

Block I General details

1

Location of the PCB disposal facility:

Name of Facility: Workshop and warehouse of Cambodian Electricity Authority

City: Phnom Penh Country: Cambodia

Note : So far, Cambodia has no PCB disposal facility yet. All PCB wastes and PCB contaminated materials are under control of the Cambodia Electricity Authority.

(Provide address information in Block IV)

2

Licence / authorization:

Is this facility licensed or authorized to handle PCBs? Yes No

If "Yes":

(i) Nature of licence / authorization:

(ii) Please submit the licensing history *(please attach to this questionnaire)*

Issuing authority *(name)*:

National Local or Independent

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Please provide information on storage at the facility including:

Capacity for the various PCB waste and equipment types:

- 100 % PCB oil
- Mineral oil contaminated by PCB
- Waste oil contaminated by PCB
- Soil contaminated by PCB
- Drum and dewatering machine contaminated by PCB
- Electrical metallic part contaminated by PCB
- Non metallic part contaminated by PCB

Method:

- Reusing
- Selling for recycling metallic part
- Disposal of at open-burning dumping site

Holding time:

Since 1983

4	<p>Worker protection <i>(Please summarize protective measures applied during treatment of PCB wastes)</i></p> <p>No</p> <p>Does the facility have an accident book? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Most frequent cause(s) of incidents involving PCBs:</p> <p>No record</p>
5	<p>Opinion box - PCB Management issues <i>(Please describe briefly)</i></p> <p>What are your major concerns?</p> <ul style="list-style-type: none"> - Workers who work with material or equipment contaminated by or contained PCB have no knowledge of hazard of PCB, and never use protective measures - Mineral oil contaminated by PCB are sold at market and used as machine oil and polish oil - Metallic part contaminated by PCB are recycled by method without safe to the environment <p>Can you identify research and development needs in PCB management that would be beneficial for your region and waste managers worldwide?</p> <ul style="list-style-type: none"> - Conduct full survey to identify equipment and material contaminated by PCB - Provide awareness of PCB hazard to workers at warehouse and electricity supply

Block II Types of PCB wastes

Part A: Treatment of PCB containing equipment/material

Part A1: Metallic Parts

A1.1	Types of metallic PCB equipment/material treated: 1- Transformer 2- Part of transformer 3- Metallic drum 4- Dewatering machine <u>Note: There are no treatment facilities for metallic part containing PCB in Cambodia.</u>	Limitation on waste accepted <i>(please specify, if appropriate)</i> Not yet regulate		
		Concentration <i>(specify the unit)</i> unit: No		Quantity <i>(specify the unit)</i> unit: NA
		min	max	
	<input type="checkbox"/> Equipment containing 100 % PCB	No	No	NA
	<input type="checkbox"/> Equipment containing mineral oil contaminated by PCB	No	No	NA
<input type="checkbox"/> Others:	No	No	NA	
Please specify any other limitation on waste accepted: No				
A1.2	Presentation of metallic equipment/material In what form must the metallic PCB equipment/material be presented: <input checked="" type="checkbox"/> Drums <input checked="" type="checkbox"/> Other packaging: Dewatering machine to clean mineral oil for reusing <input type="checkbox"/> Other constraints:			

A1.3

Treatment of metallic PCB equipment/material

Immediate destruction of metallic equipment/material containing PCB? Yes No

If 'Yes', please specify the applied technology in Part III

Extraction of PCB? Yes No

If 'Yes':

- please specify the applied technology in Part III
- Is the decontaminated metallic equipment/material subjected to reuse/recycling? Yes No

If 'Yes', please specify in **Block II Part C** (Reuse and recycling)

Part A: Treatment of PCB containing equipment/material

Part A2: Non-metallic Parts

A2.1	Types of non-metallic PCB equipment/material treated: 1- Part of transformer (wood) <u>Note: There are no treatment facilities for non-metallic part containing PCB in Cambodia.</u>	Limitation on waste accepted <i>(please specify, if appropriate)</i> Not yet regulate		
		Concentration <i>(specify the unit)</i> unit: No		Quantity <i>(specify the unit)</i> unit: NA
		min	max	
	<input type="checkbox"/> PCB-containing materials (clothes, cables, etc.)	No	No	NA
	<input type="checkbox"/> PCB-contaminated residues, sludges	No	No	NA
	<input type="checkbox"/> PCB-contaminated soils and sediments	No	No	NA
	<input type="checkbox"/> Packaged / drummed waste	No	No	NA
	<input type="checkbox"/> Other:	No	No	NA
Please specify any other limitation on waste accepted: No				
A2.2	<p>Presentation of non-metallic equipment/material</p> <p>In what form must the non-metallic PCB equipment/material be presented:</p> <p><input type="checkbox"/> Drums</p> <p><input type="checkbox"/> Other packaging:</p> <p><input checked="" type="checkbox"/> Other constraints: In open place of warehouse and repairing transformer workshop</p>			

