GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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General Project Information

Project Title	
Polychlorinated Biphenyls-free Indonesia: Financing a shift to more efficient energy systems through the elimination of related waste and contaminated equipment	
Region	GEF Project ID
Indonesia	11425
Country(ies)	Type of Project
Indonesia	FSP
GEF Agency(ies):	GEF Agency ID
UNIDO	230270
Executing Partner	Executing Partner Type
Ministry of Environment and Forestry	Government
GEF Focal Area (s)	Submission Date
Chemicals and Waste	10/18/2023
Project Sector (CCM Only)	
Taxonomy	
Focal Areas, Persistent Organic Pollutants, Chemicals and Waste, Polychlorinated Biphenyls	
Type of Trust Fund	Project Duration (Months)
GET	60
GEF Project Grant: (a)	GEF Project Non-Grant: (b)
7,245,000.00	0.00
Agency Fee(s) Grant: (c)	Agency Fee(s) Non-Grant (d)
688,275.00	0.00
Total GEF Financing: (a+b+c+d)	Total Co-financing
7,933,275.00	50,800,000.00
PPG Amount: (e)	PPG Agency Fee(s): (f)
200,000.00	19,000.00
PPG total amount: (e+f)	Total GEF Resources: (a+b+c+d+e+f)
219,000.00	8,152,275.00
Project Tags	
CBIT: No NGI: No SGP: No Innovation: No	

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”.(max. 250 words, approximately 1/2 page)

This project will build upon the results and lessons learned from the previous GEF ID 4446 project, titled 'Introduction of Environmentally Sound Management and Disposal Systems for PCBs Wastes and PCB-contaminated Equipment,' hereinafter referred to as 'PCB Phase 1' for brevity. Phase 1 has successfully delivered substantive outputs, including the establishment of the PCB disposal facility in the country. The proposed project will build on the results of Phase 1.

A PCB Phase 2 Project is proposed to enhance the work on the sustainable outcome achieved under the PCB Phase 1 project, with the following objectives:

- To ensure better enforcement of the MR on PCB management and strengthen PCB management regulation, including the possibility of introducing administrative and financial sanctions for non-compliance with the obligations envisaged by the Stockholm Convention, and strengthening the enforcement and inspection capacity monitoring capacity of the environmental authority.
- To develop a set of robust financing mechanisms, encompassing both facilitating payments for PCB disposal services and mobilizing funds under a newly developed Environmental and Infrastructure Damage Insurance Scheme (EIDIS), which aims at supporting the environmentally sound disposal or treatment of transformers contaminated by PCB and their replacement, partially supported by the governmental and donor funds, but significantly contributed by transformer owners. The proposed mechanism will allow reimbursement of the decontamination and replacement of PCB contaminated equipment only for such enterprises who are compliant with at least the PCB inventory and who have contributed to the funds in a way which is proportional to the number of transformers owned. This mechanism would result in a sort of revolving green funds which could be managed by governmental institutions or private entities.

These two 'push-pull' measures will stimulate the market for environmentally-sound disposal of PCBs, with funds originating mainly from the enterprises themselves backed by policy support from the government. This approach aims to achieve the core project objective, which is to establish a self-sustaining mechanism to ensure Indonesia's compliance with the Stockholm Convention deadline by 2028.

The current proposal will lead to increased adoption of ESM practices for PCBs by major PCB owners, involving the identification, declaration, and disposal of PCB-contaminated equipment and oil through the facility established under PCB Phase 1. In this manner, the project aims to directly dispose of at least 10,000 tons of PCB oil and contaminated equipment while establishing a sustainable system for expanding PCB disposal throughout the project's duration and beyond.

The project will engage the relevant line ministries, including the Ministry of Environment and Forest, the Ministry of Industry, and the Ministry of Energy and Mineral Resources, the Ministry of Finance as well as major owners of electrical equipment used in power generation, including oil and gas, pulp and paper, chemicals, mining, smelting/metallurgy, iron and steel, among others.

Indicative Project Overview

Project Objective

To establish a sustainable system for the fulfilment of the Stockholm Convention deadline on PCB in Indonesia, with the direct ESM disposal of not less than 10,000 tons of PCB

Project Components

1. Policy and regulatory coherence

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
500,000.00	3,500,000.00

Outcome:

1.1.Enforcement o f existing policies and regulations on PCBs management further strengthened to ensure effective implementation for the achievement of the Stockholm Convention deadline.

Output:

1.1.1. Existing policy and regulation on PCBs management are strengthened to ensure compliance with Stockholm Convention requirements

1.1.2. ESM of PCBs is integrated into existing national and international environmental management performance assessment, reporting and certification

2. Green financing mechanism established to facilitate the compliance with PCB regulation

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
800,000.00	5,600,000.00

Outcome:

2.1. Options for green financing of ESM and registration PCB contaminated equipment identified and implemented

Output:

2.1.1.Green financing options (green bonds, revolving funds, fiscal incentives) suitable for the decontamination of PCB contaminated transformers explored and selected.

2.1.2. A green financing mechanism to support the ESM of at least 10,000 PCB-contaminated transformers is funded with the support of private or public financial partners and managed.

2.1.3 An Environmental and Infrastructure Damage Insurance Scheme (EIDIS) for the phaseout of obsolete transformers established

3. Capacity for environmentally safe management of PCB equipment and waste established and PCB disposed of

Component Type	Trust Fund
Investment	GET
GEF Project Financing ($)	Co-financing ($)
5,300,000.00	37,000,000.00

Outcome:

3.1. ESM of PCBs through identification, declaration, proper handling and disposal

Output:

3.1.1. Capacity for PCB inventory, management and disposal of major PCB owners established through classroom and on-site training.

3.1.2. PCB management plans developed and agreed with at least major owners of PCB in the country.

3.1.3. At least 10000 Tons of PCBs wastes are disposed in an environmentally-sound manner

M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
300,000.00	2,100,000.00

Outcome:

4.1. Project Knowledge and lesson learnt disseminated.

4.2. Effective project monitoring and evaluation implemented

Output:

4.1.1. Knowledge management including communication events and project website conducted.

4.2.1 Project monitoring and project inception conducted.

4.2.2. Project mid-term review and terminal evaluation carried out.

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)

1. Policy and regulatory coherence	500,000.00	3,500,000.00
2. Green financing mechanism established to facilitate the compliance with PCB regulation	800,000.00	5,600,000.00
3. Capacity for environmentally safe management of PCB equipment and waste established and PCB disposed of	5,300,000.00	37,000,000.00
M&E	300,000.00	2,100,000.00
Subtotal	**6,900,000.00**	**48,200,000.00**
Project Management Cost	345,000.00	2,600,000.00
Total Project Cost ($)	**7,245,000.00**	**50,800,000.00**

Please provide justification

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

1. The significance of Indonesia's contribution to global industrial growth is underscored by its membership in the G20 countries. In 2020, the country's industrial turnover exceeded USD 400 billion, positioning Indonesia as the 12th largest industrial nation in the world and the 5th largest in Asia. In the first quarter of 2020, while many countries around the world experienced negative economic growth due to the global Covid-19 pandemic, Indonesia, on the contrary, achieved positive growth.

