB counterpart and GEF project management budget;</td>
<td>Costs covered by EMB counterpart and GEF project management budget;</td>
</tr>
<tr>
<td>Communications plan</td>
<td>Included in the safeguards preparation and in the project</td>
<td>Included in the safeguards preparation budget and in the</td>
<td>Included in the safeguards preparation budget and in the</td>
</tr>
<tr>
<td>EA Task</td>
<td>Component 2</td>
<td>Component 3</td>
<td>Component 4</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>component budgets for training and dissemination.</td>
<td>project component budgets for training and dissemination.</td>
<td>project component budgets for training and dissemination.</td>
</tr>
<tr>
<td>Safeguards implementation</td>
<td>Costs for EMP implementation, resettlement, waste picker SDP and IPDP responsibility of the local government and covered under the overall subproject budgeting;</td>
<td>Costs for PCB Management plan implementation is the responsibility of the PCB owners.</td>
<td>Costs for safeguards implementation (EMP, RAP or IP instrument) is the responsibility of the land owner and as appropriate included in the contracts for remediation and site control and are part of the project budget.</td>
</tr>
<tr>
<td>Monitoring</td>
<td>EMB monitoring covered by project management budget.</td>
<td>EMB monitoring covered by project management budget.</td>
<td>EMB monitoring covered by project management budget.</td>
</tr>
<tr>
<td>Training and Capacity Building</td>
<td>Safeguards training is included as part of the preparation of the documents and supervision budget. It is also included in the training and dissemination for the component.</td>
<td>The training funded under the component is for the purpose of preparing and implementing the safeguards document (PCB Management Plan).</td>
<td>The training under the component for the specific sites and nationally includes the safeguards aspects.</td>
</tr>
</tbody>
</table>
REFERENCES:


Health Canada and Santé Canada . Health Impacts of Site Remediation. An Approach to Identify and Mitigate Potential Health Impacts. Contaminated Sites Division. 5th Floor, 269 Laurier Avenue West. Ottawa, Ontario K1A 0K9. e-mail: cs-sc@hc-sc.gc.ca


NSWMC. 2005. Solid Waste Disposal Design and Operation

Philippine Executive Order 192. Reorganization Act of the Department of Environment and Natural Resources

Philippine Presidential Decree No. 269. National Electrification Administration Decree

Philippine Presidential Decree No 1586. Establishment of the Philippine EIS System

Philippine Republic Act No. 6038. National Electrification Administration Act


Philippine Republic Act No. 7160. Local Government Code


Philippine Republic Act No. 8749. The Clean Air Act of 1999

Philippine Republic Act No. 9003. Ecological Solid Waste Management Act of 2000

Philippine Republic Act No. 9275. The Clean Water Act of 2004

Technical Reports from PPG Consultants for Components 2, 3 and 4.

ANNEXES
Annex 1. Template: Environmental Management Plan for Putting Out Fires in a Dumpsite

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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Manpower</td>
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<td>Financial</td>
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<td></td>
</tr>
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<td>4.0 STATUS OF BURNING AT THE DUMPSITE</td>
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<td>5.0 DESCRIPTION OF PROPOSED ACTIVITIES TO STOP BURNING</td>
<td></td>
</tr>
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<td>6.0 IMPACT ASSESSMENT AND MITIGATION</td>
<td></td>
</tr>
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<td>7.0 ENVIRONMENTAL AND SOCIAL MONITORING PLAN</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>10.0 ACTIVITY IMPLEMENTATION SCHEDULE</td>
<td></td>
</tr>
<tr>
<td>11.0 ACTIVITY COST ESTIMATES</td>
<td></td>
</tr>
</tbody>
</table>
1.0 DUMPSITE IDENTIFICATION

<table>
<thead>
<tr>
<th>Name of Dumpsite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Sitio</td>
</tr>
<tr>
<td>Barangay</td>
</tr>
<tr>
<td>Municipality/City</td>
</tr>
<tr>
<td>Province</td>
</tr>
<tr>
<td>Region</td>
</tr>
<tr>
<td>Coordinates in degrees:</td>
</tr>
<tr>
<td>Coordinates in meters:</td>
</tr>
<tr>
<td>Authority to Close</td>
</tr>
<tr>
<td>Date</td>
</tr>
<tr>
<td>Contact Person/Designation</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Mailing Address:</td>
</tr>
<tr>
<td>Telephone:</td>
</tr>
<tr>
<td>Fax No. (02) 840-1974</td>
</tr>
<tr>
<td>Email</td>
</tr>
</tbody>
</table>

2.0 DESCRIPTION OF DUMPSITE

Figure 1. Vicinity Map with respect to the town center

indicate important landmarks to show access and neighbors of the dumpsite
**Figure 2 Existing Dumpsite Lay-out (indicate year)**

On a scaled layout of the dumpsite, legibly indicate the following:

<table>
<thead>
<tr>
<th>Gate</th>
<th>Administration Building</th>
<th>Dump</th>
<th>Wash bay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perimeter Fence</td>
<td>Weighbridge</td>
<td>Dumping area</td>
<td>Drainage Canal</td>
</tr>
<tr>
<td>Buffer Zone</td>
<td>Motorpool/workshop</td>
<td>Reserve area</td>
<td>Leachate Pond</td>
</tr>
<tr>
<td>Guardhouse</td>
<td>Water Tank</td>
<td>Waste Picking</td>
<td>Leachate Treatment</td>
</tr>
<tr>
<td>Interior Access road</td>
<td>Deepwell</td>
<td></td>
<td>Leachate Re-circulation</td>
</tr>
<tr>
<td>Elevations</td>
<td></td>
<td></td>
<td>Monitoring Well</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MRF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Composting Facility</td>
</tr>
</tbody>
</table>

Also indicate the immediate neighbors, e.g. houses, roads, establishments

---

**Plate 1. Panoramic view the dumpsite**
Plate 2. Photo of north face of the dumpsite

indicate in one of the photograph the entrance gate of the dumpsite, and the community surrounding the dumpsite

Plate 3. Photo of the east face of the dumpsite

Plate 4. Photo of the south face of the dumpsite
Plate 5. Photo of the west face of the dumpsite

A. Physical Set-up of Dumpsite

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Data/Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Access Route to Dumpsite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Road Condition from the national road to site</td>
<td>m³</td>
<td></td>
</tr>
<tr>
<td>3. Total Capacity</td>
<td>m³</td>
<td></td>
</tr>
<tr>
<td>4. Total area allocated for the dumpsite</td>
<td>m²</td>
<td></td>
</tr>
<tr>
<td>5. Area utilized and reckoning date</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>6. Average height of dump</td>
<td>m</td>
<td></td>
</tr>
<tr>
<td>7. Average slope</td>
<td>deg</td>
<td></td>
</tr>
<tr>
<td>8. Current volume</td>
<td>m³</td>
<td></td>
</tr>
<tr>
<td>9. Current weight</td>
<td>MT</td>
<td></td>
</tr>
<tr>
<td>10. Soil cover status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Gas management status</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Existing Equipment

<table>
<thead>
<tr>
<th>Equipment</th>
<th>No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.0 OVERVIEW OF ENVIRONMENT
(Focus only on relevant aspects to fire suppression), remove land, flooding,

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. WATER</strong></td>
<td></td>
</tr>
<tr>
<td>Body of Water in the vicinity</td>
<td>Name of Water Body</td>
</tr>
<tr>
<td></td>
<td>Distance from dumpsite</td>
</tr>
<tr>
<td></td>
<td>Relative direction from dumpsite</td>
</tr>
<tr>
<td></td>
<td>Approximate flow rate of stream</td>
</tr>
<tr>
<td>Flooding</td>
<td>Site is located in flood prone area</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Highest Flood Level from ground level, m</td>
</tr>
<tr>
<td></td>
<td>Year</td>
</tr>
<tr>
<td><strong>B. AIR</strong></td>
<td></td>
</tr>
<tr>
<td>Climate Type</td>
<td></td>
</tr>
<tr>
<td>Prevailing Wind</td>
<td></td>
</tr>
<tr>
<td>Direction at the Dumpsite</td>
<td></td>
</tr>
<tr>
<td><strong>C. SOCIAL</strong></td>
<td></td>
</tr>
<tr>
<td>Existing settlement within the dumpsite</td>
<td>Number of families</td>
</tr>
<tr>
<td></td>
<td>Number of persons</td>
</tr>
<tr>
<td>Waste pickers</td>
<td>Estimated Total Number</td>
</tr>
<tr>
<td></td>
<td>Registered Number, if any</td>
</tr>
<tr>
<td>Number of houses</td>
<td>Adjacent to the dumpsite fence</td>
</tr>
<tr>
<td></td>
<td>Within 100 m distance from the dumpsite</td>
</tr>
<tr>
<td>Presence of an IP Community</td>
<td>None</td>
</tr>
<tr>
<td>Nearest Institutions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distance</td>
</tr>
<tr>
<td></td>
<td>School</td>
</tr>
<tr>
<td></td>
<td>Church</td>
</tr>
<tr>
<td></td>
<td>Hospital, clinic</td>
</tr>
<tr>
<td>Interest Groups on</td>
<td></td>
</tr>
</tbody>
</table>
### Parameter| Data
---|---
the operation of the dumpsite| Name of Group | Address | Interest

#### 4.0 STATUS OF BURNING AT THE DUMPSITE

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data/Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time of the Year of occurrence of burning</td>
<td></td>
</tr>
<tr>
<td>2. Duration of Burning</td>
<td></td>
</tr>
<tr>
<td>3. Reasons for the occurrence of burning</td>
<td>ignited by smoking or worker activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Locations of burning area</td>
</tr>
<tr>
<td>5. Approximate area of burning sites, m²</td>
</tr>
<tr>
<td>6. Nature of burning</td>
</tr>
</tbody>
</table>

Additional Data/Elaboration, if any, in the planning for suppressing the fire

Provide layout and photographs of the burning sites.

#### 5.0 DESCRIPTION OF PROPOSED ACTIVITIES TO STOP BURNING

**Indicative Dumpsite Areas to Cover**

<table>
<thead>
<tr>
<th>Dump Sector*</th>
<th>Sector Description</th>
<th>Area of Sector, m²</th>
<th>Timing of Work</th>
<th>Duration of Work, days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* if the dump is divided into sector
Indicative Lay-out of Operations

On a scaled layout of the dumpsite, legibly indicate the areas where there are burning (hot zones), command site and staging area of equipment, access route of equipment, escape route, waste picking area, dumping area for incoming waste, other structures to describe the whole dumpsites.

Indicative Target Final Layout

Alternatives Fire Suppressants to Use

<table>
<thead>
<tr>
<th>Suppressant</th>
<th>Volume m³</th>
<th>Mass tons</th>
<th>Source location*</th>
<th>Needed Equipment and number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify providers, specific address and arrangements made to identify avoid or mitigate consequent impacts from sourcing out the suppressants.
6.0 IMPACT ASSESSMENT AND MITIGATION

<table>
<thead>
<tr>
<th>Impact</th>
<th>Y</th>
<th>N</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exposure of workers to fumes and natural explosions due to gas build up.</td>
<td>a.</td>
<td></td>
<td>Minimize exposure of workers to smoke and gases by following safety and health protocols.</td>
</tr>
<tr>
<td>2. Exposure of nearby settlers to potential slope collapse during major waste movement activity</td>
<td>b.</td>
<td></td>
<td>Check collapse prone areas by undertaking confirmatory tests on stability of compacted site to prevent dump slides, and end advance notice to nearby settlers of the work to be done.</td>
</tr>
<tr>
<td>3. Land disfiguration, soil erosion, water ponding and safety risk to children due to excavation of soil for dumpsite cover.</td>
<td>c.</td>
<td></td>
<td>Obtain cover soil in areas consistent with the intended land use including those with existing land development works.</td>
</tr>
<tr>
<td>4. Increase in airborne dust from excavation and to on-site transfers of soil for cover especially during summer.</td>
<td>d.</td>
<td></td>
<td>Minimize dust emission by regular watering of areas with high dust emission or avoiding earthmoving activities during windy conditions.</td>
</tr>
<tr>
<td>5. Accumulation of mud along transport route of excavated soil for dumpsite cover from source to dumpsite.</td>
<td>e.</td>
<td></td>
<td>Prevent soil spillage along soil transport route by filling trucks to the brim, cover soil with tarpaulin, and remove soil on its side and tires before the trucks are allowed to travel.</td>
</tr>
<tr>
<td>6. Potential restricted access of waste picker to dumpsite and their consequent inability to generate their day’s income from the dumpsite.</td>
<td>f.</td>
<td></td>
<td>Designate area for waste picking</td>
</tr>
<tr>
<td>7. Others, please specify</td>
<td>g.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7.0 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

The environmental monitoring will be reported consisting of the following parameters and assessment:

<table>
<thead>
<tr>
<th>Monitoring Parameters</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dumpsite visual condition before and after the activity (with photos before, during and after the activity; presence or absence of smoke)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Dump slope condition (complete compaction, partial compaction)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gas concentrations recorded (location of sampling station, date, time,</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Description of location of soil source (address/location, owner, documentary proof of authorization to excavate, area and depth, with photographs before and after the activity

5. Volume of soil used for capping

6. Soil spillage along road routes (insignificant or significant and measures done)

7. Description of dust emissions from road and dumpsite (high, moderate, low)

8. Personnel Safety (adequacy of PPE, personnel condition before and after the operations)

9. Access of waste pickers at the dumpsite

8.0 ROLES AND RESPONSIBILITIES

<table>
<thead>
<tr>
<th>Provision</th>
<th>Yes</th>
<th>No</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The operator (LGU or service contractor) will implement activity and its environmental and social measures.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. As the operator, the service contractors will plan with, and report to the LGU, as will be stipulated in the Contract.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The service contractor will also provide gas measurement instrument and operate them as well.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The LGU will ensure environmental, social, safety and health consideration shall for part of procurement contracts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The LGU may seek to assistance of the Fire Department in providing water and other fire suppression assistance and training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The LGU will conduct the rest of environmental and social monitoring and collate them for submission to the IPOPs PMO.</td>
<td></td>
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<tr>
<td>7. [Others, pls specify]</td>
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</table>

9.0 CAPACITY DEVELOPMENT

<table>
<thead>
<tr>
<th>A. Training</th>
<th>Yes</th>
<th>No</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparation of proposals for funding</td>
<td></td>
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<tr>
<td>2. BAT/BEP on putting out fires and landscaping</td>
<td></td>
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<tr>
<td>3. Dumpsite gas and particulate emission and ambient sampling</td>
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<tr>
<td>4. Development and implementation of Personnel Safety and Health</td>
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<td>5. Codification of LGUs current best practices</td>
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<td>6. Documentation of environmental activities</td>
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<td>7. Selection of service provider</td>
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<tr>
<td>8. Supervision of service provider</td>
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<tr>
<td>B. Others (e.g equipment, manpower)</td>
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</table>

### 10.0 ACTIVITY IMPLEMENTATION SCHEDULE

### 11.0 ACTIVITY COST ESTIMATES

(technical/engineering, mitigation, personnel health and safety, monitoring, IEC, training)
Annex 2. Draft Revised Dumpsite Closure Plan Outline

DAO 2006-09 requires the closure of open and controlled dumpsites and LGUs are required to submit a closure plan and obtain an Authority-to-Close. The review of the current dumpsite closure plan outline as well the existing dumpsite closure plans showed the need for the dumpsite closure plans to be updated, filling up the gaps with the WB EA requirement (OP 4.01). The plans were found strong in the technical aspect of the closure, however weak or lacking in the different aspects of an EMP, in particular, the presentation of impacts, monitoring, roles and responsibilities, cost, and sources of fund. Thus, an Updated Dumpsite Closure Plan using a revised outline is a recommended operative document for safeguard clearing purposes under this project. A reference document in preparing the plan is the Guidebook for the Safe Closure of Disposal Sites. Final Edition 2006 by NSWMC and JICA

1.0 BASIC INFORMATION
   1.1 LGU ID (Name of LGU, Contact person, address, contact Number)
   1.2 Dumpsite ID (Name of Dumpsite, address, ATC data, land area occupied)

2.0 DESCRIPTION OF DUMPSITE OPERATIONS
   2.1 Access to Dumpsite
   2.2 Original Use of the Area
   2.3 Start Date of Use
   2.4 Area Allocated and Utilized, Capacity
   2.5 Dimensions and Volume of the Dump
   2.6 Sources of Solid Wastes
   2.7 Solid Waste Receiving Rate
   2.8 Solid Waste Composition
   2.9 Incidence of Water Ponding
   2.10 Incidence of Burning, Putting out Fire Activities, Fire Prevention
   2.11 Improvements Undertaken in Dumpsite Operations

3.0 RESOURCES
   3.1 Structures
   3.2 Equipment Available
   3.3 Utilities (water, power supply, communications)
   3.4 Organizational Set-up and Functions
   3.5 Annual Operating Budget

4.0 DESCRIPTION OF ENVIRONMENT*
   4.1 Land (land use, type of ecosystem, topography, soil, cover, built-up area,)
   4.2 Water (natural drainage system and waster flow, characteristics receiving body of water, groundwater, use of water, incidence of flooding)
4.3 **Air**  (climate type, rainfall, general wind directions, odor, dust emissions, noise sources and qualitative levels)

4.4 **Social**  (general economic status of the area, settlements, waste pickers, IPs, organizations, interest groups,)

*(within 500 meter distance from dumpsite)*

**5.0 PROPOSED CLOSED DUMPSITE DESIGN AND STATUS OF IMPLEMENTATION**

5.1 Design Considerations (e.g. overall direction in solid waste management, post-closure use of the site, favorable circumstances and limitations, standing specific environmental and social issues)

5.2 Lay-out Plan

5.3 Site Clearing

5.4 Site Grading and Stabilization of Critical Slopes

5.5 Application and Maintenance of Soil Cover

5.6 Provision of Drainage Control System

5.7 Leachate Management

5.8 Gas Management

5.9 Fencing and Security

5.10 Signage

5.11 Prohibition of Burning

**6.0 RESIDUAL IMPACTS ASSESSMENT By ACTIVITY * **

6.1 Site Clearing

6.2 Site Grading and Stabilization of Critical Slopes

6.3 Application and Maintenance of Soil Cover

6.4 Provision of Drainage Control System

6.5 Leachate Management

6.6 Gas Management

6.7 Fencing and Security

* on land, water, air, and/or people

**7.0 RESIDUAL IMPACT MITIGATION**

7.1 On Personnel Health and Safety

7.2 On Sourcing of Soil Cover

7.3 On Dust Emissions

7.4 Concerns of Waste Pickers

7.5 Concerns of Indigenous People (if any)

7.6 Concerns on Resettlement (if any)

7.7 On other impacts
8.0 MONITORING
   8.1 Progress of Work
   8.2 Land (Final layout, integrity of the slope, soil erosion)
   8.3 Water (rainfall, leachate, ponding, surface and ground water quality)
   8.4 Air (odor, incidence of burning, gas emission)
   8.5 Social (implementation of social safeguards)

9.0 INSTITUTIONAL ARRANGEMENT
   9.1 Roles and Responsibilities
   9.2 Training
   9.3 Additional Equipment Requirements
   9.4 Schedule of Implementation
   9.5 Cost of Closure, and Sources of Funds (other than the IPOPs)
Annex 3. Landfill Operational Plan Outline

The interest of the IPOPs Project in its Component 2 includes the prevention of burning through improved landfill operations. Component 2 covers the application of Best Available Technology (BAT) and Best Environmental Practices (BEP) in the reduction of unintentional releases of dioxin and furans from burning sources from solid waste.