A2.3

Treatment of non-metallic PCB equipment/material

Immediate destruction of non-metallic equipment/material containing PCB? Yes No

If 'Yes', please specify the applied technology in Part III

Extraction of PCB? Yes No

If 'Yes':

- please specify the applied technology in Part III
- Is the decontaminated non-metallic equipment/material subjected to reuse/recycling? Yes No

If 'Yes', please specify in **Block II Part C** (Reuse and Recycling)

Part B: Treatment of PCB oils and PCB waste oils

B1	<p>Types of PCB oils and PCB waste oils treated:</p> <p>1- 100 % PCB oils 2- Mineral oils contaminated by PCB 3- Oils contaminated by PCB 4- Soil/sediment in repairing transformer workshop</p> <p>Note: <u>There are no treatment facilities for non-metallic part containing PCB in Cambodia.</u></p>	<p>Limitation on waste accepted (please specify, if appropriate) Not yet regulate</p>		
		<p>Concentration (specify the unit)</p>	<p>Quantity (specify the unit)</p>	
		<p>unit: No</p>	<p>unit: NA</p>	
		<p>min</p>	<p>max</p>	
	<p><input type="checkbox"/> 100 % PCB oils</p>	<p>No</p>	<p>No</p>	<p>NA</p>
<p><input type="checkbox"/> Mineral oils contaminated by PCB</p>	<p>No</p>	<p>No</p>	<p>NA</p>	
<p><input type="checkbox"/> Waste oils contaminated by PCB</p>	<p>No</p>	<p>No</p>	<p>NA</p>	
<p><input type="checkbox"/> Other:</p>	<p>No</p>	<p>No</p>	<p>NA</p>	
<p><i>Please specify any other limitation on waste accepted: No</i></p>				
B2	<p>Presentation of PCB oils and PCB waste oils</p> <p>In what form must the PCB oils and PCB waste oils be presented:</p> <p><input checked="" type="checkbox"/> Drums</p> <p><input type="checkbox"/> Other packaging:</p> <p><input checked="" type="checkbox"/> Other constraints: Dewatering machine</p>			
B3	<p>Treatment of PCB oils and PCB waste oils</p> <p>Please specify the applied technology for the destruction of PCB oils and PCB waste oils in Part III</p>			

Part C: Reuse & Recycling of decontaminated PCB equipment/material

C1	<p>Types decontaminated PCB equipment/material treated:</p> <p><u>Note: There are no decontamination of PCB equipment/material for reusing in Cambodia.</u></p>	<p>Limitation on waste accepted <i>(please specify, if appropriate)</i> Not yet regulate</p> <p>Quantity <i>(specify the unit)</i> unit: NA</p>
	<input type="checkbox"/> Transformers	NA
	<input type="checkbox"/> Capacitors	NA
	<input type="checkbox"/> Materials (clothes, cables, etc.)	NA
	<input type="checkbox"/> Residues, sludges	NA
	<input type="checkbox"/> Soils and sediments	NA
	<input type="checkbox"/> Other:	NA
	<p><i>Please specify any other limitation on waste accepted: No</i></p>	
C2	<p>Presentation of decontaminated PCB equipment/material</p> <p>In what form must the decontaminated PCB equipment/material be presented:</p> <p><input type="checkbox"/> Drums</p> <p><input type="checkbox"/> Other packaging:</p> <p><input type="checkbox"/> Other constraints:</p>	

C3

Treatment of decontaminated PCB equipment/material

Reuse and Recycling of decontaminated PCB equipment/material? Yes No

If 'Yes', please specify the applied technology in Part III

Is the decontaminated PCB equipment/material disposed of? Yes No

If 'Yes', please specify:

Transport to the disposal site? Yes No

If 'Yes':

International transport

National transport

Location of disposal site: No

Please provide a short description of disposal site: No

Note: Equipment and material contaminated by PCB are sold without PCB decontamination for recycling (metal recovery) .

Block III Detailed information on applied technologies		
1	The following description refers to Block II, Part:	Type of PCB waste or decontaminated equipment/material:
	<input type="checkbox"/> A1 (Treatment of metallic PCB equipment/material)	No
	<input type="checkbox"/> A2 (Treatment of non-metallic PCB equipment/material)	No
	<input type="checkbox"/> B (Treatment of PCB oil and PCB waste oil)	No
	<input type="checkbox"/> C (Reuse and recycling of decontaminated PCB equipment/material)	No
2	<p>Applied technologies (Please specify the technology used for disposal):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pyrolysis / gasifiers <input type="checkbox"/> Gas Phase Chemical Reduction (GPCR) <input type="checkbox"/> Base Catalysed Decomposition (BCD) <input type="checkbox"/> Sodium Reduction <input type="checkbox"/> Super-Critical Water Oxidation (SCWO) <input type="checkbox"/> Plasma Arc <input type="checkbox"/> Molten Salt Oxidation <input type="checkbox"/> Solvated Electron Technology <input checked="" type="checkbox"/> Retrofilling <input type="checkbox"/> Other: <p>Type of technology (1-sentence description): Used dielectric oil has been reused for retrofilling transformer after dewatering</p> <p>Description of the technology please provide additional information as appropriate (<i>summarize here and, if necessary, attach documentation</i>)</p> <p>Commissioned? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Year:</p> <p>Can the technology be used in a mobile facility? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Note : Cambodia never applied any technology for PCB treatment</p>	