2. Following a consistent positive trend in industrial growth, by the end of 2022, Indonesia is aiming for an optimistic target of 5.4% economic growth in 2023. This growth will be leveraged by demographic bonuses, digitalization, and controlled inflation. However, such an optimistic projection for future industrial growth might expose Indonesia to substantial economic losses due to the need to address environmental degradation and public health issues.

3. Indonesia's promising industrial growth is driven, among other factors, by its power generation, transmission, and distribution capacity, which provides electricity to over 26 million business establishments within the country. In 2020, UNIDO estimated that there were at least 1.37 million transformers operated and owned by private entities, in addition to over 550,000 operated by the state-owned electrical company, PT. Perusahaan Listrik Negara (PLN). This significant number of transformers is susceptible to contamination by Polychlorinated Biphenyls (PCBs). PCBs are a group of highly toxic chemicals that have been globally banned for production, distribution, and use under the Stockholm Convention for Persistent Organic Pollutants. While they were previously used for various purposes, PCBs are now primarily found in electrical transformers, capacitors, and discarded dielectric oil.

4. Indonesia initially estimated a nationwide stockpile of approximately 23,000 tons of PCBs. However, a more systematic statistical analysis, evaluating the results of PCBs inventory data drawn from over 4,500 samples taken from more than 1,000 industries in Java and Sumatra, extrapolates a significantly higher figure. From just six major industrial sectors, the PCBs Project estimates the presence of at least 120,000 PCB-contaminated transformers of various sizes, constituting more than 880,000 tons of PCBs (over 240,000 tons of PCB-contaminated oil and more than 640,000 tons of contaminated transformer carcasses). This estimation needs to be verified through an extensive self-inventory and reporting mechanism.

5. Further analysis of the PCBs inventory data revealed the main cause of PCB contamination in Indonesia. Despite not being a producer of PCBs, the UNIDO inventory team discovered that only 8.5% of samples (386 transformers) matched the profile of historical PCBs (manufactured between 1930 and 1985 and imported from known PCB-producing countries). The remaining 91.5% consisted of transformers produced after 1985 and/or manufactured in non-PCB-producing countries, including local production. While the incidence of PCB contamination was relatively low, with only 396 PCB-contaminated transformers out of 4,524 sampled transformers (8.75%), it was observed that only 30.3% were historical PCBs (120 out of 396 PCB-contaminated transformers). The remaining 276 (69.7%) were instances of cross-contaminated PCB transformers.

6. The rate of PCB cross-contamination in Indonesia is twice the average rate observed in Europe (approximately 30% or more). This phenomenon can be attributed to the practice of oil purification and retrofilling using used oil contaminated with PCBs, driven by a lack of awareness and knowledge among owners and private entities that provide oil purification and retrofilling services. Adhering to the core principles of sound PCBs management and hazardous waste management, the primary focus is on source minimization and

prevention. Without adopting these principles and curbing the spread of PCBs (thus preventing the accumulation of stockpiles), achieving the elimination of PCBs by 2028 will be an exceptionally challenging undertaking.

7. Another alarming piece of data gleaned from the inventory pertains to the strong indication of improper management of historical PCB transformers. There are indications that a significant quantity of PCBs may have been released from transformers without appropriate management measures, as these transformers were not recognized as containing PCBs. Out of the 386 transformers meeting the criteria for historical PCBs, only 120 units contained PCBs at levels of 50 PPM or greater—of which merely six units seemed to be intact (with PCB levels exceeding 40%). This implies that the remaining 380 units contained PCB levels ranging from under 4,000 PPM to under 2 PPM. A model devised to quantify the number of retrofilling operations performed on each of these 380 transformers yielded an estimate of at least 4,700 tons of PCBs that might have been released into the environment. However, this estimation could very well represent just the tip of the iceberg, considering the number of transformers sampled—4,525 out of a total of at least 1.37 million transformers operating within the country (less than 1%).

8. Unmanaged PCB transformers, especially those classified as historical transformers, could very well be the root cause of pollution incidents in Indonesia. PCBs have been identified in the main rivers of Java (particularly in Jakarta) and in the fish consumed in both Java and Sumatra. The biomagnification of PCBs through the food chain has also been observed in Indonesia, as evidenced by the presence of PCBs in women's breast milk in both Java and Sumatra. However, research and environmental monitoring for PCBs remain limited.

9. If no further measures are taken to address the discharge of PCBs resulting from improper management by major PCB owners, the country could face even more severe PCB pollution. Moreover, the compliance of PCB owners remains relatively low. Out of the identified and registered 3,000 tons, only 80 tons (2.7%) have been properly disposed of using environmentally sound methods. It is beyond doubt that the country must take more substantial actions toward the environmentally sound management of PCBs. This is not only to fulfill the Stockholm Convention's obligation of complete disposal by 2028, but also, and most importantly, to safeguard its citizens and the environment from the serious consequences of PCB releases and exposure.

10. Currently, action against non-compliance with the Stockholm Convention that may be undertaken by the Conference of the Parties is limited and includes, as a last resort, suspending rights under Articles 4, 12, and 13 of the Convention.

11. The PCBs Phase 1 project aimed to introduce and implement a robust PCBs management system with the goal of reducing and/or eliminating releases from PCBs stockpiles and disposing of at least 3,000 tons of PCBs while maximizing opportunities for public-private partnerships. The PCBs Project achieved the following outcomes:

- The project achieved the adoption and endorsement of policies and legislation for PCBs management, aligning with the relevant obligations outlined in the Stockholm Convention. It resulted in the creation of a dedicated Ministerial Regulation on PCBs Management and the development of several technical guidelines.
- The project also bolstered institutional capacities for PCBs management at both central and provincial levels in Java and Sumatra. It established three public laboratories for PCBs analysis to support the national PCBs inventory in Java and Sumatra. Inventory activities successfully collected and tested nearly 10,000 transformers, encompassing both private and state-owned entities.
- Furthermore, the project played a pivotal role in enhancing public awareness regarding PCB-related issues. It conducted three workshops targeting various stakeholders, organized two national-scale public exhibitions, conducted 14 industrial induction meetings, and held 12 dissemination sessions for central and provincial governments. Overall, the project engaged with over 1,000 industries, 34 provinces, 400 municipalities/regencies, and more than 4,000 individuals.