RA 9003 mandates the construction and operation of sanitary landfills to open and controlled dumpsites. DAO 2001-34 provides guidelines for siting, design and operation of sanitary landfills. DAO 2006-10 categorizes sanitary landfill into four (4) depending of the designed receiving rate of municipal wastes, and there are technical guidelines in the design and operation. Further, with reference to PD 1586, DAO 2006-10 requires the acquisition of an Environmental Compliance Certificate (ECC), with the submission of an Initial Environmental Examination (IEE) Checklist, IEE Report or EIS depending on the category. Further, the National Solid Waste Management Commission (NSWMC) with JICA released Technical Guidebook on Solid Waste Disposal Design and Operation. Many years back DENR issued DAO 98-45 containing technical guidelines in landfill operations. In all of these issuances, preventive measures for burning are part of the required technical design of the landfill and its operation. Existing landfills may not have achieved the design and operational standards to guarantee sustained prevention of burning at landfill site. Thus, an improved landfill operation which will also prevent burning at landfill sites forms part of funding under the IPOPs project.

For funding under Component 2, a Landfill Operational Plan is required to highlight the current status of the landfills and improvements that can be done to ensure the non-occurrence of burning at the landfill site, as well to identify residual impacts and measures for such improvements. The Landfill Operational Plan will also serve to update the information contained in the environmental reports submitted to EMB.

An outline below is provided as guidance to LGUs in the preparation of the operational plan, which will be submitted to EMB for review. The outline was prepared to meet the environmental assessment components of the World Bank Operational Policy (OP) 4.01 taking into consideration the substantive topics and requirements from the above-mentioned GOP policies, which will also serve as reference in developing the plan. OP 4.01 requires impact assessment, provision of mitigation measures, monitoring, and institutional arrangements such as schedule of implementation, roles and responsibilities, cost and sources of funding, which are also typical requirements under the PD 1586 or the Philippine EIS System. The NSWMC Technical Guidebook on Solid Waste Disposal Design and Operation is a recommended reference for the development of the plan.

1.0 BASIC INFORMATION

1.1 LGU ID (Name of LGU, Contact person, address, contact Number)
1.2 Landfill ID (Name of Dumpsite, address, ATC data, ECC data, land area occupied)

2.0 DESCRIPTION OF LANDFILL SITE AND OPERATIONS

2.1 Overview
2.1.1 Access to Landfill and road condition (attach vicinity map)
2.1.2 Original Use of the Area
2.1.3 Start Date of Use
2.1.4 Planned Capacity (total volume, receiving rate, life)
2.1.5 Sources of Solid Waste
2.1.6 Solid Waste Receiving Rate
2.1.7 Solid Waste Composition
2.1.8 Environmental Permits Secured (name, date acquired, code, application document)

2.2 General Physical Layout
2.2.1 Area Allocated and Utilized
2.2.2 Current Dimensions and Volume of the Waste

2.3 Description Environmental Engineering Design
2.3.1 Basis of siting
2.3.2 Overall design concept
2.3.3 Buffer Zones and Standoffs
2.3.4 Containment Engineering (Embankment/Cell Separation, final geometry)
2.3.5 Lining
2.3.6 Drainage Facility (surface runoff and groundwater)
2.3.7 Landfill Gas Control and Management
2.3.8 Leachate Control and Management (treatment and recirculation)
2.3.9 Associated Waste Reduction Facilities (MRF, Composting)
2.3.10 Security Measures (e.g. fencing)

2.4 Daily Landfill Operational Procedure
2.4.1 Waste Inspection and Checking
2.4.2 Waste Recording System
2.4.3 Waste Picking/Diversion
2.4.4 Waste Emplacement Configuration
2.4.5 Waste Emplacement Density (tons/m²)
2.4.6 Waste Compaction Density
2.4.7 Daily and intermediate soil cover

2.5 Completion Plans
2.5.1 Restoration Plan
2.5.2 Afteruse Plan
2.5.3 Aftercare Plan

2.6 Safety and Health Plan
2.7 Protection of Neighboring Amenities
2.8 Emergency Response Plans
2.9 Environmental Monitoring

2.10 Operational Constraints/Problems/Oversights (expand the list below)
2.10.1 Capacity
2.10.2 Incidence of Water Ponding
2.10.3 Incidence of Burning, Putting out Fire Activities, Fire Prevention
2.11 Improvements Undertaken in Landfill Operations

3.0 RESOURCES
3.1 Structures
3.2 Equipment Available
3.3 Soil Cover
3.4 Utilities (water, power supply, communications)
3.5 Organizational Set-up and Functions
3.6 Annual Operating Budget

4.0 DESCRIPTION OF ENVIRONMENT*
4.1 Land (land use, type of ecosystem, topography, soil, cover, built-up area,)
4.2 Water (natural drainage system and waster flow, characteristics receiving body of water, groundwater, use of water, incidence of flooding)
4.3 Air (climate type, rainfall, general wind directions, odor, dust emissions, noise sources and qualitative levels)
4.4 Social (general economic status of the area, settlements, waste pickers, IPs, organizations, interest groups,)

*(within 500 meter distance from the landfill site)

5.0 PROPOSED IMPROVEMENTS
(Please refer to Section 2 on the different aspects of landfill)
5.1 Environmental Engineering Design
5.2 Landfill Operational Procedures
5.3 Landfill Completion
5.4 Resources

Aspects of landfill operation from the technical guidelines for sanitary landfills (not controlled dumpsites which you have now) in “5.0” under the outline

6.0 RESIDUAL IMPACTS* ASSESSMENT AND MITIGATION BY PROPOSED IMPROVEMENT
6.1 Improvement 1... Impact
6.2 Improvement 2... Impact
6.3 ......Others... Impact

* State the proposed improvement and corresponding impacts land, water, air, and/or people. Assess if there are impacts on waste pickers, structure, land ownership, indigenous peoples.
For issues on waste pickers (See IPOPs Project Social Development Plan Framework, Annex 8)
For issues on indigenous peoples (if any, See IPOPs Project IP Policy Framework, Annex 10)
For issues on resettlement (if any, See IPOPs Project Land Acquisition and Resettlement Policy Framework Annex 9)

7.0 MONITORING PLAN
7.1 Progress of Work
7.2 Land (Final layout, integrity of the slope, soil erosion)
7.3 Water (rainfall, leachate, ponding, surface and ground water quality)
7.4 Air (odor, incidence of burning, gas emission)
7.5 Social (implementation of social safeguards)

8.0 INSTITUTIONAL ARRANGEMENT
8.1 Roles and Responsibilities
8.2 Training
8.3 Additional Equipment Requirements
8.4 Schedule of Implementation
8.5 Cost of Improvements, Impact Mitigation and Monitoring, and Sources of Funds (other than the IPOPs)
Annex 4. PCB Management Plan Outline

GUIDANCE NOTES

Introduction

This PCB Management Plan is required under Section IV, item No. 9 of the Chemical Control Order for Polychlorinated biphenyls (DENR Administrative Order No. 01, series of 2004). Submission of this document to DENR-EMB signifies commitment to implement all applicable mitigating measures and action plans identified in this management plan to guarantee protection of human health and the environment from Polychlorinated biphenyls relative to the 2001 Stockholm Convention on Persistent Organic Pollutants (POPs).

The IPOPs Project Component 2 will implement sound PCB management. The strategy to mitigate the residual impacts resulting from the implementation of sound PCB management is the preparation and submission of an updated and upgraded PCB Management Plan, which addresses various issues under the topics of PCB spill prevention, emergency and clean-up plan, pollution prevention program, and occupational safety and health management plan and program. Based on a review of the DENR PCB Management Plan Outline and existing PCB Management Plans submitted to EMB, the outline is weak or lacking in some EMP aspects of WB OP 4.01 like monitoring, personnel safety and health, roles and responsibilities, costing and source of funds. The recommended upgraded outline presented here addresses the gaps with reference to the WB EA requirements. The plan will take reference to the upcoming Revised Technical Guidelines for PCB Management.

Objectives of Sound PCB Management

The primary objective of PCB management plan is to strengthen the management of PCBs through proper identification, handling, packaging, storage, transportation and disposal. The impact of implementing this plan is to minimize and/or eliminate the risk of PCB release to environment during management with provisions for personnel safety and health.

Reference Major Environmental Policies, Laws and Regulations

This PCB Management Plan was developed in consideration to the provisions of the following:

- Republic Act No. 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990) and its Implementing Rules and Regulations;
- Republic Act No. 9275 (Philippine Clean Water Act of 2004); and
- Section 65 of Republic Act No. 9136 (Electric Power Industry Reform Act of 2001) and Rule 28 of its Implementing Rules and Regulations.

2001 Stockholm Convention on Persistent Organic Pollutants

- Identify, label and remove from use any equipment containing greater than 100,000 ppm PCBs and volumes greater than 5 liters;
• Identify, label and remove from use any equipment containing greater than 500 ppm PCBs and volumes greater than 5 liters; and

• Identify and remove from use any equipment containing greater than 50 ppm PCBs and volumes greater than 0.05 liters.

• Comply with all the provisions of the Chemical Control Order for Polychlorinated biphenyls (DENR Administrative Order No. 01, series of 2004); and

• Comply with all applicable provisions of the Procedural Manual on Hazardous Waste Management (DENR Administrative Order No. 36, series of 2004)

• Prevent dumping or discharge of PCBs or any substance contaminated with PCB relative to Chapter 5, Section 27 (f) of Republic Act No. 9275; and

• Prevent discharge or allow to seep, willfully or through gross negligence PCBs or any substance contaminated with PCB, into water bodies (surface, ground, coastal, and marine water) relative to Chapter 5, Section 27 (g) of Republic Act No. 9275.

Classification of PCB-containing Equipment

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
<th>PCB level (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB equipment</td>
<td>Any equipment that contain 500 ppm PCB or greater.</td>
<td>PCB ≥ 500 ppm</td>
</tr>
<tr>
<td>PCB-contaminated equipment</td>
<td>Any equipment that contain 50 ppm PCB and higher but less than 500 ppm PCB.</td>
<td>50 ppm ≤ PCB &lt; 500 ppm</td>
</tr>
<tr>
<td>Non-PCB equipment</td>
<td>Any equipment that contains PCB concentration of less than 50 ppm</td>
<td>PCB &lt; 50 ppm</td>
</tr>
<tr>
<td>PCB-Free equipment</td>
<td>Any solid or liquid that does not contain any PCB.</td>
<td>PCB ≤ 2 ppm</td>
</tr>
</tbody>
</table>

Ban and Phase-out schedule of all materials and equipment containing PCBs will be based on the following timelines:

<table>
<thead>
<tr>
<th>Scope</th>
<th>Coverage</th>
<th>2004</th>
<th>2007</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importation, sale, transfer or distribution</td>
<td>PCB equipment, PCB contaminated-equipment, PCB articles, PCB wastes, PCB packaging and PCBs.</td>
<td>Not allowed.</td>
<td></td>
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<tr>
<td>Non-PCB equipment</td>
<td></td>
<td></td>
<td></td>
<td>Not allowed.</td>
</tr>
<tr>
<td>Scope</td>
<td>Coverage</td>
<td>2004</td>
<td>2007</td>
<td>2014</td>
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<tr>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Local manufacture / production and use as raw material</td>
<td>PCB equipment, PCB-contaminated equipment, Non-PCB equipment, PCB articles, PCB wastes and PCBs.</td>
<td></td>
<td>Not allowed.</td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td>PCB equipment, PCB-contaminated equipment, PCB articles, PCB used in closed applications and PCBs.</td>
<td></td>
<td></td>
<td>Not allowed.</td>
</tr>
<tr>
<td></td>
<td>PCB use in open-ended applications &amp; partially enclosed applications.</td>
<td></td>
<td>Not allowed.</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>PCB wastes &amp; PCB packaging</td>
<td></td>
<td></td>
<td>Not allowed.</td>
</tr>
<tr>
<td></td>
<td>Equipment that has been drained of PCB fluids, equipment that are sealed and not leaking, PCB articles and PCB wastes placed in a leak-proof PCB packaging.</td>
<td></td>
<td>Not allowed.</td>
<td></td>
</tr>
</tbody>
</table>

* As per Section IV, Item No. 5.2 of the CCO for PCBs, these are decommissioned PCB equipment, PCB-contaminated equipment and non-PCB equipment.
# Sound PCB Management Plan

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<td>1. Identification, Testing, Labeling and Inventory</td>
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<td>2. Decommissioning Plan</td>
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<td>3. Storage Plan</td>
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<td>4. PCB Storage Facility Closure Plan</td>
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<td>5. Equipment Decontamination Plan</td>
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<td>6. Transport Plan</td>
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<td>7. Final Disposal Plan</td>
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<td><strong>THEMATIC PLANS</strong></td>
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<tr>
<td>1. PCB Spill Prevention, Emergency and Clean-Up Plan</td>
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<tr>
<td>2. Pollution Prevention Program</td>
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<tr>
<td>3. Occupational Safety and Health (OSH) Management Plan and Program for PCB Management</td>
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<tr>
<td>4. Environmental, Safety, and Health Performance Monitoring and Audit Plan</td>
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<td>5. Continual Improvement Plan</td>
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<td>6. Documentation and Records Plan</td>
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<tr>
<td><strong>INSTITUTIONAL ARRANGEMENT PLANS</strong></td>
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<tr>
<td>1. Personnel Training Program</td>
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<tr>
<td>2. Consolidated Schedule of Implementation</td>
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<tr>
<td>3. Roles and Responsibilities</td>
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<tr>
<td>4. Consolidated Cost Estimates</td>
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<td>5. Sources of Funds</td>
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<tr>
<td><strong>Accountability Statement</strong></td>
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<tr>
<td>Annexes on Environmental Clearances, Certification, Permits, Memorandum of Agreement, Policy on Environmental, Safety, Health</td>
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## 1.0 BASIC INFORMATION

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<tbody>
<tr>
<td>1.</td>
<td>Company Name</td>
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<tr>
<td>2.</td>
<td>CCO Reg. No.</td>
</tr>
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<td></td>
<td>(If not applicable, other Reg. No.)</td>
</tr>
<tr>
<td>4.</td>
<td>Company</td>
</tr>
<tr>
<td>5.</td>
<td>Address</td>
</tr>
<tr>
<td>6.</td>
<td>Name of General Manager/President</td>
</tr>
<tr>
<td>7.</td>
<td>Contact No.</td>
</tr>
<tr>
<td>8.</td>
<td>Date Established</td>
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</tbody>
</table>
9. Authorized Capital
10. Paid Up Capital
11. Number of employees
12. Number of customers
13. Annual Electricity Sales
14. Total Number of Sub-Stations
15. Locations of Sub-stations
16. Total Number of Electrical Transformers (units)
17. Estimated total value (PhP)
18. Total Number of Capacitors (units)
19. Total No. of Oil Circuit Breakers (units)
20. Estimated total cost of implementing this PCB Management Plan (PhP)
21. Indicative Date of PCB Elimination in the premises

2.0 BRIEF DESCRIPTION OF PREMISES AND IMMEDIATE SURROUNDINGS

This section provides for brief statement on the general location of the facility, physical arrangements, premises drainage system, water wells, and fence-side neighbors. The following shall be annexed.

- Vicinity map with respect to the town/city proper
- Site Physical Layout (identifying the immediate neighbors)
- Location maps of all equipment containing greater than 50 ppm PCBs
- Premises drainage system lay-out showing the locations of the PCB sites
- Location map of water wells within the premises and neighbors
- Panoramic photos of the entire facility and its neighbors at the NESW directions

3.0 IDENTIFICATION, TESTING, LABELING AND INVENTORY

A. Electrical Transformers

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Capacity (KVA)</th>
<th>In Use</th>
<th>Stand-By</th>
<th>Decommissioned</th>
<th>Storage for disposal</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&lt;50 ppm</td>
<td>&gt;50 ppm</td>
<td>&lt;50 ppm</td>
<td>&gt;50 ppm</td>
<td></td>
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<tr>
<td></td>
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<td>&lt;50 ppm</td>
<td>&gt;50 ppm</td>
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</tbody>
</table>

5. Within one (1) year from the date of approval of this PCB Management Plan, all electrical equipment containing greater than 50 ppm PCBs will be identified, tested, labeled in accordance with the CCO and prepare and submit an inventory report.

PCB Screening Test Kit will be used to identify transformers or oil circuit breakers containing greater than 50 ppm. Labels will be installed to all equipment having greater than 50 ppm PCBs.
B. Capacitors

<table>
<thead>
<tr>
<th>Units</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Capacitors</td>
<td></td>
</tr>
<tr>
<td>Total No. of Capacitors manufactured before 1990s</td>
<td></td>
</tr>
</tbody>
</table>

C. Oil Circuit Breakers

<table>
<thead>
<tr>
<th>Units</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Oil Circuit Breakers</td>
<td></td>
</tr>
<tr>
<td>Total No. of Oil Circuit Breakers with date of make before 1990s</td>
<td></td>
</tr>
</tbody>
</table>

D. PCB Inventory Information

Attached PCB Inventory Report (e.g. Transformers) will contain the following technical information for each equipment:

- Equipment type
- Manufacturer
- Country of Origin
- Date of Manufacture
- Model No.
- Serial No.
- Capacity
- Years In service
- Projected retirement date
- Gross weight
- Tare weight
- Total weight of oil
- Type of oil
- Equipment dimension
- Status (e.g. In use, for rework, decommissioned, storage for disposal)
- Maintenance record (e.g. Date retrofilled, Name of servicing company)
- Physical condition (e.g. highly corroded)
- Testing Result (Test Kit or Laboratory test record)
- If Laboratory test, PCB concentration? (e.g. >50 ppm, >500 ppm)

4.0 DECOMMISSIONING PLAN

This section provides for the schedule of decommissioning PCB-containing equipment, with cost estimates, including replacement cost of any equipment to be replaced.
5.0 STORAGE PLAN

This section provides for the location, design, storage arrangement, storage procedures, and maintenance program for the storage facility of PCB-containing equipment, and wastes.