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State of development

Does the technology exist as an industrial unit? Yes No

If "No", please indicate when it will become operational: Depend on technical assistance

If "Yes", please indicate how many units exist:

In what countries:

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Pretreatment:

Does the technology require any pretreatment procedures? Yes No

If "Yes", please specify required pretreatment procedures:

- Thermal Desorption
 Dilution
 Low Temperature Rinsing
 Electro-osmosis
 Draining/Solvent washing
 Dismantling/Shredding
 Other:

5

Byproducts

What byproducts does the technology produce? *(please specify below)*

(There are no any technology used for PCB treatment in Cambodia)

Byproduct	Kind	Amount
Liquids:		L per tonnes of waste treated
Solids:		kg per tonnes of waste treated
Air:		m ³ per tonnes of waste treated

Does the technology allow all byproducts to be monitored for POPs*/PTS** before release? Yes No

If POPs*/PTS** are discovered, can the byproducts be returned to the process for further treatment? Yes No

Are any of the byproducts classified as other sorts of hazardous wastes? Yes No

If "Yes" please specify:

What volumes of such byproducts are generated by handling a unit volume of PCB wastes:

Can third party monitoring data be provided? Yes No

If "Yes", please attach to this questionnaire.

* POPs: Persistent Organic Pollutants
 ** PTS: Persistent Toxic Substances

How are byproducts disposed of? *(please describe briefly)*

6	<p>Efficiency <i>(please specify, if appropriate)</i></p> <p>Destruction efficiencies (DEs): %</p>
7	<p>Monitoring & Control of releases</p> <p>Note : There are no legislation and monitoring on PCB in Cambodia</p> <p>What technologies are used to monitor releases:</p> <p>Air :No Effluents: No Solids: No</p> <p>Are all releases monitored for POPs/PTS before release? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If POPs*/PTS** are discovered, can the releases be returned to the process for further treatment? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Are any of the releases classified as hazardous wastes? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If "Yes" please specify:</p> <p>What technologies are used/ required to monitor and treat any such releases prior to release:</p> <p>What volumes of such releases are generated by handling a unit volume of PCB wastes:</p> <p>Is third party monitoring data available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><i>If "Yes", please attach to this questionnaire.</i></p> <p style="text-align: right;">* POPs: Persistent Organic Pollutants ** PTS: Persistent Toxic Substances</p>
	<p>How are releases disposed of? <i>(please describe briefly)</i></p>

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Disposal costs

What are the *approximate* costs for applying the technology per unit[‡], **including** costs for all technical pretreatment steps, **excluding** all costs **not** related to the technical application of the technology (transport costs, costs for disposal of decontaminated transformers/capacitors/materials, etc.)?

Please specify type of treated/disposed PCB equipment/material/oil below:

(Never has such practice)

	Costs per unit [‡]	Currency
a)		
b)		
c)		
d)		
e)		
f)		
g)		

[‡] Specify the unit for a) to g):

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Treatment capacities and scaling (*tonnes per year for main waste & equipment types*)

Capacity of existing facilities: No units[‡] per year

Can the technology be adapted to higher or lower capacities? Yes No

If "Yes":

- (i) What is the capacity of the smallest commercially viable facility: units[‡] per year
- (ii) What is the capacity of the largest commercially viable facility: units[‡] per year

Does the adaptation will cause additional costs? Yes No

If "Yes" specify the increase in costs for the adaptation (%) of the initial costs:

- (i) For smaller plants: %
- For larger plants: %

[‡] Please specify the unit:

Block IV**Facility: Address and Service Information****1**

Facility Name: Cambodia Electricity Authority

Address: EDC Building, St Yukunthor, Daun Penh

City/Town: Phnom Penh

P.O. Box:

District/State:

Country: Cambodia

Telephone: 855-23-426-938

Fax: 855-23-426-938

Email: edc@bigpond.com.kh

Web site:

Person completing form

Name: Chea SINA

Position: SC Focal Point

Parent Company *(if different)*

Address:

City/Town:

P.O. Box:

District/State:

Country:

Telephone:

Fax:

Email:

2	<p>Other Services offered by the company</p> <ul style="list-style-type: none"><input type="checkbox"/> Laboratory analysis / testing<input type="checkbox"/> PCB waste packaging for shipment<input type="checkbox"/> PCB classification / labeling<input type="checkbox"/> Clean-up of PCB contaminated sites<input type="checkbox"/> PCB wastes transport<input checked="" type="checkbox"/> Other PCB-related services: Repairing transformer, Dewatering dielectric oil, Selling metallic part
3	<p>Further information</p> <p>Identify any company information (brochures, notes etc...) provided separately and if you wish provide additional comments on your services in not more than 50 words:</p>