- The project demonstrated the sound management of PCBs through proper collection, packaging, registration, labeling, transportation, storage, and disposal. It successfully installed and commissioned a non-thermal PCB disposal facility, which is hosted and operated by an experienced multinational hazardous waste management company.

12. However, as previously explained, the compliance rate for the adoption of environmentally sound management (ESM) for PCB-contaminated transformers remains relatively low. While the technical assistance provided by UNIDO-GEF has established a strong foundation for the country to embrace and implement ESM for PCBs (under GEF ID 446—the PCB Phase I Project), a significant barrier persists in achieving successful management and disposal of PCBs. This barrier primarily stems from the lack of adoption and implementation by industries, especially sectors that predominantly possess PCB-containing transformers. Several root causes contribute to this barrier:

- Relatively inadequate legal enforcement.
- Limited technical capacity among PCB owners.
- Limited financial resources to support the ESM of PCBs.

The explanations for these root causes are provided below:

(i) Relatively Low Legal Enforcement

13. As previously mentioned, Indonesia formulated and adopted a dedicated Ministerial Regulation (MR) to oversee the Environmentally Safe Management (ESM) of PCBs in the country. This MR encompasses not only technical guidance but also explicitly outlines obligations for all owners of electrical transformers, capacitors, and waste dielectric oil. These obligations include conducting PCB identification by the end of 2022 and ensuring disposal by the end of 2028. Currently, action against the non-compliance with the Stockholm Convention that may be undertaken by the Conference of the Parties are limited, and include, as a last resort, suspending rights under Articles 4, 12 and 13 of the Convention However, despite the issuance of this MR, there has been no significant increase in the number of companies embracing ESM practices for PCBs, nor has there been a substantial rise in PCB declarations.

14. Similarly, companies possessing PCB-containing transformers, as identified during the national PCBs inventory, have not taken significant action. In contrast, the Indonesian Government has been unable to compel PCB owners to fulfill their PCB inventory declarations.

15. Presently, according to national policies and regulations, sanctions related to PCBs can only be implemented for two specific reasons. First, in cases of PCB contamination of the environment. Second, upon exceeding the storage duration for PCB waste following declaration to the government. Currently, the possession of operational PCB-contaminated equipment is not considered a violation. Moreover, the MR itself, as per the national legal framework, lacks the authority to impose sanctions. Consequently, while a considerable number of industries have failed to perform PCB identification within the stipulated timeframe, the Indonesian Government does not possess specific legal measures that can be enforced against them.

(ii) Limited Technical Capacity Among PCB Owners

16. While many owners of electrical equipment were hesitant to embrace ESM of PCBs, several prominent companies took a collaborative approach. The State's Electrical Company, the State's Oil and Gas Company, and a few reputable industries ranging from automotive to cement, proactively participated in the project. However, they encountered limitations in terms of technical capacity. As a result, by the end of 2020, the PCBs Project commenced providing dedicated technical assistance to these companies in the form of consultations, primarily focusing on technical training sessions and management workshops.

17. Close consultations, along with the training and workshops, have proven to significantly expedite the adoption and implementation of ESM for PCBs. For instance, the State's Electrical Company (PT. PLN) publicly declared their adoption of ESM. Currently, all units of PT. PLN in Indonesia are in the process of developing PCBs Management Plans tailored to their unique circumstances while adhering to the fundamental principles of ESM for PCBs. The State's Oil and Gas Company (PT. PERTAMINA), which owns and operates a significant number of transformers and capacitors (second only to PT. PLN), promptly followed. By the end of 2022, this company organized three workshops, one of which was a national-scale workshop that invited UNIDO as the primary trainer. Similarly, the largest cement industry in Indonesia followed a similar trajectory.

18. This phenomenon validates that major leading industries are likely to adopt and implement ESM for PCBs when provided with technical assistance and support. For various reasons, however, the provisions of technical support for major PCB owners was conducted by the PCB Phase 1 Project towards the conclusion of its implementation.

(iii) Limited Financial Capacity to Finance ESM of PCBs

19. The adoption and execution of ESM for PCBs demand financial capacity and meticulous planning, particularly in terms of proper disposal. Presently, the cost for PCBs disposal in Indonesia stands at USD 5 per kilogram for relatively low-level concentration (up to 2,000 ppm), and only a single waste management company holds the license for such disposal. The necessity for prudent financial planning across all stages of ESM for PCBs and the fact that PCBs owners still have time until the end of 2028 are among the factors contributing to the relatively low disposal rate during the PCBs Project implementation.

20. A proposal was formulated and presented to the Government of Indonesia, suggesting the introduction of economic instruments and market-based incentives for PCBs disposal. However, this proposal was not adopted, owing to the national policy against subsidizing hazardous waste management.

21. Consequently, without a comprehensive strategy to enhance regulatory enforcement (via incentives and/or disincentives), without providing technical support to PCB owners, and without exploring potential financial avenues to facilitate disposal, the obstacles to adopting and implementing ESM for PCBs will persist in Indonesia. This situation hampers the nation's ability to fulfill its obligatory commitments under the Stockholm Convention.

RELEVANT PROJECT STAKEHOLDERS:

22. The project will engage with three main stakeholder categories:

- Governmental entities, primarily ministries, which hold regulatory authority over the environmental, electric power, and industrial sectors.
- The industrial sector, specifically the energy-intensive manufacturing sector and the power (energy) generation, transportation and distribution sectors.
- Civil society, encompassing environmental NGOs, with the ability to raise concerns about PCB contamination. Although this issue is confined to a limited number of enterprises, it has the potential to impact the entire population, because of the extreme toxicity of and the environmental behavior of PCBs.

The dynamics among these three stakeholder categories can be described relatively simply, but changing it is challenging.

From the perspective of the industry, it's important to consider that the cost of each transformer, when combined with the cost of lost production in case a transformer needs to be halted, can be significantly higher – ten times or more - than the cost of PCB decontamination. Consequently, it's unlikely that PCB transformer owners will voluntarily take actions towards environmentally sound management (ESM) treatment unless legally obligated to do so.

On the governmental side, addressing the PCB issue requires substantial monitoring and control efforts. In Indonesia, there are approximately 200,000 enterprises that own transformers, making it a formidable task to ensure their compliance with the Stockholm Convention requirements. The government lacks the necessary resources, and if they do exist, they would be likely allocated to other priorities. A stricter enforcement of the current PCB legislation in Indonesia would need a significant effort for the government requiring a strong political willingness,

In this context, the role of NGOs and environmental organizations becomes pivotal. They can exert political pressure to persuade both industry and government to take action. Their influence lies in shedding light on the fact that PCB contamination is not merely a technical concern limited to a specialized industry; it is a risk to every citizen due to its long term toxicity and the capacity to enter the human body through the food chain.