6.0 PCB STORAGE FACILITY CLOSURE PLAN

This section provides for activities, timelines and disposal of wastes for the closure (and possible dismantling) of the PCB storage facility.

7.0 TRANSPORT PLAN

This section provides for the procedures, and spill prevention of transporting PCB equipment from source to destination within and outside the plant premises. Permit requirement (if any)

8.0 PCB FINAL DISPOSAL PLAN

This section provides for the schedule of disposing PCB-equipment and PCB-containing wastes and identity of PCB disposer

9.0 PCB SPILL PREVENTION, EMERGENCY AND CLEAN UP PLAN

This section provides for site-specific PCB spill prevention protocols, emergency procedures, and clean-up procedure within and outside the premises. Areas of possible accidental spillages and leaks shall be identified.

10.0 POLLUTION PREVENTION PLAN

This contains site-specific statements in containing and treating wastes from spills, contaminated articles, and washings that may go to the natural drainage system. This includes a central washing facility with provisions for wastewater treatment.

11.0 OCCUPATIONAL SAFETY AND HEALTH (OSH) MANAGEMENT PLAN AND PROGRAM FOR PCB MANAGEMENT

This provides statements on how the company will assure conformance with the personnel health and safety regulations of the Philippines, and internationally accepted practices.

12.0 MONITORING AND AUDIT PLAN

This section provides for statements on how the company will monitor and/or audit its the performance in carrying out the physical and operational plans as well as environment, safety and health plans. Environmental monitoring includes the PCB in effluent, site water wells and neighbor water wells, during dry and wet season. Signs of leaks or imminent leaks and suspected contaminated sites shall be logged with recommended action to the management.

13.0 CONTINUAL IMPROVEMENT PLAN

This section provides for statements on how will PCB owner will provide improvements in the plans based on the results of monitoring and audit. This includes the personnel involved, schedule and procedure.
14.0 DOCUMENTATION AND RECORDS PLAN

This section provides for a list of forms (including Chain-of-custody for the transfer of PCB containing equipment and wastes) and reports, record keepers, records storage facilities.

15.0 PERSONNEL TRAINING PROGRAM

This section provides for the list of the training topics, list of personnel, schedule, and budget.

16.0 CONSOLIDATED SCHEDULE OF IMPLEMENTATION

This section is a summary of the schedule activities identified above, as timelines, duration or frequency.

17.0 ROLES AND RESPONSIBILITIES

This section provides for the organizational structures as well as the lead groups and designations for the implementation of the plans. The overall implementer of this plan should be stated.

18.0 CONSOLIDATED COST ESTIMATES

This section provides a summary of the cost estimates needed to accomplish the plans

19.0 SOURCES OF FUNDS

This section provides for the sources of funding for each plans identified above.
ACCOUNTABILITY STATEMENT

Relative to the requirements of Chemical Control Order (CCO) for Polychlorinated biphenyls (PCBs) / DENR Administrative Order No. 01, Series of 2004, the “Registrant” herewith makes the following representations and commitments:

1. That we, being the “registrant” under the CCO for PCBs, hereby certify that we are capable to execute / implement this “Comprehensive PCB Management Plan” dated ______________ in the interest of protecting human health and the environment pursuant to Philippine environmental laws and regulations and the 2001 Stockholm Convention on Persistent Organic Pollutants (POPs);

2. That we prepared this revised PCB Management Plan in good faith with the highest level of accuracy based on social, economic, technical and financial considerations;

3. That, we certify that all information in this “Comprehensive PCB Management Plan” are true, accurate and complete to the best of our knowledge and belief;

That, should we learn any information or inventory data which would make this PCB Management Plan inaccurate, we shall bring the said information to the Environmental Management Bureau immediately;

4. That, we have read and understood fully the content of this PCB Management Plan and all requirements of the CCO for PCBs particularly the fines and penalties once violated; and

5. That we bind ourselves jointly liable for the administrative or criminal penalties arising from any misrepresentation, failure to state material information that resulted to environmental damage, threat to public health or loss of life relative to this Comprehensive PCB Management Plan.

Done in the City / Municipality of _________________ this ______ day of ___________, 2009.

_________________________________              ___________________________
Designated Pollution Control Officer                    President & CEO / General Manager

CTC No. ______________    CTC No. : _______________
Issued at______________    Issued at ______________ __
Issued on _____________    Issued on ______________ __

SUBSCRIBED AND SWORN to before me this ______day of ___________ 2009 at
_____________________,Philippines by __________________________

and __________________________, and I hereby certify that I have personally examined the herein
“registrant” under the “CCO for PCBs” and I am convinced that they freely and voluntarily executed
the foregoing undertaking and that they understood the contents thereof.

Doc. No. ________    ______________________________ ___
Page No. ________    ______________________________ ___
Book No._________    ______________________________ ___
Series of 2009

Notary Public
Preface

The purpose of these technical guidelines is to strengthen the safe management of PCBs and materials or equipment containing PCBs during identification, handling, packaging and storage. It intends to minimize the risk of PCB release to environment and exposure to human during the management process. This document was prepared in a simplest form but heavy with essential information on environmentally sound management of PCBs. It will be a quick reference for PCB owners, transporters, treaters, and for all those with statutory or other responsibilities in managing PCBs to ensure proper identification, handling, transport and disposal. Identification techniques to safe storage and transport of PCB oils, equipment, articles and wastes subject for final disposal on or before March 19, 2014 are presented relative to the requirements of Chemical Control Order for PCBs.
1.0 Introduction

On February 2, 2004, the Philippine Senate ratified the Stockholm Convention on Persistent Organic Pollutants (POPs) through Senate Resolution No. 106, signifying its commitment in the reduction and elimination of POPs in the country for the protection of human health and the environment.

Such instrument of ratification was submitted and deposited to the Secretary-General of the United Nations (UN) on February 27, 2004 making the Philippines as an official party (51st Party) to the Stockholm Convention on May 27, 2004.

Polychlorinated biphenyls (PCBs) are among the initial 12 POPs subject for reduction and elimination by year 2025 globally. In the Philippines, all PCBs (e.g. PCB-containing equipment, PCB wastes, etc.) shall be disposed off on or before March 19, 2014 in an environmentally sound manner.

Thus, there is an urgent need to strengthen safe management of PCBs and materials or equipment containing PCBs during identification, handling, packaging and storage. Technical guidelines are necessary to minimize the risk of PCB release to environment and exposure to human during the management process.

2.0 The 2001 Stockholm Convention on POPs

The Stockholm Convention on POPs is a global treaty to protect human health and the environment from highly dangerous, long-lasting chemicals by restricting and ultimately eliminating their production, use, trade, release and storage.

POPs are a group of compounds that possess toxic properties, resist degradation, bioaccumulate and are transported through air, water and migratory species, across international boundaries and deposited far from their place of release where they accumulate in terrestrial and aquatic ecosystems.

The first 12 compounds covered are:

a. Aldrin
b. Chlordane
c. Dieldrin
d. Endrin
e. Heptachlor
f. Hexachlorobenzene
g. Mirex
h. Toxapene
i. PCBs
j. DDT
k. Dioxins
l. Furan

As of July 2010, the Convention has 171 parties and 152 signatories.

3.0 Legal Requirements

PCBs are regulated under the Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (Republic Act No. 6969) and its implementing rules and regulations. Further controls are in place for electrical equipment containing PCBs through the Chemical Control Order (“CCO”) for PCBs (DENR Administrative Order No. 01, series of 2004) and the Procedural Manual on Hazardous Waste Management (HWM).
3.1 Registration under the CCO

All owners of PCBs and PCB-filled equipment, whether in use or in storage, and materials contaminated by PCBs must register with the Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB). All electrical contractors / service providers having storage facilities containing PCB articles (e.g. electrical transformers containing or contaminated with PCBs) shall register with the DENR-EMB. A copy of the duly notarized form should be held by the company.

3.2 Inventory Report

All registrants shall prepare and submit an inventory report of its PCB equipment, PCB-contaminated equipment and non-PCB equipment including PCB wastes using the DENR-EMB prescribed inventory report (see attachment A).

3.3 Annual Report

All registrants shall prepare and submit annual reports on the management of its PCB equipment, PCB-contaminated equipment and non-PCB equipment including PCB wastes using the DENR prescribed annual report (see attachment B).

3.4 PCB Management Plan

All registrants shall prepare and submit a PCB Management Plan for environmentally sound management of PCB equipment, PCB-contaminated equipment and Non-PCB equipment including PCB wastes using the DENR prescribed PCB Management Plan template (see attachment C). Review and revisions of the management plan shall be done at least once every five (5) years. The DENR may approve or disapproved PCB management plan depending on its consistency to the provisions of the CCO, Code of Practice on the Management of PCBs and to this Technical Guidelines.

3.5 Classification of PCB equipment

<table>
<thead>
<tr>
<th>PCB equipment</th>
<th>Any equipment that contain 500 ppm PCB or greater.</th>
<th>PCB ≥ 500 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB-contaminated equipment</td>
<td>Any equipment that contain 50 ppm PCB and higher but less than 500 ppm PCB.</td>
<td>50 ppm ≤ PCB &lt; 500 ppm</td>
</tr>
<tr>
<td>Non-PCB equipment</td>
<td>Any equipment that contains PCB concentration of less than 50 ppm.</td>
<td>PCB &lt; 50 ppm</td>
</tr>
<tr>
<td>PCB-Free equipment</td>
<td>Any equipment that contains PCB concentration of 2 ppm or less.</td>
<td>PCB ≤ 2 ppm</td>
</tr>
</tbody>
</table>

3.6 Insurance and Surety Bond

All entities required to be registered under the CCO shall provide pollution liability insurance coverage and post an annual surety bond. (Implementation of this requirement is temporarily suspended until such environmental insurance and surety bond is already available from the insurance industry in the Philippines. Please refer to Section IV (10) of the CCO for the details of this requirement.)

3.7 Import / Export Policy

Importation of PCBs or PCB-containing equipment with concentration of greater than 2 ppm is not allowed under the CCO (except for small quantity importation for laboratory and research purposes which still requires DENR permission).
Export of PCBs or PCB-containing equipment is allowed only for the purpose of environmentally sound disposal pursuant to the provisions of CCO and the Basel Convention.

### 3.8 Phase-out Period

All PCBs, PCB-filled equipment (in use or in storage with greater than 50 ppm PCB), materials contaminated with PCBs and PCB wastes shall be disposed in an environmentally sound manner not later than March 19, 2014.

Use of non-PCB equipment shall still be allowed beyond March 19, 2014 until its retirement. However, importation of non-PCB equipment has been prohibited since March 19, 2007.

### 3.9 Storage, Transport & Disposal

All registrants shall comply with the storage, labeling, handling / transport and disposal requirements provided by the CCO and the Procedural Manual on HWM.

For complete requirements, refer to the full text of CCO for PCBs and the Procedural Manual on HWM. It can be accessed through the website of EMB at [www.emb.gov.ph](http://www.emb.gov.ph)

### 4.0 General Information on PCBs

**General chemical structure**

![Biphenyl Molecule](image)

General formula: \( \text{C}_{12}\text{H}_{(10-n)}\text{Cl}_n \) (1=n=10)

CAS No.: 1 336-36-3

Physical appearance: light yellow viscous liquid

Density: 1.182 – 1.566 kg/L

Flash point: 170 – 380°C

PCBs are synthetic industrial chemicals that are persistent organic pollutants (POPs). They do not occur naturally. PCBs are usually oily liquids that are extremely resistant to decomposition and have excellent electrical insulating and thermal properties.

They are highly stable, non-corrosive and relatively non-flammable, which made them highly desirable industrial chemicals most particularly in the electric power industry. They are class of organic chemical compounds characterized by two benzene rings linked by a carbon-carbon bond, with up to 209 congeners, although only about 130 of these were found in commercial PCB mixtures. They are formed by electrophilic chlorination of biphenyl with chlorine gas.

Because of their physical and chemical properties, the degradation of most PCB congeners once released into the environment is extremely difficult. Strong lipophilic character of PCB increases the risk of bioaccumulation in man and biota.

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6 In the illustrated biphenyl molecule with the numbering system, some or all of the 10 hydrogen atoms (attached to the carbon atoms numbered 2-6 and 2'-6') are substituted with chlorines.
Basic characteristics of PCBs that makes it useful to a lot of industrial applications include chemical stability, heat resistance, acid and alkali stability, extreme resistance to dissolution in water, good insulation properties, high boiling point and non-flammability.

PCBs are used as insulation oil for transformers and capacitors, fluorescent ballast, pressure sensitive papers (carbon-less papers), lubricants, various plasticizers, paints, sealants and other open ended applications.

5.0 Health Effects of PCBs

Toxic effects of PCB depend on the positions of chlorine atoms and consequently on the steric structure of the molecule. Production of PCBs has been forbidden and its use is severely restricted in the Philippines under the CCO for PCBs.

However, the release of materials containing PCB and PCB-containing wastes spreads the contamination of the environment. Once released, they tend to accumulate in living organisms, and enter the food chain.

Its concentration increases as they are transferred up to the food chain. Humans are exposed to PCBs through food, water and air. Several scientific studies have proved that it can be found throughout the world in air, water, soils, and sediments, and in the fatty tissues of animals, fish and humans.

PCBs can be absorbed into the body by inhalation of its aerosol, through the skin and ingestion. Repeated or prolonged contact with skin may cause dermatitis. Exposure to high levels of PCBs can result in a painful and disfiguring skin condition known as chloracne.

Chloracne is the most visible effect on repeated or prolonged skin contact. It can cause liver damage and may affect the nervous system, causing numbness, weakness, and tingling in arms and legs. Chronic exposure can lead to reproductive system problems. They are also considered as suspected endocrine disrupting substances and can affect the immune system.

PCBs can be passed to a child through breast milk and have been associated with neurobehavioral and immunological changes in children.

First Aid

Contact with clothes: Remove contaminated clothing promptly.
Contact with skin: Wipe off any splashes. Wash thoroughly with soap or detergent and water or a waterless cleaner. Apply cold detergent and water or a waterless cleaner. Apply cold cream (skin lotion) to reduce the irritation, particularly if PCBs have contacted open cuts or abrasions. See a medical practitioner.
Contact with eye: Irrigate immediately with a gentle stream of lukewarm water for 15 minutes keeping the eyelids apart while flushing. See a medical practitioner immediately.
Ingestion: Do not cause vomiting. Do NOT drink anything. Thoroughly rinse mouth with water. Proceed to a hospital emergency department or a medical practitioner immediately. Take information on the PCB, both brand name and PCB content if known, with the patient.
Inhalation: Get fresh air. See a medical practitioner.

Note: Any person developing skin irritation or a respiratory tract irritation should be placed under the supervision of a medical practitioner.
6.0 Management of PCBs

During management of PCBs, owners should consider the existing Philippine environmental laws and regulations. Complete regulatory requirements are prescribed under the CCO for PCBs and Procedural Manual on HWM.

PCB management covers proper identification, labeling, storage, transport and disposal.

7.0 Identification of PCBs

Identification of PCBs and PCB-containing equipment and wastes is critical during preparation of inventory report.

The largest electrical equipment that may contain liquid PCBs are transformers, large capacitors, voltage regulators and circuit breakers. They are totally enclosed application of PCBs. This section intends to provide basic and concise information for these types of electrical equipment and provide guidelines for the identification of new potential owners of equipment containing PCBs.

7.1 Transformers

7.1.1 Basics of Electrical Transformers

Electrical transformers are manufactured in a variety of shapes and sizes and are either dry-type or liquid-filled. Dry-type transformers do not contain dielectric fluid. Dielectric fluid in liquid-filled transformers also serves as a heat exchanger fluid. Heat from the windings is transferred to the casing and dissipated on its cooling tubes or cooling fins. This cooling system operates like a car radiator.

Transformers can be found in a number of locations.

*Indoors:*
- Mounted on wall or column
- Electrical room or fenced enclosure
- Within fire proof vaults
- In mines

*Outdoors:*
- On a roof
- On a concrete pad
- On a utility pole
7.1.2 Transformers with Conservator Tank

In the US, transformers installed indoors prior to 1979, in locations other than fire proof vaults, often contain PCBs. But not all transformers contain PCBs. Liquid-filled transformer may or may not have a conservator tank. Any transformer that was manufactured in North America with a conservator tank was not designed to use PCBs and probably contains mineral oil. Test kits can confirm whether the mineral oil is contaminated with PCBs most especially those transformers that are retrofilled already.

7.1.3 Transformer’s Nameplate

Transformer’s nameplate can be checked for information about the fluid content. If the type designation on the nameplate starts with the letter “O”, such as ONS, ONAN, ONWF, etc., the transformer is filled with mineral oil. To determine PCB contamination, test kits can be used. If the type designation on the nameplate starts with the letter L, such as LNAN, LNAF, LNWF, etc., the transformer is filled with non-flammable or flame-retardant liquid. Most of the “L” transformers manufactured in the US before 1979 are PCB transformers. Some of the “L” transformers manufactured in or after 1979 were originally filled with flame-retardant liquid such as silicone or other alternative non-PCB fluids. Some nameplates specify the brand of cooling liquid inside the transformer. On this case, it will be easier to check using the listing of PCB trade names.

7.1.4 Askarel Dielectric Fluid

Askarel can be distinguished from other fluids, such as mineral oil, by physical characteristics. The most obvious difference is the strong odor of askarels, due primarily to the tri-and tetrachlorobenzenes (TTCBs) contained in them.

7.2 Capacitors

7.2.1 General Guidelines on Capacitors

All liquid-dielectric AC power capacitors manufactured between 1930 and 1977 contain PCBs.

7.2.2 Power Factor

Capacitors are widely used to improve power factor of an electrical system. Power factor of an AC electric power system is defined as the ratio of the real power flowing to the load to the apparent power.

7.2.3 Capacitor Sizes

Capacitors vary in size considerably, from the size of an ice cube to much larger than a refrigerator. They can often be recognized by the letters kVar stamped on their name plates. These letters indicate the electrical rating of a capacitor which most often falls within the 5 kVar to 200 kVar range.