A detailed list of stakeholders is attached in **Annex G.**

B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

23. As described in the project rationale above, there are three main barriers that may prevent the achievement of the Stockholm Convention deadline on PCB in Indonesia:

- **Financial:** electrical transformers are quite expensive piece of equipment; the halting of their operation due to decontamination or testing results also in a significant financial loss due to missed generation of electricity. Environmentally- oriented projects usually does not have enough financial resources to cover the cost of transformer replacement, energy loss and PCB disposal. Therefore, only environmentally committed owners of PCB contaminated equipment will join this type of projects unless innovative approaches are set in place.
- **Regulatory**: In the absence of a regulatory framework which empower the environmental authority to establish mandatory deadlines and to impose sanctions and penalties, the liability risk for the owner of PCB transformers to comply with the Stockholm Convention deadline on PCBs is very low. More specifically, if the monetized liability risk is lower than the costs enumerated above, it is obvious that enterprises prefer to take that risk rather than comply with the Stockholm Convention requirements.
- **Technical knowledge and capacity**. In spite of the training and awareness raising activities, and the delivery of a technology for PCB decontamination effectively provided by the Phase 1 PCB project, there are still some enterprises which may be not aware that of the issue of PCB contaminated equipment, or which don't have the technical capacity to identify and properly manage such equipment.

24. The proposed project and associated will try to overcome such barriers through the achievement of the corresponding long term outcomes, which are listed below and described in more detail in the project description:

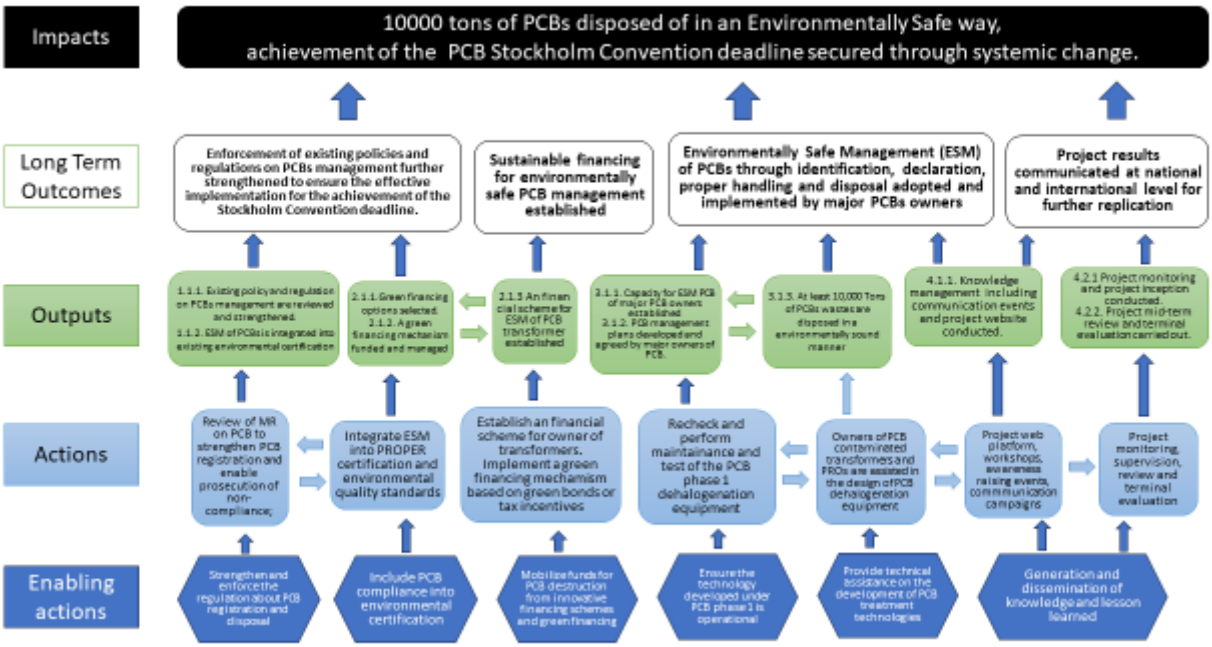
- Outcome 1.1. Enforcement of existing policies and regulations on PCBs management further strengthened to ensure compliance with Stockholm Convention requirements for PCBs.
- Outcome 2.1. Options for green financing of ESM and registration PCB contaminated equipment identified and implemented.

- Outcome 3.1 ESM of PCBs through identification, declaration, proper handling and disposal adopted and demonstrated by major PCBs owners.
- Outcome 4.1. Project Knowledge and lesson learnt disseminated.
- Outcome 4.2. Effective project monitoring and evaluation implemented

25. To achieve such long-term outcomes through project actions, the following assumptions have been made:

- **Governmental Commitment and ownership:** It is assumed that the Indonesian government is committed to address the issue of ESM of PCBs and is open to implementing comprehensive changes to regulations, enforcement mechanisms, and collaborations.
- **Legislative Changes:** It is established under the Phase 1 project that the needed legal changes and amendments, such as granting enforcement bodies the power to impose fines, and the establishment of an financing mechanism framework or of a compulsory insurance scheme for PCBs, can be feasibly achieved within the legal framework of the country and within the project timeframe.
- **Technical Expertise Availability:** It is assumed that technical expertise and knowledge related to the environmentally safe management of PCBs are available, either through local institutions or international collaborations.
- **Industry Cooperation:** It is assumed that the main PCB owners, like PT.PLN, PT. KRAKATAU DAYA LISTRIK, PT. PERTAMINA HULU ENERGI, PT. INDOCEMENT TUNGGAL PRAKARSA, PT. RIAU ANDALAN PULP AND PAPER. Are willing to take the lead in the environmentally safe disposal of PCBs and to engage in public-private partnerships to address the PCBs issue. It is also assumed that that the introduction of economic incentives and disincentives will influence industries to comply with regulations and adopt environmentally safe practices on PCB management.
- **Capacity for Monitoring and Enforcement:** It is assumed that, even with the support of the project, the relevant Ministries will have the capacity and authority to effectively monitor industries, identify non-compliance, and enforce penalties when necessary.
- **Public Awareness Impact:** It is assumed that the sharing of technical and environmental information on PCBs among relevant stakeholders, and public awareness campaigns will have a positive impact on the behavior of industries and individuals, encouraging responsible PCBs management.
- **International Collaboration:** It is assumed that the international collaboration and support secured through the GEF contribution and UNIDO expertise are catalytic to secure the needed change.
- **Timeframe Considerations:** It is also assumed that the outlined project initiatives can be implemented within the proposed timeframe allowing for significant and timely improvements in PCBs management and disposal practices.

26. Whilst a summary description of outcomes and outputs is provided below, the Theory of Change diagram reported in **Figure 1** illustrates in a concise manner the logic of the project



27. **<u>Component 1. Policy and regulatory coherence</u>**

<u>1.1. Enforcement of existing policies and regulations on PCBs management further strengthened to ensure effective implementation for the achievement of the Stockholm Convention deadline.</u>

A comprehensive review will be undertaken to assess the effectiveness of existing policies and regulations in PCBs management, with a particular focus on the lex specialis regulation for PCBs management. A prime opportunity exists to integrate ESM of PCBs, as regulated by the MR, into well-established national environmental management performance assessment and certification programs. Notably, the Public Disclosure Program for Environmental Compliance (PROPER) stands as one of these programs. PROPER serves as a complementary tool to incentivize industrial adherence to sound environmental management practices. This annual assessment categorizes industries into ranks such as Gold (highest), Green, Blue, Red, and Black (lowest), reflecting their environmental performance. Importantly, these rankings are publicly accessible.

The influence of PROPER's ranking extends beyond environmental considerations. Recognized by the national financial authority, Otoritas Jasa Keuangan, the ranking influences loan eligibility assessments and risk evaluations. Moreover, the ranking serves as an indicator for the Ministry of Environment and Forestry's Directorate General of Law Enforcement to initiate investigations into potential violations of environmental laws.

In light of the above, the integration of ESM of PCBs into PROPER promises to amplify the adoption and implementation of PCBs management by participating industries. Notably, key industrial sectors that possess a substantial number of PCBs-containing equipment, such as Oil and Gas, Power Generation, Chemicals/Petrochemicals, Pulp and Paper, Smelter/Metallurgy, Mining, and Iron and Steel, actively participate in PROPER. This collective participation potentially covers 30% to 50% of transformers and capacitors within the country. Prominent entities, like PT. PLN and PT. PERTAMINA, hold Gold Membership status in PROPER. By integrating PCBs assessment parameters into PROPER, the adoption and implementation of PCBs management can be catalyzed, driven by compliance considerations for these leading companies.

Additionally, international and national auditors for ISO 14001 and ISO 45001 have swiftly incorporated PCBs as a compliance parameter in their audits, following the issuance of the MR on PCBs Management in 2020. Reputable industries within the aforementioned sectors in Indonesia often hold certifications for both international standards. Adhering to these standards necessitates action for the adoption and implementation of ESM of PCBs, as mandated by national law. Furthermore, the Ministry of Industry has developed the Green Industry Certification to evaluate industries' efficiency and effectiveness in sustainable resource management, aligning industrial growth with environmental sustainability.

The previous PCBs project did not effectively manage and incorporate these certification and assessment frameworks into its operations. Recognizing the potential impact, the integration of ESM of PCBs into these assessment and certification mechanisms should not only incentivize industrial compliance but also increase the costs associated with non-compliance.

Based on the above, the following outputs will be envisaged to achieve this long-term outcome:

- 1.1.1. Existing policy and regulation on PCBs management are strengthened to ensure compliance with Stockholm Convention requirements.
- 1.1.2. ESM of PCBs is integrated into existing national and international environmental management performance assessment and certification.

28. Component 2. Green financing mechanism established to facilitate the compliance with PCB regulation

Outcome 2.1. Options for green financing of ESM and registration PCB contaminated equipment identified and implemented.

The successful adoption and implementation of ESM of PCBs necessitates meticulous financial planning. The present cost of PCBs disposal in Indonesia, at 5 USD/kg, is relatively high. Adding to this challenge, currently, only one waste management company is licensed for PCB disposal, creating a potential bottleneck in efficient management processes.

Within the framework of this component, the focus shifts toward exploring feasible green financing solutions that can not only mitigate existing challenges but also encourage more players to venture into the PCB management business.

A compelling avenue for financial facilitation could involve delving into the realm of green bonds or similar financial instruments. Green bonds, a form of fixed-income securities, are issued by organizations to secure funds for environmentally beneficial projects, such as the replacement or decontamination of PCB-contaminated transformers. This innovative approach could incentivize electric enterprises to invest in environmentally sound PCB management, with financing stemming from investors genuinely committed to supporting sustainable endeavors.

Alternatively, establishing a revolving fund could encompass a reservoir of resources made accessible to PCB owners for replacing or decontaminating PCB-contaminated transformers. This fund could find support through contributions from the government or private sector, with PCB owners repaying the funds over time, possibly at a reduced interest rate to encourage active participation. Such a mechanism would distribute the financial burden of PCB management over an extended period, rendering it more affordable for PCB owners.

The potential benefits of exploring tax incentives or subsidies offered by the government to PCB owners or waste management enterprises should not be overlooked. Such incentives could serve as a means to

alleviate a portion of the financial commitments associated with environmentally sound PCB management, effectively creating a financial impetus for prompt action.

Aligned with the Environmental and Infrastructure Damage Insurance Scheme (EIDIS) applied to PCBs, providing financial support for disposal could be particularly pertinent for industries within sectors historically contributing to the PCB issue. For instance, EIDIS funds might contribute to establishing the aforementioned revolving fund, creating a self-sustaining cycle of responsible PCB management.

Another option to be explored, is the establishment of a compulsory insurance scheme against PCB contamination for the owners of PCBs. This financial instrument could represent a mixture between a revolving fund and an EIDIS scheme. It could work with the support of private insurance companies and, like the EPR, could oblige all the owners of transformer to pay a certain amount of money to the insurance companies that would cover the cost for transformer replacement and PCB destruction in case a transformer is found contaminated by PCB.

An EIDIS measure could address PCB contamination by linking contributions to the EIDIS fund with the volume of dielectric oil contained in owned transformers. Enterprises calculate their contribution by multiplying a standard rate per unit volume of dielectric oil by the total oil volume in their transformers. Adjustments could be made based on the age of the transformers. This method would ensure fairness and accountability as contributions align with potential impact. Tiered rates can be introduced to accommodate smaller enterprises or those which have undertaken the analysis of their transformer oil through independent analytical services. Incentives, such as reduced rates or exemptions, can encourage enterprises to prove their transformers are PCB-free through proper testing and certification. The approach simplifies compliance and fund management while fostering transparency through regular reporting of oil volume and contributions. This EPR mechanism not only offers a quantifiable measure of responsibility but also promotes responsible transformer management by incorporating the potential for PCB contamination.

It is important to note that the funds raised through the EIDIS funds may be managed by governmental entities or be used directly by the enterprises to dispose of or decontaminate their PCB equipment.