7.2.4 Applications of Capacitors

The following are major applications of capacitors:

- Power factor correction, to achieve more efficient operation of AC induction motors, furnaces and other inductive loads;
- Starting aid for single phase motors;
- Surge protection for both electronic and power equipment, such as large motors;
- Voltage regulation for power lines; and
- Lamp ballasts for fluorescent and high intensity discharge light sources.
7.2.5 Locations of Capacitors

Capacitors can be found in both indoor and outdoor locations. Capacitors located outdoors are usually enclosed in weatherproof welded, steel housing of rectangular construction. Capacitors may be found in a variety of locations within a building:
- In the plant area, wired to bus bars feeding a row of motors or electric welders;
- Wired to the electrical terminals of AC motors (if 30 hp or larger), electric welders and induction furnaces;
- Connected to motor control centre panels; and
- Connected to the main services cables inside the electrical room.

7.3 Identification Techniques

7.3.1 Simple Test for PCBs

Simple Density Test – PCBs are heavier than water whereas mineral oils are lighter than water. This can be used as simple test to help identify PCBs.

Before doing the following testing procedure, observe all relevant electrical safety precautions.

- a. Clean the drain valve at the base of the transformer with a clean rag;
- b. Drain a few drops of the liquid into a clean glass bottle and add a small amount of water;
- c. If the liquid sinks to the bottom, it is a PCB fluid. Dispose of the sample in accordance with the guidelines on PCB waste; and
- d. If the liquid is mineral oil it will float. If the liquid does neither, it is contaminated and will need to be tested by another method.

7.3.2 Simple Test for Chlorine

- a. Heat one end of a length of clean uncoated heavy copper wire (preferably 2 – 3 mm diameter) in a pale blue gas flame. If the wire is initially clean there will be no coloration of the flame until the copper reaches red heat when an orange hue will be imparted to it;
- b. Allow the wire to cool, somewhat below red heat, then dip it in unknown chemical and again heat it. There may be an initial bright yellow and smoky flame – but as the copper nears red heat, the presence of chlorine will be indicated by a bright green coloration (the yellow should have disappeared at this stage), as it reacts with the copper to produce copper ions in the flame.
- c. Safety precaution: When PCBs are decomposed at high temperatures, gases are produced which contain a high proportion of hydrogen chloride, a highly irritating and corrosive chemical. Conduct this test in a well-ventilated place.
- d. The above test for chlorine is not infallible. However, it will usually suffice to distinguish between chlorinated hydrocarbons and non-toxic mineral, vegetable or silicone oils, greases or waxes.

7.3.3 Test Kit

The third screening technique is the use of test kit. For oil samples, a test kit can check transformer oils for PCB presence. This test uses a color change to indicate the presence of chlorine and therefore the likely presence of PCBs.

For monitoring purposes and for identification of equipment containing PCB concentration greater than 50 ppm, Clor-N-Oil 50 can be used.

The Clor-N-Oil test kit works on the principle of chlorine determination. Since PCBs are chlorine-based mixture, the test kit is able to detect them.
However, the test cannot distinguish between any other chlorine-containing such as Trichlorobenzene which may also be found in transformer oil. These compounds may cause a result of “false positive” (i.e. the oil will indicate the presence of over 50 ppm PCBs, but when analyzed by GC will show a value less than 50 ppm).

Test kit works on the principle of chloride detection. Therefore, contamination by salt (sodium chloride), sea water, perspiration, etc. will give a false positive result and further testing in a laboratory will be necessary.

If these screening tests are positive the material should be dealt with as if it is a PCB liquid, but the composition of the PCB liquid can only be determined by laboratory analysis. This can be carried out by DENR recognized laboratory.

7.3.4 Laboratory Analysis

PCB owners should engage the services of a DENR-recognized environmental laboratory in determining the exact concentration of PCBs in any equipment.

Result of analysis can be used for compliance purposes with the CCO.

Laboratory tests can provide both actual PCB concentrations and positive verification of PCB presence. Some tests can provide only an overall concentration of PCBs, while other tests may identify the presence of individual PCB congeners. In the Philippines, analysis is done using the EPA method 8082 (PCB Aroclors) by Gas Chromatography / Electron Capture Detection (GC–ECD). This packed-column GC-ECD is a sensitive and inexpensive test to operate. This procedure can be used to analyze spill site samples, transformer oils, and other similar media.

7.3.5 Manufacturer’s Trade Names

PCB fluids are often known by the term Askarel, which is a generic name for synthetic electrical insulating material. Askarels generate only non-explosive gases or gaseous mixtures when decomposed by an electric arc. Commercial mixtures contain PCBs, chlorinated benzenes and contaminants, in range of concentrations. Manufacturers have used a wide variety of trade names for PCB mixtures. Provided in Appendix-A the trade names of PCB mixtures.

8.0 Transport of PCBs

The following guidelines are intended to protect the transport company personnel, communities en route, and to ensure that the shipment of PCBs arrives safely.

8.1 Preparatory Transport Protocol

1. All transport operations involving PCBs in the Philippines should comply with the requirements of the CCO for PCBs and the Procedural Manual on HWM.
2. Only DENR registered transporter with valid DENR Transport ID Number shall perform such transport operation.
3. Sealed small capacitors and small transformers may be transported without draining. They should be packed as PCBs will not be accidentally released into the environment.
4. Large transformers should be drained and packed properly.
5. Large capacitors may be secured in appropriate sets on a standard pallet with the insulator uppermost. If the capacitor is leaking and experiencing bulging as a result of internal failure, it must be drummed or secured in a tight and leak-free container.
6. Only trained personnel should be involved in any type of PCB transport activity.
7. Pursuant to guidelines under the Procedural Manual on Hazardous Waste Management, transporter should be registered with EMB, and should secure “Permit to Transport” from the concerned EMB Regional Office prior to movement of PCB waste. The transporter should comply with the manifest system.

8.2 Safety Precaution

During loading, the vehicle driver should be told:
- What is in the load;
- What emergency equipment is provided and how to use it;
- What to do in the event of an accident or incident based on the Contingency & Emergency Preparedness Plan; and
- The requirements of the Procedural Manual on HWM as presented below.

8.3 Guidelines on Transport of PCBs

8.3.1 Registration

Any transporter of PCB waste shall be accredited by EMB. Upon issuance of DENR Transport ID Number, the registered transporter will be included in the “Waste Transporter Register”. DENR Transporter ID Number is renewable annually. It should be renewed one month prior to its expiration date.

8.3.2 Permit to Transport

Prior to transport of any PCB waste, a permit to transport shall be secured from the concerned regional office of EMB (point of destination).

8.3.3 Special Condition for the Electric Power Industry

Transfer of PCB equipment, PCB-contaminated equipment or articles within the facility or franchise area for the purpose of maintenance or electrification will not be classified / restricted under Section V (1-b) of the CCO. But, owners of such equipment shall notify the DENR-EMB in writing prior to transfer of such equipment for tracking and inventory purposes.

8.3.4 Manifest System

During transport of PCB waste, the manifest system prescribed by the Procedural Manual on Hazardous Waste Management shall be complied. A Wastes Transport Record or manifest form shall cover transport of PCB waste. Prior to transport, a Spill Response Plan shall accompany the manifest form.

8.3.5 Selection of Transport Route

Waste transporter must avoid densely populated areas, watershed or catchment areas, and other environmentally sensitive areas.

8.3.6 Escort Service Vehicle

During transport of more than 20 tons of PCB wastes, presence of front and rear escort vehicle is highly recommended fully equipped with spill response equipment and flashing amber bar lights. Escort vehicle headlamps must be burning at all times during movement. It increases overall safety of the traveling public and the crew of the transporter. It can prevent damage or contamination to highway system and delays to the normal traffic flow. It can reduce risk of road accident thereby holding down insurance costs. All crew should have proper training on chemical safety and emergency response.
8.3.7 Contingency/Emergency Preparedness Plan

A contingency / emergency preparedness plan shall be prepared by the transporter prior to shipment of PCBs.

8.3.8 Proper Packaging and Labeling

Transporters shall receive only PCB wastes, which are properly packed and labeled. During storage and transport of any type of PCB waste, appropriate label in accordance with the labeling requirements of the Procedural Manual on Hazardous Waste Management shall be installed. Minimum size should be 20 cm. X 30 cm. It should be installed in drums or other types of containers containing PCB wastes. This label should be accompanied with the standard symbol for toxic. Refer to Appendix B for sample label.

8.3.9 Warning Signs

Transport vehicle for PCB waste shall have warning signs, markings, and other requirements by the Department of Transportation and Communication (DOTC) regarding shipment of hazardous goods. Toxic symbol should be attached on conveyances.

8.3.10 Incident Reporting

During accidents or PCB spill, the transporter shall immediately notify the concerned regional office of EMB having jurisdiction over the region in which the waste transporter conveys PCB waste, including the DOTC, local police and other contact persons listed in the contingency / emergency preparedness plan.

8.3.11 Transfer Station

It is not recommended to temporarily store PCB wastes in a transfer station by waste transporter. PCB waste shall be delivered direct from the PCB waste owner to the disposal destination.

8.3.12 Point of Delivery

Transporters shall deliver PCB wastes only to a DENR recognized treatment, storage and disposal facility. The transporter shall contact the owner of PCB waste in case of any problem encountered during delivery.

9.0 Storage of PCBs

Storage is required for a wide range of PCB materials:

- Discarded articles such as capacitors and transformers;
- PCB liquid wastes drained from equipment and collected from drip trays;
- PCB-contaminated materials such as soil, absorbent material, clothing, rags, packaging and handling equipment.

9.1 Drum Storage

PCB materials should be stored after being packed in the manner prescribed by the Procedural Manual on HWM. Sound heavy 210 liters steel drums with close fitting lids and drain bungs must be used. Solids and liquids should be stored in separate drums.
The drums should be clearly labeled in accordance with the Procedural Manual on HWM. Refer to Appendix-B for the sample label.

9.2 Use of IBC Tanks

IBC tanks should only be used for mineral oil containing less than 500 ppm PCB. IBC tanks are usually 1,000 liters capacity, thus storing more materials compared to steel drums.

9.3 Use of Isotanks

The safest way of storing liquid materials are through isotanks. Only, isotanks being used for PCBs should be used exclusively for that purpose – being a reusable and mobile tank.

9.4 PCB Storage Facility

Under the CCO for PCBs, storage facility for PCBs, PCB wastes, PCB articles and PCB packaging, must meet several minimum conditions in addition to the registration requirements under the Procedural Manual on Hazardous Waste Management.

9.5 Environmental Compliance Certificate (ECC)

Any storage facility for PCBs or PCB wastes shall comply with the provisions of the Philippine Environmental Impact Statement System (EIS). An ECC shall be secured prior to construction of any storage facility.

9.6 Building Permit

Any storage facility for PCBs or PCB wastes shall comply with the provision of the Philippine National Building Code. Appropriate building permit shall be secured prior to construction. If the storage facility will be located within an industrial zone under the jurisdiction of Philippine Economic Zone Authority (PEZA), building permits shall be applied at the building officials of PEZA. Storage facility shall be constructed to withstand strong typhoons and other natural calamities.

9.7 Basic Design Consideration

Roof and walls must be adequate to prevent rainwater from reaching stored items. Floors of the storage facility must be constructed from impervious materials such as concrete or steel to prevent the PCBs and PCB wastes from leaching into the ground. Storage area should be accessible to material handling equipment such as forklift and drum lifters. Adequate ventilation must be provided to safeguard the health of workers and handlers. The storage facility must be located far from residential communities, storm drains, water bodies, flood-prone areas and other environmentally critical areas.

9.8 Spill Containment System

A spill containment system, such as a continuous curbing with adequate height to accommodate at least twice the volume of the stored PCBs and PCB wastes, must be constructed along the perimeter of the storage facility to prevent any spilled material from flowing out.

9.9 Fire Safety Inspection Certificate (FSIC)

Any storage facility for PCBs and PCB wastes shall comply with the provisions of Fire Code of the Philippines. A fire safety inspection certificate shall be secured prior to occupancy or utilization of the
storage facility. Appropriate fire alarm system, fire exit facility, fire protection system and appropriate firefighting equipment shall be installed.

9.10 Safety Permits

Applicable provisions of Philippine Occupational Safety & Health (OSH) Standards shall be complied. Electrical Inspection certificate shall be secured from the Department of Labor and Employment (DOLE) regional office. Appropriate occupational safety facility, equipment and devices shall be provided in the storage area (e.g. PPE cabinet, eye wash facility, first aid kit, etc.).

9.11 Controlled Area

The storage facility shall be designated as controlled area. It must be marked clearly by putting fences, posts or walls in order to limit access of unauthorized individuals. Entry Permit System can be useful to implement.

9.12 Regular Inspection

The storage facility must be inspected at 30-day intervals. Observations must be recorded in a logbook, indicating the name of the inspector and the date of inspection. Inspection records must be retained subject for inspection of EMB. The date when stored items are placed in the storage facility must be recorded.

9.13 Required Signage

Industrial installations and storage facilities of electrical equipment containing PCBs or PCB wastes shall contain appropriate label or signage in accordance with the labeling requirements of the CCO. For sample signage, refer to Appendix-B.

10.0 Dismantling/Disposal of PCB Wastes

The Government’s policy is that all PCBs shall be disposed in an environmentally sound manner on or before March 19, 2014. Disposal of PCB wastes shall comply the regulatory requirements provided by the CCO for PCBs and the Procedural Manual on HWM. Owners of PCB wastes should engage the services of DENR registered transporter.7

10.1 Disposal Guidelines

10.1.1 Preparatory and Remedial Work Plan

The Chemical Control Order requires that not later than Six (6) months prior to the planned transport and disposal, a Preparatory and Remedial Work Plan (PRWP) shall be submitted to EMB along with the transport permit. The PRWP should present details on PCB packaging, isolation draining, and treatment of PCB equipment, PCB-contaminated equipment, non-PCB equipment and PCB articles.

10.1.2 Approval of PCB Treatment and Disposal

All treatments and disposals must be approved by EMB and should be in conformance with the Philippine Clean Air Act of 1999 (Republic Act No. 8749) and other applicable environmental laws and regulations. If necessary, wastes containing high levels of PCBs must be exported upon approval by

---

7 Listing of DENR Registered Transporter and Treatment, Storage and Disposal (TSD) Facilities are available from the website of EMB – www.emb.gov.ph
EMB and must meet the requirements for trans-boundary movement of wastes under the Basel Convention.

10.1.3 Maintenance and Servicing Activities

Moisture removal from electrical transformers or other related maintenance and servicing procedures will not be classified as treatment process under Title III of R.A. 6969. Thus, requirements under the Procedural Manual for Hazardous Waste Management will not be applicable.

10.1.4 Registration

All PCB waste treatment, storage and disposal (TSD) facility shall be registered with EMB. A Certificate of Registration should be secured prior to commencement of treatment operation. Such certificate is renewable annually.

10.1.5 Environmental Compliance Certificate (ECC)

An ECC shall be secured prior to the construction of any TSD facility for PCB waste. The facility should have financial resources (e.g. letter of credit, surety bond, and trust fund) to conduct proper PCB waste treatment continuously and to cover liability for accidents.

10.1.6 Waste Acceptance

Upon acceptance of the PCB waste, the TSD facility shall complete the treatment or destruction within six months after receipt of PCB waste. But it should also reject and return the shipment to the owner (waste generator) if the following waste acceptance requirements for PCB waste is not complied with:

- PCB waste was transported by a DENR registered transporter with a valid DENR Transporter ID Number
- Manifest form duly written and certified by the generator and properly acknowledged by the transporter should accompany the PCB waste
- Verification through independent random laboratory analysis of the type of wastes declared in the manifest form
- The waste type (class and description) and mode of treatment has been approved by EMB as indicated in the permit; and
- The containers are properly labeled.

10.1.7 Certificate of Treatment

A TSD facility should issue a certification of completion of treatment with an attached photocopy of the last page of the manifest form duly signed by the PCB waste generator, transporter and TSD representative.

11.0 General Treatment and Disposal Guidelines

The following general guidelines shall be considered during management of PCB wastes:

1. PCB wastes shall be treated whenever practicable. It should be treated in accordance with the provisions of Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990, the Philippine Clean Air Act of 1999, the Ecological Solid Waste Management Act of 2000, and the Philippine Clean Water Act of 2004;
2. All PCB wastes should be disposed in an environmentally sound manner before March 19, 2014;
3. PCB wastes shall be treated by methods, which leave treatment residues for which approved methods of disposal are available;
4. PCB wastes should be treated by technologies approved by DENR and which minimize release of waste to the environment;
5. Intentional dilution of PCB wastes to reduce PCB concentration below 50 ppm should be avoided unless otherwise blending to facilitate treatment is permitted by EMB;
6. Regular risk assessment shall be carried out to confirm that the risk associated with normal operation and possible failure or malfunction of the treatment facility is at an acceptable or manageable levels, with the acceptability being determined by EMB;
7. Sampling and monitoring of all discharges and residues shall be carried regularly as provided in the ECC conditions;
8. Any liquid residue from the treatment of PCB waste shall be PCB-Free;
9. Any liquid discharge to sewer or drainage system leading to water bodies shall meet the effluent standards for PCBs by DENR;
10. Emissions of PCBs to the atmosphere from the treatment of PCB wastes shall comply with the emission standards set by DENR;
11. Any solid residues from the treatment of scheduled PCB waste shall be PCB-Free;
12. Management of retrofilled transformer shall be based on the PCB concentration in the oil, measures after at least one month of normal operation following retrofitting or treatment of the transformer;
13. Any types of waste oil containing equal or greater than 50 ppm PCBs shall be classified as PCB waste with waste number L-406. Waste oil having less than 50 ppm PCB level can be treated as ordinary hazardous waste having a waste number of I-101.
14. Non-porous solid items may be reused or recycled if the surface PCB residue is less than 1 milligram per square meter of surface area, or any standard prescribed by EMB.
15. Drums that have previously held PCB liquid should be thoroughly cleaned with kerosene or similar solvent before the drum is crushed and dumped in a DENR approved sanitary landfill for hazardous waste. The cleaning solvent used must be treated as PCB waste.

12.0 Emergency Response and Preparedness

Considering the persistent nature of PCBs and their tendency to bio-accumulate, it is important to prevent entry of PCBs into the environment. Therefore:

- It is essential to avoid PCB leaking into drains or natural waterways;
- All wastes and residues containing PCBs shall be collected for disposal; and
- Carry out necessary recording and notification as part of the Contingency and Emergency Preparedness Plan.

12.1 PPE and Protective Clothing

1. Where workers may come in direct contact with PCBs (greater than 50 ppm PCBs), protective clothing impervious to PCBs should be worn. Proper clothing and gear will vary with the circumstances such as quantity and concentration of PCBs.
2. If the PCBs are in enclosed containers such as capacitors (no leaks), transformers or drums, and there is no direct contact, special clothing is not needed.
3. Personal protective equipment and clothing should be available in all areas where there are significant amounts of PCB liquids, whether in service, in storage, or while being transported.
4. Protective clothing consists of gloves, gumboots or overshoes, overalls and bib-type aprons which cover the boot tops. Safety glasses with side shields, chemical safety goggles, or face shields should also be worn.
5. Impervious coveralls made of butyl rubber, neoprene, nitrile rubber, polyvinyl alcohol, viton, saranex or Teflon should be worn when handling PCB liquids. Do not use ordinary rubber gloves.
6. Respiratory protection device with a full face mask and a cartridge or canister suitable for use with PCBs is required when handling PCB liquids hotter than 55 degree C, where there is a significant amount of PCB liquid exposed to the air, or where adequate ventilation is not possible.

7. In a fire situation involving PCBs, self-contained breathing apparatus should be used.

8. Any reusable PPE should be thoroughly cleaned after use with paper tissues and soapy water (properly decontaminated). No attempt should be made to wash PCB contaminated clothing for reuse.

9. Hands should be washed thoroughly with warm water and soap, detergent or industrial hand cleansers before eating, drinking or using toilet facilities.

12.2 Safe Handling of PCBs

When working with PCBs, certain precautions should be taken to protect the health of workers.

- PCB liquid should be pumped and not poured, to minimize splashes and spills.
- All equipment used with PCBs should be regularly inspected and replaced if necessary.
- Pumps and hoses used for PCB liquids should not be used for other purposes.
- Careful consideration should be given to the type of pump used for handling hot oils containing PCB liquids.

12.3 Training

Proper training should be undertaken by workers handling PCBs. Before a worker carry out work on PCB filled equipment they should understand the safety procedures to be followed in handling PCBs and the emergency and first aid procedures.

Training on PCB management should be conducted by DENR accredited professional or training institution.

All major PCB handling and dismantling projects should be well organized in advance and properly engineered so that all risk contingencies are catered for. Part of this planning is to identify safe work procedures to be followed and the staff training that will be required.

12.4 General Emergency Procedure

In the event of serious PCB discharge the following priority steps should be taken:

- Wear PPE & protective clothing;
- Stop the flow of PCBs;
- Contain PCBs;
- Report incident so that PCB Emergency Response Team is activated;
- Keep unauthorized persons away from the affected area; and
- Recover all PCB contaminated material.

12.5 Priority Actions in the Event of a Leakage or Spillage

Stop the flow of PCBs

- Reposition the drum to stop the flow
- If possible stop the leakage
- If necessary transfer fluid to spare drum

Contain the PCBs

- Dyke major spill with soil or other material.
- If at all possible prevent PCBs entering drains, water-ways or spilling onto the ground.
• Use sand or sawdust to absorb and recover the PCB, all of this to be recovered into the wide mouth drum (open-top drum).
• Also recover any PCB contaminated soil.
• If leaking from the truck tray, drive the vehicle onto a sheet of plastic to contain the PCBs.

Report any spillage of PCB to the nearest regional office of EMB as soon as practicable after the spillage, providing details on the estimated volume spilt and to what extent it has been recovered and the exact location of the spillage.

Keep non-essential staff and the public away from the affected area. Provide signage (Public Notice). If possible use a rope barrier or barricade tape to outline the contaminated area. “Do Not Approach” notices should be displayed at the boundary of the affected area.

Recover all PCB contaminated material, protective clothing and equipment and pack into suitably labeled drums.

Spill clean-up personnel should wash thoroughly after the clean-up is complete (Decontamination).

**12.6 Emergency Procedure for PCB Spills and Leaks**

If PCBs leak or are spilt, the following emergency procedure shall be taken:

1. Shut off the source of the leak or prevent further spillage. Failing this, make arrangement to collect and contain the PCB;
2. Equipment filled with PCB that is found leaking, should be removed from service as soon as possible to correct the leak. Where it is not possible to remove the equipment from service immediately, some means of collecting the PCB should be used. Polyethylene sheeting or metal trays can be used as temporary containment for leaking capacitors or transformers. Regular supervision of the containment is necessary.
3. If applicable, the area of the leak or spill shall be adequately ventilated to prevent the accumulation of any harmful vapors.
4. Liquid PCB shall be collected or absorbed using dry sawdust, diatomaceous earth (or bleaching earth), rags or sand. As much free liquid should be recovered as possible for disposal.
5. If there is going to be any delay in cleaning up the PCB spillage the affected area should be roped off or installed with barricade tape to prevent unauthorized persons entering the contaminated site and “Do Not Approach – PCB Spill!” signs installed.
6. Steps must be taken to prevent any spillage or accidental loss of PCBs either by drainage into the sewer systems or percolation into the ground.
7. All PCB liquid and contaminated material must be collected for disposal. This may include the top layer of switchyard gravel in the affected area. Care should be taken to avoid stirring up sub-soils layers. The work is best done by using hand shovels.
8. Where any spillage of a PCB fluid occurs, the equipment involved and the floor should be wiped clean using rags or absorbent material such as sawdust or sand, then solvents such as kerosene can be used to flush PCBs from surfaces and the PCB contaminated material collected for disposal. Ensure that the area is well ventilated while using solvents.

**12.7 Notification and Reporting of Leaks or Spillage**

The nearest EMB Regional Office should be notified by telephone of any PCB spills or leakages that occur, if the spill is larger than 4 liters or has entered natural waterways. Otherwise, report the incident in the Self Monitoring Report (SMR).

The company head or immediate supervisor must be immediately informed when any PCB spill is discovered.
A report must be filed in company records as part of incident reporting system, recording all spillage of PCBs and subsequent clean up procedures implemented.

If the spill is larger than 4 liters, monitoring of the spill area should be implemented, to evaluate the effectiveness of decontamination procedure applied.

12.8 General Guidelines on Fire Involving PCBs

In the event of a fire in an area containing PCBs the Local Bureau of Fire Protection must be warned of the special danger and advised which equipment contains PCBs.

Fire hydrant water should not be used. Type ABC, dry chemical fire extinguisher or HCFC 123 shall be used to extinguish the fire near the equipment containing PCBs. Water will spread out PCBs in large areas.

It is possible that in the event of a major fire those toxic decomposition products such as Dioxins and Furans may be produced in small quantities from the incomplete combustion of the material. Thus, self-contained breathing apparatus (SCBA) should be used in the area during fire suppression operation.

12.9 Applicable Standards and PCB Limits

<table>
<thead>
<tr>
<th>Description</th>
<th>Standard</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended TWA occupational exposure for Air (Workplace)</td>
<td>1.0 µg/m³³</td>
<td>NIOSH, US (1977)</td>
</tr>
<tr>
<td>Water bodies (Class A, AA, SA)</td>
<td>0.001 mg/L</td>
<td>Philippine Revised Water Usage and Classification / Water Quality Criteria (1990).</td>
</tr>
<tr>
<td>Decontamination Standard - Surface contamination for metals</td>
<td>10 ug/100cm²</td>
<td>US-EPA</td>
</tr>
</tbody>
</table>

Note: In Canada, ≤ 10 ug/cm² PCB level in metal surface can be recycled.
Attachment A. DENR Prescribed Inventory Report for Polychlorinated Biphenyls

Chemical Control Order for Polychlorinated Biphenyls
DENR ADMINISTRATIVE NO. 01, SERIES OF 2004

PCB INVENTORY REPORT

Period Covered: ____________________

I. COMPANY INFORMATION

Name of Company ____________________________________________

Business Address ____________________________________________

Location of Installation/Storage Facility ____________________________

II. CONTACT INFORMATION

Authorized Representative ____________________________________

Position/Designation _________________________________________

Telephone No. ______________________________________________

Facsimile No. ______________________________________________

Email Address ______________________________________________

III. PCB INVENTORY

Date/s of Inventory ___________________________________________

<table>
<thead>
<tr>
<th>Equipment Information</th>
<th>Transformers</th>
<th>Capacitors</th>
<th>Others</th>
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<tbody>
<tr>
<td>In Use</td>
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<td>On Standby</td>
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<td>For Rework</td>
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<td>Total</td>
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</table>
### Inventory Form for Name-Plated PCB Equipment, PCB-Contaminated Equipment, Non-PCB Equipment, PCB Articles and Labeled PCB Packaging

<table>
<thead>
<tr>
<th>Type of Equipment¹/PCB Packaging⁶</th>
<th>Model/Serial Number</th>
<th>Manufacturer</th>
<th>Date of Manufacture</th>
<th>Electrical/Industrial Rating (kVA)</th>
<th>Projected Retirement Date</th>
<th>Capacity/Dimensions of Unit</th>
<th>Quantity/Volume of Oil (kilogram or liters)</th>
<th>PCB Concentration (ppm PCB)</th>
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¹ i.e. transformer, capacitor, circuit breaker, etc.
² i.e. retro-filled, reconditioned, replaced, or moved (if retro-filled, indicate date)
³ i.e. in-service, stand-by, decommissioned, for disposal etc.
⁴ Identification code corresponding to the equipment analyzed, i.e. sample number or lot number of the laboratory test report
⁵ Method or procedure used to establish PCB concentration
⁶ i.e. any container or pressurized receptacle such as can, bottle, bag, barrel, drum, tank, or other device that contains and secures PCB articles and PCB wastes
Inventory Form for Non-Plated PCB Equipment, PCB-Contaminated Equipment, Non-PCB Equipment, PCB Articles and Suspected PCB Packaging:

<table>
<thead>
<tr>
<th>Type of Equipment/PCB Packaging&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Model/Serial Number</th>
<th>Manufacturer</th>
<th>Date of Manufacture</th>
<th>Electrical/Industrial Rating (kVA)</th>
<th>Projected Retirement Date</th>
<th>Capacity/Dimensions of Unit</th>
<th>Quantity/Volume of Oil (kilogram or liters)</th>
<th>PCB Concentration (ppm PCB)</th>
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<td>i.e. transformer, capacitor, circuit breaker, etc.</td>
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<td>Method or procedure used to establish PCB concentration</td>
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<tr>
<td>i.e. any container or pressurized receptacle such as can, bottle, bag, barrel, drum, tank, or other device that contains and secures PCB articles and PCB wastes</td>
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</table>
IV. PCB WASTES

Quantity of PCB Wastes Generated Per Unit Time

<table>
<thead>
<tr>
<th>Waste Type*</th>
<th>Quantity Generated For the Year</th>
<th>Location</th>
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<tbody>
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*fluids, sludge, slurry, scraps, contaminated equipment, soil, and others

Total Quantity of PCB Wastes for the Year : __________________________

I hereby certify that the above information are true and correct.

Done this _______ day of __________, at ______________________________.

_____________________ ______________ ______________
Name/Signature of Authorized Representative

_____________________ ______________ ______________
Name/Signature of President/CEO/General Manager

SUBSCRIBED AND SWORN before me, a Notary Public, this _______ day of ________________, affiant exhibiting to me his Community Tax Receipt:

<table>
<thead>
<tr>
<th>Name</th>
<th>CTR #</th>
<th>Issued at</th>
<th>Issued on</th>
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<tbody>
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Doc. No. ______
Page No. ______
Book No. ______
Series of ______

Notary Public
Attachment B. DENR-Prescribed Annual Report for PCB Management

CHEMICAL CONTROL ORDER FOR POLYCHLORINATED BIPHENYLS (PCBs)
ANNUAL REPORT FORM

Reporting Period __________________________

A. GENERAL INFORMATION
1. Name of Company: ____________________________________________

2. Registration Number: ________________________________

3. Nature of Business:
   - [ ] Manufacturing
   - [ ] Power Generation
   - [ ] Electric Distribution
   - [ ] Sales/Distribution
   - [ ] Waste Transport/Treatment
   - [ ] Others __________________________

4. Business Address: ____________________________________________

5. Name of Authorized Representative: ____________________________
   - Designation: ______________________________________________
   - Telephone No.: ________________________________
   - Facsimile No.: ______________________________
   - E-mail Address: __________________________________________

B. MANAGEMENT INFORMATION
1. Personnel involved in the management of PCBs, PCB equipment, PCB-contaminated equipment, non-PCB equipment, PCB articles, PCB packaging, PCB wastes:

<table>
<thead>
<tr>
<th>Position/Title</th>
<th>Number</th>
<th>Responsibilities</th>
<th>Qualification/Training</th>
<th>Employment Status*</th>
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</thead>
<tbody>
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   *Permanent or contractual

2. Personnel Exposure:

<table>
<thead>
<tr>
<th>Number of Personnel</th>
<th>Possible Routes of Entry</th>
<th>Duration</th>
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</table>
3. Storage:
   Description of Storage Facility: 
   
   Location: 
   
   Description of Storage Procedure: 
   
   Inspection and Monitoring Frequency: 
   
   Problems Encountered: 
   
   Actions Taken: 
   
   Spills and Environmental Releases:

<table>
<thead>
<tr>
<th>Date</th>
<th>Details of the Incident</th>
<th>Actions Taken to Mitigate the Incident</th>
<th>Actions Taken to Prevent Recurrence</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>
4. Treatment and Disposal:

Hazardous Waste Generator’s ID: ________________________________

Treatment and Disposal Method: ________________________________

Waste Service Provider:

Transporter: ________________________________
Contact Person: ________________________________
Address: ________________________________

Telephone No.: ____________________________ E-mail Address: ____________________________

Treater: ________________________________
Waste Treatment/Disposal Facility: ________________________________
Contact Person: ________________________________
Address: ________________________________

Telephone No.: ____________________________ E-mail Address: ____________________________

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Date of Treatment/Disposal</th>
<th>Quantity Treated/Disposed</th>
<th>Transport Permit Number</th>
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<tbody>
<tr>
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</table>

Please attach Certificates of Treatment and Hazardous Wastes Manifest Slips.
5. Inventory

### Plated PCB Equipment, PCB-Contaminated Equipment, Non-PCB Equipment, PCB Articles and Labeled PCB Packaging:

<table>
<thead>
<tr>
<th>Equipment/ Device/ Article/ Packaging</th>
<th>Model</th>
<th>Serial No.:</th>
<th>Capacity</th>
<th>Electrical/ Industrial Rating</th>
<th>Date Acquired</th>
<th>Retirement Date</th>
<th>Maintenance History*</th>
<th>Amount &amp; Concentration of PCB</th>
<th>Amount of PCB Wastes Generated</th>
<th>Status**</th>
<th>Frequency of Monitoring &amp; Inspections</th>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
</table>

* i.e. Retro-filled, Repaired, Replaced, Decommissioned or Moved

** Status of PCB Equipment whether In Service, Idle, Unsuitable or In Storage

### Non-PCB Equipment, PCB-contaminated Equipment, non-PCB Equipment, PCB Articles and Suspected PCB Packaging:

<table>
<thead>
<tr>
<th>Equipment/ Device/ Article/ Packaging</th>
<th>Model</th>
<th>Serial No.:</th>
<th>Capacity</th>
<th>Electrical/ Industrial Rating</th>
<th>Date Acquired</th>
<th>Retirement Date</th>
<th>Maintenance History*</th>
<th>Amount &amp; Concentration of PCB</th>
<th>Amount of PCB Wastes Generated</th>
<th>Status**</th>
<th>Frequency of Monitoring &amp; Inspections</th>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
</table>

* i.e. Retro-filled, Repaired, Replaced, Decommissioned or Moved

** Status of PCB Equipment whether In Service, Idle, Unsuitable or In Storage
## PCB Wastes

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Sources</th>
<th>Total Amount Generated for the year</th>
<th>Total Amount Treated/Disposed for the year</th>
<th>Total Amount in Storage</th>
<th>Treatment/Disposal Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Prepared by:**

__________________________
Signature

__________________________
Name

__________________________
Designation

**Certified true and correct by:**

__________________________
Signature

__________________________
Name

__________________________
Designation
Attachment C. DENR-Prescribed PCB Management Plan Template

PCB MANAGEMENT PLAN

This PCB Management Plan was submitted in compliance with the provisions of Republic Act No. 6969, its Implementing Rules and Regulations, and DENR Administrative Order No. 01, Series of 2004 otherwise known as “Chemical Control Order for Polychlorinated biphenyls”.

I. General Description

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Data required</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Name of owner and operator</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Location of the facility or the PCBs, PCB equipment, PCB-contaminated equipment, non-PCB equipment, PCB article, PCB packaging or PCB wastes (site specific)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Industrial activities at the premises</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Number of employees</td>
<td></td>
</tr>
</tbody>
</table>

II. Uses of PCBs at the Premise

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Data required</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the uses of PCBs at the premises</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Listing of PCB equipment, PCB contaminated equipment, non-PCB equipment and PCB articles</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Listing of PCB wastes generated at the premises</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mass balance of PCBs through the premises</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Description of pollution control devices in use at the premises</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Description of compliance with the environmental laws and regulations</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Description of emergency procedures and contingency plan in case of accidents</td>
<td></td>
</tr>
</tbody>
</table>

III. Pollution Prevention Program

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Data required</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pollution prevention/control devices</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Inspection schedule and checklist</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Equipment and/or materials to be used during spills and/or emergencies</td>
<td></td>
</tr>
</tbody>
</table>
IV. Training Program

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Data required</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scope or coverage of training or a copy of the Training Manual</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>List of personnel trained, particularly those workers in contact with PCBs, PCB equipment, PCB-contaminated equipment, non-PCB equipment, PCB wastes, PCB articles or PCB packaging</td>
<td></td>
</tr>
</tbody>
</table>

Prepared by: ______________________ Approved by: ______________________ Date: __________

Pollution Control Officer          President / CEO
PCB Spill Prevention and Clean-up Plan

This PCB Spill Prevention and Clean-up Plan was submitted in compliance with the provisions of Republic Act No. 6969, its Implementing Rules and Regulations, and DENR Administrative Order No. 01, Series of 2004 otherwise known as “Chemical Control Order for Polychlorinated Biphenyls”.

I. Personnel Training Plan

II. Markings and Labeling

III. Assignments of Responsibilities of Response Team

IV. Emergency Plans
V. Decontamination Procedures

VI. Disposal of Contaminated Debris and Materials

VII. Reporting and Record keeping
VIII. Persons/Institutions to Contact in case of Emergency

Prepared by:

Pollution Control Officer

Approved by:

President / CEO

Date: ___________________
PCB Storage Facility Closure Plan

This PCB Storage Facility Closure Plan was submitted in compliance with the provisions of Republic Act No. 6969, its Implementing Rules and Regulations, and DENR Administrative Order No. 01, Series of 2004 otherwise known as “Chemical Control Order for Polychlorinated biphenyls”.