These financial avenues, each presenting distinct advantages and considerations, serve as catalysts for the comprehensive success of the project's overarching goals. Given the close deadline (2028) envisaged by the Stockholm Convention, these financial mechanisms should reach an advanced state of consolidation already during the Project Preparation Grant (PPG) stage.

This long term outcome will be achieved through working out the following specific outputs:

- 2.1.1. Green financing options (green bonds, revolving funds, fiscal incentives) suitable for the decontamination of PCB contaminated transformers explored and selected.
- 2.1.2. A green financing mechanism to support the ESM of at least 20,000 transformers is funded with the support of private or public financial partners and managed.
- 2.1.3 An Environmental and Infrastructure Damage Insurance Scheme (EIDIS) for the phaseout of obsolete transformers established.

29. Component 3. Capacity for environmentally safe management of PCB equipment and waste established and PCB disposed of

Outcome 1.2 ESM of PCBs through identification, declaration, proper handling and disposal adopted and demonstrated by major PCBs owners

The strategic inclusion of technical backstopping by the PCB Phase 1 Project at the outset of 2021 has yielded tangible acceleration in the execution of Environmentally Sound Management (ESM) of PCBs at PT. PLN. This success has further motivated industries like oil and gas, cement, and pulp and paper,

as evidenced by the surge in requests for consultations, training, and workshops – all provided by the project.

Furthermore, the PCB phase 1 project has already established a PCB dehalogenation facility, with an overall capacity exceeding 1000 tons of PCB contaminated oil and 2000 tons of PCB contaminated carcasses per year if operated on a 2 shifts/day routine, which has therefore to be considered a resource for the PCB phase 2 project. Assuming that the plant will be again contracted and operational at the beginning of the 2nd project year, it can treat 4000 tons of PCB oil and 8000 tons of PCB contaminated carcasses over the project duration. To be on a safe side, considering the needed periods of overhauling of the equipment, it is safe to assume that the existing equipment could treat up to 3000 tons of PCB oil and 7000 tons of contaminated carcasses over the project duration.

A cohort of interested participants, including PT. PLN, PT. KRAKATAU DAYA LISTRIK, PT. PERTAMINA HULU ENERGI, PT. INDOCEMENT TUNGGAL PRAKARSA, and PT. RIAU ANDALAN PULP AND PAPER, has already emerged for the upcoming "PCBs Phase 2" project. Hailing from diverse sectors such as power generation, oil and gas, cement, and pulp and paper, these enterprises will serve as pivotal role models and exemplars within their industries to inspire analogous adoption.

Though the contamination of PCBs in electrical equipment may appear sporadic, strong indications suggest that these sectors – power generation, oil and gas, pulp and paper, chemicals, mining, smelter/ etallurgy, and iron and steel – are primary repositories of PCBs. This finding underscores the responsibility of these sectors to shoulder the nation's

overall costs for PCBs management and disposal.

Furthermore, it's evident that Historical PCBs, originating from equipment predating the global ban on PCBs around the 1980s, remain the chief contributors to PCB contamination in the environment and within other electrical equipment, particularly transformers. The phenomenon of cross-contamination occurs predominantly within entities that possess and operate such Historical PCBs, exacerbating stockpile accumulation within these companies.

Beneath this component's umbrella, the project assumes the role of partially supporting the operational expenses tied to Environmentally Sound Management of PCBs. This support is manifested in the form of an incentive, providing an average 1000 USD per ton of PCB that is disposed of in an environmentally sound manner, capped at a total of 10000 tons. This financial support could be used to cover the logistic expenses or part of the disposal fee, based on agreements between the operating entity of the PCB decontamination equipment and the PCB owners. The financial outlay for the implementation of PCB disposal technologies compliant with the Stockholm Convention's Best Available Techniques and Best Environmental Practices will be met by the partnering companies listed above, with additional support will be derived from Green Financing schemes, synergistically implemented under Component 2.

- 3.1.1. Capacity for PCB inventory, management and disposal of major PCB owners established through classroom and on-site training.
- 3.1.2. PCB management plans developed and agreed with 3 major owners of PCB in the country.
- 3.1.3. At least 10,000 Tons of PCBs wastes are disposed in an environmentally sound manner

30. Component 4: Monitoring and Evaluation

Outcome 4.1. Project Knowledge and lesson learnt disseminated.

The project will also ensure that the knowledge gathered under its implementation is properly disseminated and shared with all the stakeholders and the public, and that the project partners receive any needed

information related to the technologies for PCB inventory and disposal achieved by UNIDO in the course of implementation of similar projects. This will be done through communication events, trainings, development of a project website, broadcasting, and publication of project materials. The objective of the Knowledge Management activities will be to:

- Collate data from PCB inventory and elaborate them in different formats to ensure they can be made available to different audiences (general public, in compliance with the right to be informed on environmental issues; the scientific community; the private sector). In doing that, two approach will be followed: 1. Protection of sensitive information related to the power sector; 2.
- Make available the materials related to awareness raising and training events.
- Provide update on project achievements, including the amount of PCB collected and destroyed.
- Inform on project initiatives, including training, seminars, workshops, awareness raising events.
- Inform on financing mechanisms and opportunities in support of the destruction of PCBs
- Establish a regional forum on the gender-related effect of PCBs and other POPs, hosting scientific contribution from ASEAN countries, and carrying at least two international workshops on this topic during project life.

Envisaged outputs are:

- 4.1.1. Knowledge management including communication events and project website conducted.

Outcome 4.2. Effective project monitoring and evaluation implemented

Under this component, the project will establish a sound project monitoring and evaluation system, in compliance with UNIDO and GEF rule, which will include:

- Inception meeting and inception reports, with information updated to the time of project starting
- Development of objectively verifiable indicators, target, and periodical verification of the status of project compliance with such targets.
- Development of bi-annual project work-plan.
- Drafting of yearly project reports and Project Implementation reports.
- Yearly financial audits
- Project Mid Term Review
- Project Terminal Evaluation

Envisaged outputs are:

- 4.2.1 Project monitoring and project inception conducted.
- 4.2.2. Project mid-term review and terminal evaluation carried out.

Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

31. The project, since its design stage, is coordinating with the previous PCB Phase 1, i.e. the “Introduction of an Environmentally Sound Management and Disposal System for PCBs Wastes and PCB Contaminated Equipment in Indonesia” (GEF 4446) which has been accomplished in September 2023. The coordination ex-post (after PCB Phase 1 closure) stems from the need to handover the equipment established under the Phase 1 project to the new Phase 2 project, to continue the training effort which proved very effective, to ensure that lesson learnt during Phase 1 project are properly considered in Phase2 preparation and evaluation, and also to ensure that the personal skills achieved by experts engaged under Phase 1 are properly employed in Phase 2.

Similarly, the project intends to coordinate with other UNIDO PCB projects being carried out in the region, like:

- The Philippine's Implementation of PCB Management Programs for Electric Cooperatives and Safe e-wastes Management (GEF 9078);
- The Sri Lanka's Environmentally Sound Management and Disposal of PCBs Wastes and PCB Contaminated Equipment in Sri Lanka (GEF 5314)
- The Environmentally Sound Management and Final Disposal of PCBs in India (GEF 3775)
- The Lao PDR's PCB Management and Disposal at the Energy Sector (GEF 4782)

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	1392750	0	0	0
Expected metric tons of CO_2e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)				
Expected metric tons of CO_2e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	1,392,750			
Expected metric tons of CO_2e (indirect)				
Anticipated start year of accounting	2025			
Duration of accounting	10			

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 9 Chemicals of global concern and their waste reduced

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
10,000.00	0.00	0.00	0.00

Indicator 9.1 Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
Polychlorinated biphenyls (PCB)	10,000.00			

Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.3 Hydrochloroflurocarbons (HCFC) Reduced/Phased out (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.4 Number of countries with legislation and policy implemented to control chemicals and waste (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
1			

Indicator 9.5 Number of low-chemical/non-chemical systems implemented, particularly in food production, manufacturing and cities (Use this sub-indicator in addition to one of the sub-indicators 9.1, 9.2 and 9.3 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)

Indicator 9.6 POPs/Mercury containing materials and products directly avoided

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.7 Highly Hazardous Pesticides eliminated

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 9.8 Avoided residual plastic waste

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	1,500			
Male	3,500			
Total	**5,000**	**0**	0	**0**

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

The facility established under the PCB phase 1 project has the capacity to dispose 1000 tons of PCB contaminated oil and 2000 tons of PCB contaminated carcasses per year. Over 4 years of project activity, it is therefore assumed that it will treat not less than 7000 tons of PCB contaminated carcasses and 3000 tons of PCB oil. Based on the last inventory carried out under the PCB phase 1 project, this is still a limited fraction of the overall amount of PCB waste in the country.

Currently, the following companies have already committed to dispose their PCB under PCB phase 2 project: 5 large enterprises are ready to commit to PCB disposal: PT. PLN, PT. KRAKATAU DAYA LISTRIK, PT. PERTAMINA HULU ENERGI, PT. INDOCEMENT TUNGGAL PRAKARSA and PT. RIAU ANDALAN PULP AND PAPER. PT. PERTAMINA HULU ENERGI or PERTAMINA GROUP in general participated in the 2nd phase extended PCB inventory in 2019 – 2020 from five subsidiaries, namely PT. PERTAMINA REFINERY UNIT (RU) II, PT. PERTAMINA RU III, PT. PERTAMINA RU IV, PT. PERTAMINA RU VI and PT. PERTAMINA HULU ROKAN (previously CHEVRON). From the five subsidiaries, the team collected only 349 sample of transformers where 23 (6.6%) of them contained PCB 50 ppm or above, with total weight of 160 tons for oil and carcasses. This figure, however, far from being representative as only a fraction of transformers was sampled. PT. PERTAMINA HULU ROKAN for example was only sampled for 103 transformers out of more than 6,000 transformers they operated.

For the CO2 emission reduced, it is assumed that 7000 tons of contaminated carcasses treated by the project means that the industry will replace around 10,000 tons of transformers, which means that, at an average of around 2 tons per transformer, around 5000 units of transformers will be replaced. A 2-ton transformer has a capacity of 500 kVA. 5000 transformers have a total capacity of 75000000 KVa. Based on related literature, for each KvA the replacement of old (around 35yo) with new transformer allows a saving of 30KWh for one year. In Indonesia, the generation of CO2 per KWh is 0.619g/KWh. Therefore, 1,392,750 tons of CO2 is reduced if all the transformers carcasses decontaminated by the project are replaced with new transformer from co-financing sources.

On gender, while the sector itself is male-dominated, the project will aim to increase the participation of women in the decision-making process, capacity building and awareness raising activities.

Risks to Project Preparation and Implementation

Summarize risks that might affect the project preparation and implementation phases and what are the mitigation strategies the project preparation process will undertake to address these (e.g. what alternatives may be considered during project preparation- such as in terms of consultations, role and choice of counterparts, delivery mechanisms, locations in country, flexible design elements, etc.). Identify any of the risks listed below that would call in question the viability of the project during its implementation. Please describe any possible mitigation measures needed. (The risks associated with project design and Theory of Change should be described in the "Project description" section above). The risk rating should reflect the overall risk to project outcomes considering the country setting and ambition of the project. The rating scale is: High, Substantial, Moderate, Low.

Risk Categories	Rating	Comments
Climate	Low	The project does not envisage increase of CO2e emission as the PCB destruction technologies are based on non-combustion processes. Existing storage of PCB contaminated equipment may be exposed to risk of flood.
Environment and Social	Moderate	The chemical dehalogenation technologies proposed for PCB destruction may have a limited risk associated with the use of strong reagents. However, the procedures adopted to manage such chemicals reduce that risk at a minimum level. In none of the several GEF-funded projects using such technologies any accident occurred. There ay be further environmental risk associated with the transport of contaminated materials. This is an hazardous waste management project not entailing any social risk.
Political and Governance	Moderate	The project requires the strengthening and enforcement of the regulation on PCBs, as well as the development and implementation of a wide financing mechanism for supporting the ESM of all the PCB contaminated equipment before 2028. It should be noted that currently, provisions against non-compliant parties of the Stockholm

		convention have not established yet. In the absence of strong commitment from the government, there is a significant risk that the project could fail. However, already at PIF stage the government has expressed a strong commitment toward the solution of the PCB issue and 5 large enterprises committed to dispose their PCBs.
Macro-economic		No macro economic risks are associated with the project
Strategies and Policies	Moderate	There is a limited risk that the national strategy for the overall resolution of the issue of PCB contaminated equipment conflicts with the national strategy of the electric power sector in Indonesia. Involvement of the relevant stakeholders should be secured at an early stage in project design to resolve the potential conflict. At PPG, involvement of the Ministry of Industry and the Ministry of Energy and Mineral Resources will be sought.
Technical design of project or program	Low	There are no significant risk associate to the design of the project, given the specific experience UNIDO has gathered on PCB related projects worldwide over several years
Institutional capacity for implementation and sustainability	Moderate	The capacity of the Indonesian government and relevant industrial sectors regarding the disposal of PCB-contaminated transformers has already been enhanced during the previous 'PCB Phase 1' project. However, the fact that this project did not reach the planned decontamination target, along with the much larger scale of the 'PCB Phase 2' project, suggests that the capacity of these stakeholders needs

		to be further increased to avoid becoming a risk factor.
Fiduciary: Financial Management and Procurement	Low	UNIDO and the Indonesian government have already successfully completed the complex procurement procedures required to import PCB decontamination equipment. Procurement is therefore not a significant source of risk for this project.
Stakeholder Engagement	Low	The engagement of stakeholder is a critical factor for the success of the project. There is a very limited risk related to the incomplete engagement of stakeholders, given the work already undertaken at PCB phase 1. The relevant Ministries of GoI and the largest industrial enterprises of the electric, oil and gas and chemical sector, have been already involved at PIF stage. Other stakeholders, including smaller enterprises, NGOs, civil association will be involved at PPG stage.
Other		
Financial Risks for NGI projects		
Overall Risk Rating	Moderate	Overall risk rating is assessed as moderate. Mitigation measures, esp. on the 'moderate risks' should be put in place and should be addressed during the PPG.