I. Certification of Financial Liability Approved by the Bureau

II. Steps and Procedures for Closure

III. Post Closure Conditions and Monitoring
IV. Cost Estimates Approved by the Bureau.
Annex 6.   EA Report Outline for Contaminated Site Remediation

Guidance Note

One of the activities for the IPOPs Project is Contaminated Site Remediation, which was screened as a Category A activity based on WB Operational Policy (OP) 4.01 and, therefore, is required a full EA Report prepared using the EA components provided in OP 4.01 Annex B. The assessment will provide input to the overall design of site remediation activities, in Clark Freeport Zone, Subic Freeport Zone, and Manila Thermal Plant compound.

The EIA Report Outline presented in this material is customized to the three sites with reference to the information contained in the different technical, environmental and social assessment reports prepared for Component 4 of IPOP Project. Some subsections in the sections of EIA process and Environmental Management Plan (EMP) were adapted from the EIS Outline of the Philippine EIS System. Such customization in a way provides initial scoping and focusing on the minimum information for the EA Report. The scope of the study may expand depending on the result of the two public consultations to be undertaken: one is for the scoping of the environmental assessment (with presentation of the Project Description for Scoping), and another for the finalization of the EA Report.

The outline provides a section on the analysis of alternatives inasmuch as the clean-up level objectives and remediation technologies have not yet been identified. A draft of the EA Report will be prepared after the scoping consultation and after collection of relevant information on the existing environment, which is an input to the analysis of alternatives. Thereafter, a draft EA will be prepared and will be subjected to public consultation. The final EA Report will then serve as an input to the engineering design of the remediation activities.

The following can be used as reference materials:

Health Canada and Santé Canada (undated). Health Impacts of Site Remediation. An Approach to Identify and Mitigate Potential Health Impacts. Contaminated Sites Division. 5th Floor, 269 Laurier Avenue West. Ottawa, Ontario K1A 0K9. e-mail: cs-sc@hc-sc.gc.ca


USEPA Risk-based Corrective Action (RBCA)

ASTM Method for Phase 1 and Phase 2 Site Characterization.
EIA Report Outline

Title Page
(Name of Activity, location, proponent name and address, date of report, contact person or group)

Table of Contents

Executive Summary

1) Name of Proponent, address, EIA team and public participation
2) Brief description of the contaminated site (history, current use, geometry of contamination, levels and quantity of contaminants)
3) Planned site remediation technology and extent of site remediation
4) Summary of sources, nature, scale of impacts on land, air, water, and community
5. Summary of environmental management plan

Concise and short overview of the proposal to facilitate understanding of the proposal by the general public, written in simple and non-technical language

1.0 OVERVIEW

1.1 Proponent Profile (name, address, nature of business)
1.2 Location of the site and access (with site map and photographs)
1.3 Size of the area to be cleaned-up and quantity for cleanup
1.4 Purpose of Clean up (environmental, and developmental)

2.0 DESCRIPTION OF THE EIA PROCESS

2.1 EIA Team
2.2 Study Schedule
2.3 Pertinent Environmental Policies and Regulations (International, WB, GOP)
2.4 Scope of the Study (locations, components of the environment)
2.5 Data Sourcing Methodologies
2.6 Scientific Methods (like modeling)
2.7 Methodology in Setting Up the Technical Objectives of the Clean-up
2.8 Methodology in the Selection of Clean-up Technology
2.9 Stakeholders Participation
2.10 Summary Results of Public Consultation and Disclosure (date, participants, topics, issues; two consultations: for scoping and for the finalization of draft report, attach the proceedings)

3.0 DESCRIPTION OF THE REMEDIATION SITE ENVIRONMENT

3.1 Land Environment

3.1.1 General Land Use within 500 meter radius from the Site

- settlement, institutional, tourism, recreational, commercial, industrial, agricultural
- include name, distance and relative direction of the nearest houses and facilities
- Zoning and map

3.1.2 Current Site Use and Importance (e.g. current and intended use of the site, ecological, cultural)
3.1.3 Structures within and around contaminated area (say 100 m)
3.1.4 Community utility on site (road, water pipes, electrical lines, telephone lines, cables)
3.1.5 General Geology
3.1.6 Soil (type, thickness, horizons, erosion potential)
3.1.7 Slope
3.1.8 Vegetation (identify)

3.2 Water Environment
3.2.1 Drainage system, name of watershed (if any)
3.2.2 Drainage flow pattern
3.2.3 Location of distance of water wells within and 100 meters away from the boundary
3.2.4 Name, location, size of nearest water bodies

3.3 Air Environment
3.3.1 Climate, rainfall data, local wind pattern
3.3.2 General assessment of air quality

3.4 Social Environment
3.4.1 General community including the IP communities
3.4.2 General Demography around the site
3.4.3 Prevailing health issues in the area

4.0 DESCRIPTION OF SITE CONTAMINATION
4.1 History of the site use and causes of contamination
4.2 Summary of Issues from Contamination
4.3 Environmental Assessments Performed
4.4 Latest Conceptual Model Contamination (spatial-chemical-temporal)
  3-dimensional analysis of size, surface area, depth, volume, chemistry, list and quantity of contaminants, boundaries, depth water table, ground water flow direction and speed, natural attenuation and recovery
4.5 Future Site Condition and Implications without Remediation

5.0 SUMMARY REMEDIATION ALTERNATIVES (Annex the detailed analysis of alternatives)
5.1 Setting up the Spatial Coverage and Level of Clean-up (focus on the areas and properties to be avoided, and limitations of clean-up technology) (Annex the details of selection)
5.2 Selection of Remediation Technologies (Annex the details on the results of selection)
Sample Environmental Parameters in Selecting Remediation Technologies
- space and layout requirement for the efficient and environmentally sound clean-up operation
- built-in pollution control measure within the technology design
- estimated pollution loading (waste water, air emissions)
- estimated physical agents (e.g. noise, heat, radiation, electric)
- nature and level of risks to workers health and safety
- Impacts and risks prior to mitigation - direct and indirect spatial zone of influence, receptors, frequency and duration
- availability of environmental measures
- cost of environmental measures
- nature, scale, and life of residual impacts after mitigation
- environmental monitoring requirements (parameters, frequency and cost)
- capability to timely and effectively institute measures by the clean-up service provider
- capability to timely and effectively institute measures and conduct monitoring by activity proponent (e.g. available of skilled staff, available institutional instruments, equipment, procurements)

The specific numerical criteria such as ranking, rating, scaling or importance weighing will be firmed up during the study (See WB Sourcebook Update No 17, December 1999, Analysis of Alternative in Environmental Assessment)

6.0 SITE REMEDIATION PLAN

6.1 Objectives and Limits of the Clean-up
   6.1.1 Procedures Performed in Setting up the Objective
   6.1.2 Spatial Boundaries Objectives and Rationale
   6.1.3 Soil (and Ground Water) Quality Objectives and Rationale (Annex)

6.2 Physical Components
   6.2.1 List of Main Components, Function, and Space Requirement (identify built-in environmental facility if any)
   6.2.2 Remediation Site Lay-out

6.3 Description of Project Phases
   6.3.1 Entry Protocols (notices, permits, special arrangements)
   6.3.2 Staging and Site Component and Lay-out
   6.3.3 Clean-up Operations (present process with flowcharts, schematic diagrams, and material balance)
   6.3.4 Site Pull Out
   6.3.5 Close out Protocols

6.4 Estimates of Waste Generation and Disposal Options
6.5 Manpower Requirements
6.6 Cost of the Remediation Activity
6.7 Duration and Schedule of Remediation
7.0 IMPACT ASSESSMENT

7.1 Staging (focused on displacement of structures, vegetation, livelihood)
7.2 Clean up Proper
   7.2.1 Land
   7.2.2 Water
   7.2.3 Air
   7.2.4 People

7.3 Site Pull-out

8.0 ENVIRONMENTAL MANAGEMENT PLAN

8.1 Mitigation
   - (activity stage, mitigation activity, timing, responsibilities, cost)

8.2 Environmental Monitoring Plan
   8.2.1 Monitoring Program (activity stage, parameters, timing, responsibilities cost, )
   8.2.2 Multi-Stakeholder Participation
   8.2.3 Reportorial Commitments

8.3 Health and Safety Framework
   - Statement on the existing health and safety policy and protocols

8.4 Emergency Response Plan
   (e.g. identify the more likely emergencies to occur and their location like chemical spill, identify which existing response team, set-up ad-hoc organizational set-up, establish lines of communication, evacuation areas, PPE, material recovery equipment and containers, vehicles, firefighting, electricians, plumbers marshals and security, traffic officers, medical team, clinics and hospitals)

8.5 IEC Plan
   - Trigger/Purpose, target audience, topics, timing, location, responsible party, budget

8.6 Resettlement and Compensation Plan (if any)

8.7 IP Development Plan (if any)

8.8 Organizational Set-up
   (present organizational chart, indicate the officer who is authorized to decide in providing resources in implementing the EMP, include the operations groups and support groups including environmental manager and staff)

9.0 CAPACITY ASSESSMENT AND DEVELOPMENT

10.0 COST OF EMP

REFERENCES

ANNEXES
Annex 7.  **EA Report Outline for POPs-Contaminated Site Control**

**Guidance Note**

One of the activities for the IPOP Project is POPs-contaminated Site Control, which was screened as a Category A activity based on WB Operational Policy (OP) 4.01 and, therefore, is required a full EA Report prepared using the EA components provided in OP 4.01 Annex B.

The EIA Report Outline presented in this material is customized with reference to the information contained in the different technical, environmental and social assessment reports prepared for Component 4 of IPOP Project. Some subsections in the sections of EIA process and Environmental Management Plan (EMP) were adapted from the EIS Outline of the Philippine EIS System. Such customization in a way provides initial scoping and focusing on the minimum information for the EA Report. The scope of the study may expand depending on the result of the two public consultations to be undertaken: one is for the scoping of the environmental assessment (with presentation of the Project Description for Scoping), and another for the finalization of the EA Report.

The outline provides a section on the analysis of alternatives inasmuch as the site control objectives and technologies have not yet been identified. A draft of the EA Report will be prepared after the scoping consultation and after collection of relevant information on the existing environment, which is an input to the analysis of alternatives. Thereafter, a draft EA will be prepared and will be subjected to public consultation. The final EA Report will then serve as an input to the engineering design of the site control activities.

The following can be used as reference materials:

- Health Canada and Santé Canada. Health Impacts of Site Remediation. An Approach to Identify and Mitigate Potential Health Impacts. Contaminated Sites Division. 5th Floor, 269 Laurier Avenue West, Ottawa, Ontario K1A 0K9. e-mail: cs-sc@hc-sc.gc.ca
- USEPA Risk-based Corrective Action (RBCA)
- ASTM Method for Phase 1 and Phase 2 Site Characterization.
EIA Report Outline

Title Page
(Name of Activity, location, proponent name and address, date of report, contact person or group)

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2) Brief description of the contaminated site (history, current use, geometry of contamination, levels and quantity of contaminants)
3) Planned site control technology and extent of site control
4) Summary of sources, nature, scale of impacts on land, air, water, and community
5. Summary of environmental management plan

Concise and short overview of the proposal to facilitate understanding of the proposal by the general public, written in simple and non-technical language.

1.0 OVERVIEW

1.1 Proponent Profile (name, address, nature of business)
1.2 Location of the site and access (with site map and photographs)
1.3 Size of the area to be cleaned-up and quantity for cleanup
1.4 Purpose of Site Control (environmental, and developmental)

2.0 DESCRIPTION OF THE EIA PROCESS

2.1 EIA Team
2.2 Study Schedule
2.3 Pertinent Environmental Policies and Regulations (International, WB, GOP)
2.4 Scope of the Study (locations, components of the environment)
2.5 Data Sourcing Methodologies
2.6 Scientific Methods (like modeling)
2.7 Methodology in Setting Up the Technical Objectives of the Site Control
2.8 Methodology in the Selection of Site Control Technology
2.9 Stakeholders Participation
2.10 Summary Results of Public Consultation and Disclosure (date, participants, topics, issues)

(two consultations: for scoping and for the finalization of draft report, attach the proceedings)

3.0 DESCRIPTION OF THE SITE ENVIRONMENT

3.1 Land Environment
3.1.1 General Land Use within 500 meter radius from the Site
- settlement, institutional, tourism, recreational, commercial, industrial, agricultural
- include name, distance and relative direction of the nearest houses and facilities
- Zoning and map

3.1.2 Current Site Use and Importance (e.g. current and intended use of the site, ecological, cultural)
3.1.3 Structures within and around contaminated area (say 100 m)
3.1.4 Community utility on site (road, water pipes, electrical lines, telephone lines, cables)
3.1.5 General Geology
3.1.6 Soil (type, thickness, horizons, erosion potential)
3.1.7 Slope
3.1.8 Vegetation (identify)

3.2 Water Environment
3.2.1 Drainage system, name of watershed (if any)
3.2.2 Drainage flow pattern
3.2.3 Location of distance of water wells within and 100 meters away from the boundary
3.2.4 Name, location, size of nearest water bodies

3.3 Air Environment
3.3.1 Climate, rainfall data, local wind pattern
3.3.2 General assessment of air quality

3.4 Social Environment
3.4.1 General community including the IP communities
3.4.2 General Demography around the site
3.4.3 Prevailing health issues in the area

4.0 DESCRIPTION OF SITE CONTAMINATION

4.1 History of the site use and causes of contamination
4.2 Summary of Issues from Contamination
4.3 Environmental Assessments Performed
4.4 Latest Conceptual Model Contamination (spatial-chemical-temporal)
   3-dimensional analysis of size, surface area, depth, volume, chemistry, list and quantity of contaminants, boundaries, depth water table, ground water flow direction and speed, natural attenuation and recovery
4.5 Future Site Condition and Implications without site control

5.0 SUMMARY of SITE CONTROL ALTERNATIVES (Annex the detailed analysis of alternatives)

5.1 Setting up the Spatial Coverage of Site Control (focus on the areas and properties to be avoided, and limitations of clean-up technology) (Annex the details of selection)
5.2 Selection of Site Control Technologies (Annex the details on the results of selection)

Sample Environmental Parameters in Selecting Site Control Technologies
- space and layout requirement for the efficient and environmentally sound site control operation
- built-in pollution control measure within the technology design
- estimated pollution loading (waste water, air emissions)
- estimated physical agents (e.g. noise, heat, radiation, electric)
- nature and level of risks to workers health and safety
- impacts and risks prior to mitigation - direct and indirect spatial zone of influence, receptors, frequency and duration
- availability of environmental measures
- cost of environmental measures
- nature, scale, and life of residual impacts after mitigation
- environmental monitoring requirements (parameters, frequency and cost)
- capability to timely and effectively institute measures by the site control service provider
- capability to timely and effectively institute measures and conduct monitoring by activity proponent (e.g available of skilled staff, available institutional instruments, equipment, procurements)

The specific numerical criteria such as ranking, rating, scaling or importance weighing will be firmed up during the study (See WB Sourcebook Update No 17, December 1999. Analysis of Alternative in Environmental Assessment)

6.0 SITE CONTROL PLAN

6.1 Objectives and Limits of the Site Control
   6.1.1 Procedures Performed in Setting up the Objective
   6.1.2 Spatial Boundaries Objectives and Rationale

6.2 Physical Components
   6.2.1 List of Main Components, Function, and Space Requirement (identify built-in environmental facility if any)
   6.2.2 Site Control Lay-out

6.3 Description of Project Phases
   6.3.1 Entry Protocols (notices, permits, special arrangements)
   6.3.2 Staging and Site Component and Lay-out
   6.3.3 Site Control Operations (present process with flowcharts, schematic diagrams, and material balance)
   6.3.4 Site Pull Out
   6.3.5 Close out Protocols

6.4 Estimates of Waste Generation and Disposal Options
6.5 Manpower Requirements
6.6 Cost of the Site Control Activity
6.7 Duration and Schedule of Site Control
7.0 IMPACT ASSESSMENT

7.1 Staging (focused on displacement of structures, vegetation, livelihood)

7.2 Site Control Proper
   7.2.1 Land
   7.2.2 Water
   7.2.3 Air
   7.2.4 People

7.3 Site Pull-out

8.0 ENVIRONMENTAL MANAGEMENT PLAN

8.1 Mitigation
   - (activity stage, mitigation activity, timing, responsibilities, cost)

8.2 Environmental Monitoring Plan
   8.2.1 Monitoring Program (activity stage, parameters, timing, responsibilities cost, )
   8.2.2 Multi-Stakeholder Participation
   8.2.3 Reportorial Commitments

8.3 Health and Safety Framework
   - Statement on the existing health and safety policy and protocols

8.4 Emergency Response Plan
   (e.g. identify the more likely emergencies to occur and their location like chemical spill, identify which existing response team, set-up ad-hoc organizational set-up, establish lines of communication, evacuation areas, PPE, material recovery equipment and containers, vehicles, firefighting, electricians, plumbers marshals and security, traffic officers, medical team, clinics and hospitals)

8.5 IEC Plan
   - Trigger/Purpose, target audience, topics, timing, location, responsible party, budget

8.6 Resettlement and Compensation Plan (if any)

8.7 Organizational Set-up
   (present organizational chart, indicate the officer who is authorized to decide in providing resources in implementing the EMP, include the operations groups and support groups including environmental manager and staff)

9.0 CAPACITY ASSESSMENT AND DEVELOPMENT

10.0 COST OF EMP

REFERENCES

ANNEXES
Annex 8. Social Development Framework for Wastepickers for Component 2, Activity 2.3: Reduction of PCDD/PCDFs

1. Introduction

The purpose of this framework is to assist subproject implementation teams in the Integrated Persistent Organic Pollutants Project in developing effective social development plans (SDP) for informal waste workers affected by dump closure activities. The SDP should be able to address the situation of “waste pickers” or those engaged in the informal collection of recyclable materials, for sale or re-use, at open dump sites, and other points of collection, transfer and disposal.

The SDP is intended to form an integral part of the environmental assessment process governed by the dump closure plans provided to DENR for implementation and environmental and social safeguards compliance purposes. The outline is intended as a guidance note for the development of the SDP that forms part of the Dump Closure Plans and will form part of the would be Revised Closure Plans to be submitted to the Project Management Office under the project for their approval.

The Integrated Persistent Organic Pollutants Project (IPOPS) is a World-Bank -- Global Environment Facility assisted project, implemented by the Environmental Management Bureau of the Department of Environment and Natural Resources. The IPOPs has five components. Component 2, called Reduction of PCDD/PCDF release, of the IPOPS project, is financing the closure of dumpsites and the implementation of measures to stop backyard and open burning, etc.. The primary social impact of the closure is the direct loss of livelihoods that waste pickers and scavengers working on the dumpsite will experience.

Wastepickers are among the poorest of the poor in any community. Consistent with the World Bank’s vision of reducing poverty and the Manila Office’s thrust of “Making Growth Work for the Poor”, this wastepicker Social Development Framework has been prepared to guide component 2 implementers, the Project Management Office, and other project partners in mitigating the loss of livelihoods and ensuring wastepicker participation or voice in the process of restoration of livelihoods. This Social Development Framework is the equivalent of the Resettlement Policy Framework required by the Bank’s Social Safeguard Policy O.P.4.12.

2. Description of Wastepickers and Impacts on Wastepickers

a. Waste pickers, also called scavengers in some places, are known to retrieve recyclable and reusable materials from mixed wastes (whether at fixed sites, such as dumps or transfer stations, or through itinerant scavenging). Waste pickers are among the key stakeholders in solid waste management (SWM) interventions. (More detailed information on waste pickers may be found in Annex 1 of the Reference: Designing and Implementing a Waste Picker Social Development Plan.) They usually reside in shanties located around the dump site, often are insufficiently educated. They have limited access to basic needs such as food, clothing, shelter, education and water. Men, women and children constitute scavengers.

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8 This came from a World Bank funded project in Brazil. It should be available to the applicants from the Project Management Office.
However, there may be peculiarities which should be noted. Women and children tend to be differentially marginalized and vulnerable. Women because they are also responsible for so-called reproductive functions at home, that is, preparing food, cleaning the house, washing clothes, and taking care of children and the like; and children because, they tend to be taken away from time to play, and from school, they tend to be exposed to a high risk environment, at least in terms of physical safety, exposure to potentially labor-intensive work, and exposure to substances emitted from the dump site.

b. Description of Impacts on Wastepickers. There are there are three impacts of the project on waste pickers, these are:

- **Loss of temporary structures, and resting places**
  This may result from the removal of the structures in the dump site, in order to restrict access to the site; also per Philippine Laws, structures located in dump sites are illegal.

- **Loss of permanent structures and residential relocation (rare but can happen)**
  Permanent structures, such as residences, in rare instances may be found within the boundaries of the dump site, or would be land fill site for example. In such cases, humane means of eviction, transfer, and relocation should be observed.

- **Loss of livelihoods.**
  Where possible, full restoration of livelihoods should be observed, where it is not feasible, a number of options can be explored including prompt payment of just compensation, or replacement with comparable means of livelihood, among others.

3. **Legal Policies governing Wastepickers and Preparation of a Social Development Plan for Wastepickers**

One of the key policies relevant to the project is Republic Act (RA) 9003, also known as the Ecological Solid Waste Management Act. This law came into force after there came a wide spread recognition of the very large dumpsites in the metropolis, and the problems associated with them. As such, the law requires that all municipalities in the country should have a Materials Recovery Facility (MRF) serving each barangay, and that all dump sites must be closed by a certain date. The Implementing Rules and Regulations defines the power and responsibilities of the National Solid Waste Management Commission. The Commission is under the Office of the President and is tasked to oversee the implementation of solid waste management plans and prescribe policies to achieve the objectives of the Act. It also defines the roles and functions of the National and Regional Ecology Center and the City and Municipality Solid Waste Management Board.

The IRR also limits the life span and operations of open dump sites to 5 years, and the need to close or convert these to sanitary landfills. It is also clear about certain rules including the following: source reduction, segregation at source, composting and waste diversion, segregated collection, recovery and processing, and disposal management. Disposal management includes closure of open dumpsites and controlled dumps, and the shift to the development of sanitary landfills. For this purpose there is Department Administrative Order
09, series of 2006, that provides the guidelines for Dump Site Closure, including the preparation of the needed studies for such purpose.

Annex 1, excerpt of the Urban Development and Housing Act of 1992, is explicit about addressing the problem of homelessness and of urban growth direction, wastepickers as possible beneficiaries, included.

For the SDP, processes and procedures for determining eligibility have to be clear for example, given that scavengers are migratory. (There is an assertion that scavengers are not really residents of the LGU where they do their waste picking.) Processes and procedures for participation, disclosure/communication need to be well defined, including the communication plan. There are also processes and procedures for planning implementation, some of them in existing laws, some more used in other projects, and others that you will have to customize for this project.

For the purpose of preparing a Social Development Plan, an outline that serves as a guide at the same time is provided in Annex 3. Processes and procedures for monitoring and evaluation need to be defined also. Details on developing these procedures and processes are provided in the reference document on preparing a Social Development Plan. As each site and project is unique, these processes are not the same. They have to be customized.

The Labor Code of the Philippines has specific provisions on women and children, described below. On the employment of women there are specific provisions on nightwork prohibition, and exceptions there to. It also defines the standards of facilities for women that will ensure the safety and health of women employees. It defines maternity leave benefits, family planning services and incentives for family planning. It prohibits discrimination of a female worker on account of her; sex, as might be manifested in compensation, and benefits among others; marriage; or pregnancy. It also includes the classification of certain women workers as employees of such establishment for purposes of labor and social legislation. On the employment of minors, there are specific provisions for the minimum employable age, and exceptions thereto, including, in relation to sole supervision by parents or guardian, and that such employment does not in any way interfere with schooling; employment for such number of hours and such periods of the day; and not in hazardous or deleterious employment situation. It also prohibits against child discrimination in respect to terms and conditions of employment on account of his age.

4. Mitigating Measures

a. Principles relating to Mitigating Measures: The mitigating measures aim for restoration of livelihoods at the least, and at the most improvement of standard of living.

b. Description of Mitigating or Safeguard Measures: There are two primary mitigating measures for the component 2 projects: a) consultations to ensure active participation of the wastepickers (Annex 2: Consultation Process in dealing with wastepickers); and b) crafting of a Social Development Plan (Annex 3: Social Development Plan for Waste Pickers: Outline and Guide).

The consultation process is meant to ensure the active participation of the waste pickers in the crafting of the Social Development Plan. It is a venue for them to articulate their felt needs,
and to be heard. Details on this are provided in the reference document available with the PMO. The outline and the guide for preparing the SDP are meant to provide a map and a structure for a well crafted SDP, responsive to the needs of waste pickers, and sustainable by design.
Attachment 1: Excerpt from RA 7229: the Urban Development and Housing Act (1992)

“It shall be the policy of the State to undertake, in cooperation with the private sector, a comprehensive and continuing Urban Development and Housing Program, hereinafter referred to as the Program, which shall:

(a) Uplift the conditions of the underprivileged and homeless citizens in urban areas and in resettlement areas by making available to them decent housing at affordable cost, basic services, and employment opportunities;

(b) Provide for the rational use and development of urban land in order to bring about the following:

(4) Reduction in urban dysfunctions, particularly those that adversely affect public health, safety and ecology; and

(5) Access to land and housing by the underprivileged and homeless citizens;”
Attachment 2: Consultation Process in dealing with wastepickers

The Plan should adhere to the following core principles, among others:

1. engage waste pickers as active participants in the entire process;
2. develop broad partnerships (including the private sector and local government);
3. involve existing government programs;
4. upgrade and integrate existing activities;
5. when eliminating one income-generating activity, offer viable alternatives;
6. offer real choices (including the element of timing);
7. take advantage of existing experiences, lessons learned, and available experts; and
8. experiment with new approaches.

A more detailed description of these principles may be found in Annex 2 of the reference document.

The active and informed participation of all key stakeholders is critical to devising an effective and sustainable Plan. The waste pickers must be actively involved in all stages of the process, from preparation and implementation to monitoring and evaluation. They must also be provided with adequate and timely information on the Plan’s contents, schedules and the rights and obligations of each party.

Identification of key stakeholders. The first step in a participatory process is the identification of exactly who these stakeholders are in the relevant case, through a brief exploratory mapping and diagnostic process.

Methodological tools. Some recommended methodologies include Participatory Rapid Analysis (PRA) & Planning, Participatory Action Research, or Participatory Learning and Action.

Participatory bodies. Another useful participatory tool involves the creation of a local management council, to accompany subproject planning, implementation and monitoring.

Documentation. It is very important for this participation to be carefully documented. While the participatory strategy employed will vary according to the specificities of the individual subproject and its target groups, it should generally involve:

- Holding of community meetings at the start of each stage in the process;
- Recording of the participation in the events, the opinions expressed, and the resolutions;
- Design and implementation of an adequate system for registering and responding to any claims and grievances that may arise; and
- Closing of the “feedback loop,”.

Identification and prioritization of key issues. Once contextual data has been collected and contact with the waste pickers and their representatives initiated, the next step will be necessary to identify and prioritize the key issues, propose solutions, and plan actions.
Attachment 3: Social Development Plan for Waste Pickers
Outline and Guide

I. EXECUTIVE SUMMARY

II. INTRODUCTION

The introduction should state the purpose of the document, the users, and should provide the roadmap to the entire document. For example,

This social development program (SDP) is meant to address the adverse impacts on wastepickers, who are residing and/or deriving their livelihood from the ___ dumpsites that is scheduled for closure in 2010. This SDP is meant to guide the Local Government of ____ as well as partner national agencies, private sector organizations, and non-government organizations in the implementation of mitigating measures.

III. SUMMARY OF THE PROPOSED CLOSURE ACTIVITIES

This is a very short summary of the closure activities including the proposed timeline and phasing of the activities.

IV. IMPACTS

This provides a short description of the social impacts of the closure activities. In particular, it answers the questions: will this affect livelihood only, or livelihood plus shelter?

V. IR and IP POLICY FRAMEWORKS

Here provide a brief explanation on the Involuntary Resettlement and if applicable, the Indigenous Peoples Policy framework or guidelines. The framework should concern three things: a) eligibility, b) financial assistance/compensation/ mitigating measures, and c) processes, as described below.

A. Eligibility

Who are eligible to be considered displaced or directly affected persons? Provide a definition of wastepickers among others. The value chain analysis in relation to solid wastes, would be useful in coming up with definitions. Who are IPs? When is the IP policy triggered in the case of wastepickers? Impacts can be organized into severity: severe, substantial marginal, etc.

The vulnerability analysis will come into play here.

B. Mitigating Measures

What are the assistance (mitigating measures) that will be given to affected persons? Describe in detail the mitigating measures pertaining directly to waste pickers and eligible persons. Measures can be organized according to impacts or according to type of groups (children, women).
C. Process

What are the processes that will be followed? How will wastepickers participate in the different parts of the project? How would the consultations be organized? (For instance, different for women or men, different from traders to waste pickers, etc.) How would the LGU be involved? How would other government agencies be involved? How would private sector be involved? This section should also contain the result of the survey.

VI. THE SDP PLAN PROPER

A. Description of Displaced Population (This will vary from site to site.)

Who are directly affected by the closure? What are their socio-economic characteristics? Ethnicity? Are they residents of the LGU where the dumpsite is found or not? Are they organized into cooperatives or groups of individuals? What is their state of health/physical condition? This basically contains the social assessment (SA) results (quantitative and qualitative). The SA guidelines will be important in this section. I emphasise here directly affected as there may be other effects offsite such as the junk shops, etc. But the concerns of the SDP are those directly impacted by the closure activities.

It would be good to segment here groups by type of impacts (shelter + livelihood, livelihood) and/or by vulnerability (adults, children, women, elderly).

How many are eligible? Who are these persons who are eligible? What is the impact of/to them? What are their characteristics?

B. Assistance to be given

Type and estimation of the assistance to be given to each segment of the population including amounts. The basis for this is in Section V.

C. Implementation Arrangements

Who will implement the SDP? What are their roles and responsibilities?

D. Budget

What is the entire budget of the SDP? What are the sources and uses of funds, etc.? What are the financial guidelines, etc.?

E. Monitoring and Evaluation

What are the indicators that will be used to measure success of the SDP’s implementation? What are the sources of information? What are the means of collecting data? How will the data be used? How will findings be addressed?
VII. Annexes:
   A. Survey Questionnaire Used
   B. FGD Questions
   C. Key-Informant Interview Questions
   D. Results of Consultations/ FGDs/KIs
   E. Analytical Tables for survey questionnaire.
   F. Ordinances/Executive Orders, Relevant Laws etc.

In general, the methods should include some description of the population/sample that participated in the assessment.

1. Introduction

The IPOPs project is a World Bank Global Environment Facility financed project that aims to reduce the release of PCDD/PCDF, manage PCBs, and contaminated sites. With aim of strengthening the capacity of the country to manage these 3 areas, there are components to review, strengthen and further develop regulatory framework, and to build technical capacity for POPs monitoring with appropriate training activities. Of the five components, two, Components 2 and 4, are expected to trigger O.P. 4.12 or the Involuntary Resettlement Policy.

2. Legal and Policy Bases

1.1 O.P.4.12. This policy acknowledges that planning of resettlement activities is integral part to the preparation for Bank-assisted projects that cause or may cause Involuntary Resettlement. During project identification, the Technical Team (TT; of the WB) identifies potential Involuntary Resettlement under the project.

1.2. Relevant Philippine laws Most of the key provisions of the WB’s OP 4.12 are covered fully or partially by Philippine legislation, there are however, areas wherein O.P. 4.12 provisions are more extensive than Philippine legislation. In such cases, O.P. 4.12. is used to supplement the Philippine laws. Below is a list of the laws:

- The Philippine Constitution;
- The Civil Code;
- The Local Government Code (RA 7160);
- The Indigenous Peoples Rights Act (RA 7381) and also specifically, Section 59, Certification Precondition,
- The Urban Development and Housing Act (RA 7279)
- PD 856 Sanitation Code.
- Supreme Court Ruling (1987) defining just compensation
- DPWH DO 142 (1995): Aims to avoid unnecessary delays in civil works. Inclusion of parcellary plans & cost estimates for ROW acquisition in detailed engineering stage.
- EO 1035 & MO 65 on the acquisition and compensation of private properties
- RA 6389: on disturbance compensation to agricultural leases
- Executive Order 1035 (1985) provisions on land expropriation
- RA 8974 (2000): on ensuring prompt payment of just compensation
- SECTION 5. Standards for the Assessment of the Value of the Land Subject of Expropriation Proceedings or Negotiated Sale

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9 Borrowing from O.P. 4.12.
10 In cases where a proposed project is likely to involve Involuntary Resettlement, the TT informs the borrower of the provisions of OP/BP 4.12.
3. Description of Impacts and Mitigating Measures

Of the project’s five components, Components 2 and 4 have been identified as likely to involve Involuntary Resettlement.

3.1. Component 2

Component 2 has triggered O.P.4.12 because of three types of expected impacts or risks:

- Impacts on livelihoods of waste pickers;
- Impacts of structures, temporary, semi-permanent, and permanent standing on the dumpsite;
- Land acquisition in the proximity of the dumpsite as staging and storage area for heavy equipment and other types of instruments, soil cover, barracks or temporary living quarters for workers, and for other purposes.

The loss of livelihoods and other impacts on waste pickers are treated in the Social Development Framework for wastepickers. This resettlement policy framework covers the following:

3.1.1. Structures and Improvements inside Dumpsites

Dumpsites may have structures used by waste pickers, and these will have to be dismantled in the course of closure. Many of these structures are made of temporary materials and used as assembly points, temporary resting places of waste pickers, food stalls, and buying stations of junk shops; rarely are these structures made of permanent materials and used as residences by waste pickers.

These structures will be treated as follows:

3.1.1.a. Temporary Structures/ Improvements

Prior to closure, temporary structures shall be disassembled voluntarily by their users/owners, and salvageable materials shall belong to their owners. No compensation shall be provided for these structures. Government will provide the owner assistance to transport these temporary materials.

3.1.1.b. Permanent and Semi-Permanent Structures

In the rare cases, where privately-used and owned structures predominantly made of permanent materials have to be dismantled due to the closure, the owner has to be compensated for the full replacement value of the structure. No depreciation shall be made, and the value of the salvageable materials shall not be deducted. The option to dismantle shall be given to the owner. The owner may opt to have the structure dismantled by the government. In the latter case, the government shall not charge the owner the cost of demolition. If the owner wishes to retain these materials, the government will provide the owner assistance for the transport of these materials.
3.1.1.c. Temporary Land Use/Acquisition

Temporary acquisition or use of private land where the owner voluntarily allows government to rent or free use of the land are in the nature of willing buyer and willing seller arrangements. While technically not covered by O.P.4.12, due diligence shall be conducted by PMO staff and World Bank Safeguards to ensure that rental payments are made in the right amounts, on time, and that government fulfills its obligations under the contract.

Where the land owners seek the dismantling of the structures and removals of the improvements introduced by the government, the government shall undertake the removal of the structures and improvements at its own expense.

Where the landowners wishes to retain the structures and improvements introduced there by government, the cost of these structures and improvements will not be deducted from rental payments.

Expenses to reasonably restore the land to its former uses (if feasible and if so desired by the owner) shall be shouldered by the government. This is not to be deducted from rental payments made by the government to the private owner.

3.2. Component 4

The strategy for Component 4 is for owners of contaminated sites to voluntarily offer their lands for remediation. Since this is a demonstration project, consent is a pre-requisite for participation and inclusion. Without the consent, the project will not proceed to do site remediation. A critical concern is site controls and they are addressed below.

3.2.1 Damage/Removal done during Site Remediation and Site Control

Private and government land owners who voluntarily offer their property for remediation and site control will sign a waiver indicating that any loss of structure or improvements resulting from remediation activities shall not receive any monetary compensation. Restoration will be the responsibility of the private or government landowner as their counterpart to the project. The project’s responsibility is to minimize damage or removal as much as possible.

3.2.2. Sensitive Land Uses in the Control Sites

For structures on the remediation or site control sites whose use has to be temporarily discontinued during remediation activities, it is the land owner’s responsibility to discontinue the use and relocate these uses to another site.

Where such use qualifies as sensitive, the implementing agency and the World Bank safeguards staff shall conduct due diligence if relocation has been done or alternatives and the disruption in the delivery of services. Sensitive use refers to the provision of critical services, whether publicly or privately provided, and include such use as utilities (water, electricity, and telecommunications), schools, health centers, day care centers, fire safety and police services, religious places of worship, and residential use. Proper information on the new location shall be provided to the clients by the affected land and structure owner with the help of the project.
The project will provide assistance in transporting equipment, other moveable items to the new site.