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

32. The project is in line with Objective 3 of the Chemical and Waste Focal Area of the GEF-8 Programming strategies: Objective 3: Elimination of hazardous chemicals and waste, and in particular:

- Elimination of the use of polychlorinated biphenyls (PCBs) in equipment by 2025.
- Environmentally sound waste management/disposal of persistent organic pollutants including liquids containing PCBs and equipment contaminated with PCBs having a PCB content above 0.005%, in accordance

with paragraph 1 of Article 6 and part II of Anne-x A of the Convention, as soon as possible and no later than 2028; under the project, at least 10,000 tons of PCB waste will be collected and disposed of in an environmentally sound manner, as described under the component 3 of the project.

- Non-combustion, including green technologies to disposal of materials and products containing POPs, mercury, and chemicals of concern. The project will rely, for the destruction of PCBs, on non-combustion, chemical processes (chemical dehalogenation) already demonstrated under the PCB phase I project.

33. There are no country policies that might contradict the intended outcomes of the project. Indeed, in the course of the PCB phase I project, policies and legislation for PCBs management, in line with relevant obligations under the Stockholm Convention, where adopted and endorsed. The PCB Phase I project produced a dedicated Ministerial Regulation on PCBs Management and several technical guidelines. What is currently missing, and which will be established under this project, is a penalty scheme against non compliance with the current legislation, and an incentive scheme to support the disposal or treatment of PCB contaminated equipment

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities:

Civil Society Organizations: Yes

Private Sector: Yes

Provide a brief summary and list of names and dates of consultations

34. The following table illustrates the list of stakeholder consultation undertaken during the proposal preparation:

The list of stakeholders to be consulted during the PPG is attached as **Annex G**.

Names	Date of Consultation

MoEF, GEF	12 January 2023
MoEF	30 January 2023
MoEF, GEF OFP	28 Feb and 1 March 2023
MoEF	12 June 2023
MoEF	4 July 2023
Ministry of Environment, GEF Operational Focal Point, PT. PLN, PT. PPLi	3 October 2023
PT. Pertamina Hulu Rokan	4 October 2023

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant($)	Agency Fee($)	Total GEF Financing ($)
UNIDO	GET	Indonesia	Chemicals and Waste	POPs	Grant	7,245,000.00	688,275.00	7,933,275.00
Total GEF Resources ($)						**7,245,000.00**	**688,275.00**	**7,933,275.00**

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount ($)

200000

PPG Agency Fee ($)

19000

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	PPG($)	Agency Fee($)	Total PPG Funding($)
UNIDO	GET	Indonesia	Chemicals and Waste	POPs	Grant	200,000.00	19,000.00	219,000.00
Total PPG Amount ($)						**200,000.00**	**19,000.00**	**219,000.00**

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total($)
Total GEF Resources					**0.00**

Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
CW-3	GET	7,245,000.00	50800000

Total Project Cost		**7,245,000.00**	**50,800,000.00**

Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Ministry of Environment and Forestry	In-kind	Recurrent expenditures	2500000
Recipient Country Government	Badan Riset dan Inovasi Nasional (BRIN)	Equity	Investment mobilized	1000000
Recipient Country Government	Perusahaan Listrik Negara (PLN)	Equity	Investment mobilized	5000000
Donor Agency	Asian Development Bank	Loans	Investment mobilized	10000000
Donor Agency	Kfw Development Bank	Loans	Investment mobilized	5000000
Private Sector	PT Prasadha Pamunah Limbah Industri (PPLI)	Equity	Investment mobilized	5000000
Private Sector	Pertamina Hulu Rokan	Equity	Investment mobilized	2500000
Private Sector	PCB Owners	Equity	Investment mobilized	19500000
GEF Agency	UNIDO	Grant	Investment mobilized	100000
GEF Agency	UNIDO	In-kind	Recurrent expenditures	200000
Total Co-financing				**50,800,000.00**

Describe how any "Investment Mobilized" was identified

Investment mobilized is sourced out mainly from the contribution of the private sector on the management of their PCB wastes and phaseout of old transformers containing PCBs. Investment would also come from the loan component accessed by Perusahaan Listrik Negara (PLN), a government-owned corporation which has a monopoly on electric power distribution in Indonesia and generates the majority of the country's electrical power, from ADB and KfW Development Bank. The loan framework intends to address the shift of the country's grid to more efficient systems through the phase out of old transformers. The project will also tap government resources to ensure that the baseline projects are delivered. All these investments have been mobilized and will serve as strong baseline to the GEF incremental grant.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	Ganna Onysko	10/17/2023		+43 1 26026 3647	G.ONYSKO@unido.org
Project Coordinator	Carmela Centeno	10/17/2023		+43 1 26026 3385	C.CENTENO@unido.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)
Ms. Ibu Laksmi DHEWANTHI	Senior Advisor to the Minister on Industry and International Trade	Ministry of Environment and Forestry	10/19/2023
Ms. Laksmi DHEWANTHI	Director General of Climate Change	Ministry of Environment and Forestry	9/19/2023

ANNEX C: PROJECT LOCATION

Please provide geo-referenced information and map where the project interventions will take place

While the project targets the whole of Indonesia, PCB disposal will be undertaken at the PPLI facility in Bogor:

Location Name	Latitude	Longitude	Geo Name ID	Location and Activity Description
Nambo village, Klapanunggal, Bogor Regency, West Java Province - INDONESIA	-6.47166667	106.92255556	PCB disposal facility	**Location:** PT. Prasadha Pamunah Limbah Industry. **Activity:** Decontamination and dechlorination of PCB wastes.

ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title
ANNEX G List of Relevant Stakeholders
ES_Screening_SAP230270_Phase2_signed

ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
No Contribution 0	No Contribution 0	No Contribution 0	No Contribution 0

ANNEX F: TAXONOMY WORKSHEET