3.2.3. Residential or Business Renters in Contaminated or Control Sites

For residential or business renters of land voluntarily offered for the project, the first option is to provide a temporary or alternate site for doing business or residence. PMO and World Bank Safeguards staff shall do due diligence to ensure that the project is not used as an excuse to evict renters.

In the absence of a viable or acceptable alternate site, all deposits (adjusted to current value) made by the renter to the owner shall be returned by the owner. The project will provide two months equivalent to the rental as disturbance allowance for the business and the residence.

In the absence of deposits, the project will provide the equivalent of four months rental payments as disturbance allowance.

Improvements and structures introduced by the renter shall be compensated by the project at full replacement value without depreciation and with no deduction of the value of salvageable or salvaged materials.

The project will provide transfer assistance to affected residential and business renters.

3.2.4. Informal settlers in Contaminated or Control Sites

For informal settlers (residential only) on private or government land, the local government unit will seek to accommodate these families in existing government resettlement sites or coordinate with the civil society organizations for their relocation. In the absence of any available site, payment of full replacement value of the structures (residential and mixed use or purely business) to be dismantled shall be made. The project will provide assistance to the transport of informal settlers.

4. Dump, Remediation, and Control Sites inside Ancestral Domains

The PMO and World Bank safeguards staff shall conduct due diligence to determine if identified dump, remediation, and site control sites are inside formally recognized ancestral domain and ancestral domain claims. When and if these are found to be in ancestral domains, project implement agencies shall coordinate with the National Commission on Indigenous Peoples (NCIP) and the IP community holding title or laying claim for proper consultation and clearances under the country’s laws. World Bank safeguards staff shall conduct due diligence if the country’s laws on indigenous peoples and relevant Bank policies have been followed.

5. Summary

<table>
<thead>
<tr>
<th>Potential Impacts or Risks</th>
<th>Mitigating Measures</th>
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<tbody>
<tr>
<td>Component 2</td>
<td></td>
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<tr>
<td>Temporary Structures</td>
<td>• Transfer or Transport Assistance for Owner and Salvaged Temporary Materials</td>
</tr>
</tbody>
</table>
### Potential Impacts or Risks

<table>
<thead>
<tr>
<th>Semi-Permanent and Permanent Structures</th>
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<tbody>
<tr>
<td>• Full replacement value without depreciation and deduction of the value of salvaged or salvageable materials</td>
<td></td>
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<tr>
<td>• At the option of the owner, the demolition shall be done by the government. Cost to be shouldered by the government</td>
<td></td>
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<tr>
<td>• Salvaged Materials owned by affected person</td>
<td></td>
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<tr>
<td>• Transfer or Transport Assistance for Owner and Salvaged Materials</td>
<td></td>
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<table>
<thead>
<tr>
<th>Temporary Land Acquisition</th>
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<tbody>
<tr>
<td>• Rental Payments</td>
<td></td>
</tr>
<tr>
<td>• At the expressed wish of the owner, removal of structures and improvements shall be done by the government. This is not to be deducted from rental payments.</td>
<td></td>
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<tr>
<td>• If the owner wishes to retain the structures and improvements, cost of constructing these shall not be deducted from rental payments by the government.</td>
<td></td>
</tr>
<tr>
<td>• At the expressed wish of the owner, restoration of the land to its former uses (if feasible) shall be financed by the government. This is not to be deducted from the rental payments.</td>
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<tr>
<th>Component 4</th>
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<tbody>
<tr>
<td>Damage or removal done during remediation or site controls</td>
<td>Since this is a voluntary effort, restoration shall be the counterpart of the private or government as owner of the land.</td>
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<table>
<thead>
<tr>
<th>Sensitive Uses</th>
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</thead>
<tbody>
<tr>
<td>• Government or private owner to provide alternate site and/or alternate structure or source.</td>
<td></td>
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<tr>
<td>• Project will take care of transfer assistance to new site for equipment and other moveable items.</td>
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<table>
<thead>
<tr>
<th>Residential or Business Renters</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>• Provide alternate residential or business location</td>
<td></td>
</tr>
<tr>
<td>• Refund by the owner of all deposits made plus two months’ worth of rental payments as disturbance allowance.</td>
<td></td>
</tr>
<tr>
<td>• If no deposit, provide four months equivalent of rental payments as disturbance payment.</td>
<td></td>
</tr>
<tr>
<td>• Structures and improvements introduced by residential or business renters are to be compensated at full replacement value.</td>
<td></td>
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<tr>
<td>• Transfer assistance to affected persons</td>
<td></td>
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<tr>
<th>Informal settlers</th>
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<tr>
<td>• Informal settlers (residents only) relocation in a government resettlement site</td>
<td></td>
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<tr>
<td>• In the absence of relocation, full replacement value (without depreciation and without deduction for salvaged or salvageable materials) for their structures and improvements.</td>
<td></td>
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<tr>
<td>• Transport assistance for both people and moveable items.</td>
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### Project site inside Ancestral Domains or Areas with Ancestral Domain Claims

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<tr>
<th>Inside Ancestral Domains or Areas with Ancestral Domain Claims</th>
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<tr>
<td>• Due diligence</td>
<td></td>
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<tr>
<td>• Observance of Philippine laws and Bank policies (O.P.4.10)</td>
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</tbody>
</table>
6. Safeguard Instruments

When the above involuntary resettlement risks are certain to happen, the Dump Closure Plan or the Site Remediation and/or Site Control Plans shall include a chapter or section on these impact, the valuation of the affected structures and improvements and the assistance to be provided, procedures for compensation, and for monitoring and evaluating compliance to this framework.

1.0 Introduction

Indigenous peoples who will be affected by development projects deserve special attention because of their unique vulnerability and their distinct ways of relating to the physical environment. The DENR, the main proponent of the IPOPs project, recognize that the identities and cultures of Indigenous Peoples are inextricably linked to their physical environment and the natural resources on which they depend. This exposes IPs to certain types of risks and to intensified levels of impacts that the dominant groups in Philippine society do not face when confronted by infrastructure development projects. The objective of this document is to ensure that IPOPs project activities do no further harm to IPs and leave them worse off with the projects than without.

2.0 Definition of Indigenous Peoples

Indigenous peoples refer to a distinct vulnerable social and cultural group possessing the following characteristics in varying degrees:

1. Self-identification or self-ascription as members of a distinct indigenous cultural group and recognition of this identity by others;
2. Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
3. Customary cultural, cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
4. an indigenous language often different from the official language of the country

While identification of who is IP and not IP is not without difficulties, the Philippine National Commission on Indigenous Peoples (NCIP) has an official listing of all Indigenous Cultural Communities (ICCs) in the Philippines. (In this policy, IPs and Indigenous Cultural Communities, as IPs are referred to the Philippine Indigenous People’s Rights Act (IPRA), will be used interchangeably.) Screening if project affected persons are IPs or not should begin with the NCIP list but should not be limited to it. The four-criteria need to be applied to prevent exclusion.

3.0 Rationale for Triggering World Bank O.P. 4.10

During the project concept note state, Components 2 and 4 were identified as the most likely to affect Indigenous Peoples in the Philippines in two ways: a) the collective attachment that IPs may have on the identified sub-project areas and b) presence of IPs in the sub-project areas.

The social assessment conducted by consultants of the Department of Environment and Natural Resources (DENR) showed that one of the project sites identified for site remediation under Component 4 is within an ancestral domain claim of IPs, now covered by a Certificate of Ancestral Domain Title (CADT R03 HER 0703 0008 A). A final decision has been made on this IP claim by Philippine authorities, thus triggering O.P.4.10. However there is a need to update the ADSDPP, which is expected to be among the MOA conditionalities of the IPs.
For component 2, the social assessment determined and confirmed by Bank staff that no indigenous peoples are living in the dumpsites for the three (3) confirmed first year sites. These are Cabanatuan City in Luzon, Iloilo City in the Visayas, and Cagayan de Oro in Mindanao. Neither do indigenous peoples have collective attachment or claims, as these are in areas within boundaries of urban cities. However, there remains the possibility that in the seven (7) other sites tentatively identified under this component, IPs may be living in the dumpsites or may have collective attachment to the land. For this reason, this Indigenous People’s Policy Framework (IPPF) has been prepared in the event one or several of the sites participating in the project are the subject of an ancestral domain claim or have communities of IPs living and working there.

4.0 Coverage of the Policy

The IPPF covers all Indigenous Peoples or Indigenous Cultural Communities (ICC) whether they are living outside or inside an officially declared ancestral domain or those areas belonging to IPs covered by a Certificate of Ancestral Domain Title (CADT) or Certificate of Ancestral Land Title (CALT). It also covers areas that have pending applications to be declared as an ancestral domain.

4.0 Procedures

This IPPF contains two types of procedures for determining if a sub-project requires the preparation of an Indigenous People’s Action Plan (IPAP) or not. These procedures involve the two requisites for the application of O.P.4.10; collective attachment and presence of IPs.

Procedure 1: Determination of Collective attachment

The procedure follows closely the Free and Prior Informed Consent Guidelines of 2006 or NCIP Administrative Order No. 1 series of 2006 with certain differences.

1. When a sub-project area is suspected to be within an ancestral domain claim or title of an Indigenous Cultural Community or IPs, the project proponent shall consult the National Commission on Indigenous Peoples (NCIP) to determine if an overlap does exist.

2. Where an overlap cannot be determined from maps and documentary sources, the NCIP shall require the conduct of a Field Based Investigation (FBI).

3. When the FBI determines that the project area is outside an ancestral domain claim or ancestral domain title, the NCIP issues a certificate of non-coverage (CNC) to the project.

4. While a CNC proves the absence of collective attachment, the project proponent with Bank safeguards will continue to do due diligence if IPs are still present in the project area. (Refer to Procedure 2 Determination of Presence)

5. Where an overlap is found to exist or when the FBI determines that the project area is within an ancestral domain or claim, the project proponent shall abide by the Free and Prior Informed Consent Guidelines of 2006 as they are applied by NCIP. These guidelines require among others:
a. Information and disclosure on the project: its purposes, description of components, activities, impacts, benefits, etc.;

b. Consultation with the Indigenous Cultural Community holding title or laying claim to the land;

c. Certificate of Consent issued by NCIP /Memorandum of Agreement with the affected ICC.

6. Given the nature of the IPOPS project as enhancing environmental quality and improving health, efforts will be made by project proponents with the cooperation of the NCIP for the IPs to a) voluntarily solicit and initiate the sub-project or to b) include the sub-project in their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). Community-initiated activities (CIA) are allowed under the Free and Prior Informed Consent Guidelines of 2006.

7. Where such project is voluntarily initiated and solicited, the Memorandum of Agreement containing conditions, provisions for benefit sharing, and monitoring and evaluation shall normally stand as the Indigenous People’s Development Plan (IPDP) of the sub-project. (Refer to Annex 2 for the outline of an IPDP.)

8. A separate, free standing IPDP will be required in the event the IPs are to be temporarily or permanently displaced and resettled; burial, sacred sites, and significant cultural and sacred objects are to be affected; and access is restricted to foraging areas, sources of subsistence and livelihood.

9. Detailed documentation of the consultation, the Memorandum of Agreement, Certificate of Consent and all relevant documentation including visuals shall be disclosed at the Bank’s Infoshop, at the DENR’s website, NCIP’s website, and on site.

10. World Bank safeguards staff shall conduct due diligence to ensure that Free and Prior Informed Consent has indeed been given. Free and Prior Informed Consent (FPIC) must be determined using methods appropriate to the social and cultural values of the affected Indigenous Peoples’ Communities, recognizing the primacy of customs, traditions, practices, and socio-political structures of the ICCs/IPs concerned. The process must be free from any external manipulation, interference and coercion and must give special attention to the concerns of Indigenous women, youth, and children. Free and prior informed consent is obtained only after a full disclosure of the intent, scope, benefits, potential adverse effects of the project, and measures to avoid, reduce, minimize, and mitigate these effects in a language and manner that is culturally appropriate and understandable to the affected Indigenous Peoples’ Communities. World Bank safeguards staff shall ensure that the project proponent/s abide by provisions of the MOA and the IPAP

Procedure 2: Determination of Presence

In the course of site or environmental assessment for contaminated sites and dumpsites, updating of dump closure plans, and preparation of a social development program for waste pickers, IPs may be found to be living in or working in the project area.
1. When IPs are found to be present, determine if these IPs have collective attachment to the land using Procedure 1.

2. When no collective attachment is found, the project proponent and/or proponent staff under the supervision of World Bank safeguards staff shall determine if the IPs:
   a. Live on or depend on the project area as a distinct and separate community, not just individuals or families blended within the mainstream or dominant group.
   b. Have in the project area or practice their customary cultural, economic, social or religious, and political institutions that are separate from those of the dominant society and culture;

3. When these two conditions are satisfied, the project proponent with the guidance of WB safeguards staff shall undertake a social assessment on how the proposed project activities can adversely or positively impact the situation of the IP community, their situation (vulnerabilities, especially cultural identity and poverty), and their coping mechanisms. (See Annex 3 for the guidance in conducting a Social Assessment.)

4. Conduct free and prior informed consultation in a culturally appropriate manner aimed at obtaining broad support of the IP community/communities to the sub-project.

5. Documentation of the consultation shall be made by the project proponent.

6. World Bank safeguards staff shall conduct due diligence to ascertain that that the consultation was indeed free from any coercion, manipulation, or interference and that broad support does exist. Special concern shall be made to ensure gender equity and inter-generational representation and consideration during the consultations.

7. Prepare a stand alone Indigenous People’s Development Plan which along with the documentation on the consultation and other relevant documents will be publicly disclosed. (An outline of the IPDP is found in Annex 2.)

8. Where the residence of part or all the IP community has to be permanently displaced and resettled elsewhere, the IP community shall be given the option of returning to their place of origin or their ancestral domain. They shall enjoy the same entitlements or assistance given to non-IPs whose residences have been permanently displaced or resettled.

9. When their livelihoods are affected, IPs shall also benefit from livelihood restoration measures.

10. World Bank safeguards staff shall ensure that the project proponent/s abide by provisions of the IPDP.
Attachment 1
OP 4.01, Environmental Assessment Annex A – Definitions (January, 1999)

1. Environmental audit: An instrument to determine the nature and extent of all environmental areas of concern at an existing facility. The audit identifies and justifies appropriate measures to mitigate the areas of concern, estimates the cost of the measures, and recommends a schedule for implementing them. For certain projects, the EA report may consist of an environmental audit alone; in other cases, the audit is part of the EA documentation.

2. Environmental impact assessment (EIA): An instrument to identify and assess the potential environmental impacts of a proposed project, evaluate alternatives, and design appropriate mitigation, management, and monitoring measures. Projects and subprojects need EIA to address important issues not covered by any applicable regional or sectoral EA.

3. Environmental management plan (EMP): An instrument that details (a) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental impacts, or to reduce them to acceptable levels; and (b) the actions needed to implement these measures. The EMP is an integral part of Category A EAs (irrespective of other instruments used). EAs for Category B projects may also result in an EMP.

4. Hazard assessment: An instrument for identifying, analyzing, and controlling hazards associated with the presence of dangerous materials and conditions at a project site. The Bank requires a hazard assessment for projects involving certain inflammable, explosive, reactive, and toxic materials when they are present at a site in quantities above a specified threshold level. For certain projects, the EA report may consist of the hazard assessment alone; in other cases, the hazard assessment is part of the EA documentation.

5. Project area of influence: The area likely to be affected by the project, including all its ancillary aspects, such as power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, and construction camps, as well as unplanned developments induced by the project (e.g., spontaneous settlement, logging, or shifting agriculture along access roads). The area of influence may include, for example, (a) the watershed within which the project is located; (b) any affected estuary and coastal zone; (c) off-site areas required for resettlement or compensatory tracts; (d) the airshed (e.g., where airborne pollution such as smoke or dust may enter or leave the area of influence; (e) migratory routes of humans, wildlife, or fish, particularly where they relate to public health, economic activities, or environmental conservation; and (f) areas used for livelihood activities (hunting, fishing, grazing, gathering, agriculture, etc.) or religious or ceremonial purposes of a customary nature.
Attachment 2
Outline of Indigenous People’s Development Plan: the Memorandum of Agreement

As an indicative outline (adapted from the Administrative Order preceding the FPIC Guidelines of 2006 of the NCIP), the MOA shall stipulate among others, the following:

a. The detailed premises of the agreement;
b. All parties involved;
c. Inclusive dates/duration of agreement;
d. The benefits to be derived by the host ICC/IPs indicating the type of benefits, specific target beneficiaries as to sector and number, the period covered, and other pertinent information that could guide the future monitoring and evaluation of the MOA;
e. Use of all funds to be received by the host ICC/IP communities, if any, and ensuring that a portion of such funds shall be allocated for development projects, social services and/or infrastructures in accordance with their development framework;
f. Detailed measures to protect IP rights and value systems;
g. Detailed measures to conserve/protect any affected portion of the ancestral domain critical for watersheds, mangroves, wildlife sanctuaries, forest cover, and the like, as might be applicable;
h. Responsibilities of the proponent as well as the host IP community;
i. The MOA monitoring and evaluation schemes; and
j. Penalties for non-compliance or violation of the terms and conditions.
1. The breadth, depth, and type of analysis required for the social assessment are proportional to the nature and scale of the proposed project’s potential effects on the Indigenous Peoples.

2. The social assessment includes the following elements, as needed:

   (a) A review, on a scale appropriate to the project, of the legal and institutional framework applicable to Indigenous Peoples.
   (b) Gathering of baseline information on the demographic, social, cultural, and political characteristics of the affected Indigenous Peoples’ communities, the land and territories that they have traditionally owned or customarily used or occupied, and the natural resources on which they depend.
   (c) Taking the review and baseline information into account, the identification of key project stakeholders and the elaboration of a culturally appropriate process for consulting with the Indigenous Peoples at each stage of project preparation and implementation (see paragraph 9 of this policy).
   (d) An assessment, based on free, prior, and informed consultation, with the affected Indigenous Peoples’ communities, of the potential adverse and positive effects of the project. Critical to the determination of potential adverse impacts is an analysis of the relative vulnerability of, and risks to, the affected Indigenous Peoples’ communities given their distinct circumstances and close ties to land and natural resources, as well as their lack of access to opportunities relative to other social groups in the communities, regions, or national societies in which they live.
   (e) The identification and evaluation, based on free, prior, and informed consultation with the affected Indigenous Peoples’ communities, of measures necessary to avoid adverse effects, or if such measures are not feasible, the identification of measures to minimize, mitigate, or compensate for such effects, and to ensure that the Indigenous Peoples receive culturally appropriate benefits under the project.