Environmentally sound destruction of PCBs in Brazil

Part I: Project Information

GEF ID
10368

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Environmentally sound destruction of PCBs in Brazil

Countries
Brazil

Agency(ies)
UNDP

Other Executing Partner(s)
Ministry of the Environment (MMA)

Executing Partner Type
Government

GEF Focal Area
Chemicals and Waste

Taxonomy
Chemicals and Waste, Focal Areas, Persistent Organic Pollutants, Polychlorinated Biphenyls, Demonstrate innovative approache, Influencing models, Deploy innovative financial instruments, Transform policy and

regulatory environments, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Civil Society, Stakeholders, Trade Unions and Workers Unions, Academia, Local Communities, Type of Engagement, Partnership, Consultation, Information Dissemination, Participation, Private Sector, Capital providers, Large corporations, Beneficiaries, Communications, Behavior change, Awareness Raising, Public Campaigns, Gender Mainstreaming, Gender Equality, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Knowledge Generation and Exchange, Access to benefits and services, Capacity Development, Participation and leadership, Capacity, Knowledge and Research, Innovation, Knowledge Generation, Training, Learning, Theory of change, Adaptive management, Indicators to measure change, Enabling Activities, Knowledge Exchange, South-South

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 0

Submission Date

10/10/2019

Expected Implementation Start

12/1/2021

Expected Completion Date

12/31/2026

Duration

60In Months

Agency Fee($)

917,700.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CW-1-1	Strengthen the sound management of industrial chemicals and their waste through better control, and reduction and/or elimination	GET	9,660,000.00	62,169,993.00
		Total Project Cost($)	**9,660,000.00**	**62,169,993.00**

B. Project description summary

Project Objective

To minimize risk to Persistent Organic Pollutants (PCBs) exposure of human beings and environment in compliance of Stockholm Convention, in an environmentally sustainable market approach, in Brazil.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 1: Institutional strengthening of government and other stakeholders, relative to POPs emissions reduction and management and elimination.	Technical Assistance	A. Technical, Financial and Operational outputs, aiming to strengthen the government institutions and project stakeholders developed.	A.1 National Management and Disposal Scheme established. A.2 Financial scheme for the elimination of total national PCBs inventory developed. A.3 Support to enforcement of the law for PCBs elimination from sensitive sites.	GET	1,000,000.00	6,435,817.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 2: Environmentally sound management and disposal of PCBs.	Technical Assistance	B. Environmentally sound management of PCBs improved. C. Environmentally sound disposal of substantive stock of PCBs achieved.	B.1 Pilot Projects (3) for decontamination (retrolling) facilities of PCBs contaminated transformers. B.2 Decontamination/Recycling Pilot Projects (2) of associations between elimination facilities and scrap recyclers for metals recovery. B.3 Improvement of 100 transformer?s maintenance facilities in Best Practices and Standards developed. C.1 Pilot project (1) of new processes for PCB destruction with assessment. C.2 Fifteen thousand (15,000) tons of PCB containing materials coming from sensitive sites and industry eliminated.	GET	7,900,000.00	50,842,955.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing ($)	Confirmed Co-Financing($)
Component 3: Lessons learned identified, monitored and assessed.	Technical Assistance	D. Lessons learned and Knowledge Management.	D.1 Knowledge management system for best practices and communication platform at national level established. D.2 M&E and adaptive management in response to needs and results from the Mid-Term Review and final findings with lessons learned applied.	GET	300,000.00	1,930,745.00
				Sub Total ($)	**9,200,000.00**	**59,209,517.00**

Project Management Cost (PMC)

GET	460,000.00	2,960,476.00
Sub Total($)	**460,000.00**	**2,960,476.00**
Total Project Cost($)	**9,660,000.00**	**62,169,993.00**

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Ministry of Environment; Ministry of Mines and Energy	In-kind	Investment mobilized	1,577,194.00
GEF Agency	UNDP	In-kind	Investment mobilized	59,345.00
Recipient Country Government	IBAMA; CETESB (SP); FEPAM (RS); SEMA (RS); FEAM (MG); INEMA (BA); SEMAR(TO)	In-kind	Investment mobilized	1,449,840.00
Recipient Country Government	IBAMA; CETESB (SP); FEPAM (RS); SEMA (RS); FEAM (MG); INEMA (BA); SEMAR(TO)	Grant	Investment mobilized	2,760,436.00
Other	ABRAHUE; Irmandade da Santa Casa de Miseric?rdia de S?o Paulo; University Hospital of Londrina /UEL	In-kind	Investment mobilized	95,699.00
Other	ABRAHUE; Irmandade da Santa Casa de Miseric?rdia de S?o Paulo; University Hospital of Londrina /UEL	Grant	Investment mobilized	31,739.00
Private Sector	WPA Ambiental; MG Trafos; TECORI; CETREL; FOXX Haztec; Vegoor; MGM ?leos (Analithical Laboratory); Mineraltech (insulating oils); Brastrafo- Sea Marconi; Laborat?rios ACS	In-kind	Investment mobilized	13,793,455.00
Private Sector	WPA Ambiental; MG Trafos; TECORI; CETREL; FOXX Haztec; Vegoor; MGM ?leos (Analithical Laboratory); Mineraltech (insulating oils); Brastrafo- Sea Marconi; Laborat?rios ACS	Grant	Investment mobilized	27,812,443.00
	APERAM; ARCELORMITTAL; GERDAU	In-kind	Investment mobilized	190,160.00

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
	APERAM; ARCELORMITTAL; GERDAU	Grant	Investment mobilized	6,909,537.00
Other	Amazonas Energia; Energisa Mato Grosso do Sul; Energisa Rond?nia; Energisa Para?ba; Energisa Borborema; Energisa Tocantins; Energisa Minas Gerais; Energisa Mato Grosso; Energisa Nova Friburgo; Energisa Sergipe; Energisa Sul Sudeste; Neoenergia Pernambuco; Neoenergia Rio Grande do Norte; Neoenergia Elektro Redes; LIGHT Energia; EDP S?o Paulo; DME Distribui??o	In-kind	Investment mobilized	2,913,077.00
Other	Amazonas Energia; Energisa Mato Grosso do Sul; Energisa Rond?nia; Energisa Para?ba; Energisa Borborema; Energisa Tocantins; Energisa Minas Gerais; Energisa Mato Grosso; Energisa Nova Friburgo; Energisa Sergipe; Energisa Sul Sudeste; Neoenergia Pernambuco; Neoenergia Rio Grande do Norte; Neoenergia Elektro Redes; LIGHT Energia; EDP S?o Paulo; DME Distribui??o	Grant	Investment mobilized	4,577,068.00
			Total Co-Financing($)	**62,169,993.00**

Describe how any "Investment Mobilized" was identified

The investment mobilized refers to investments that will be done in the future and does not include any past investments. Activities involve the reduction of releases of industrial POPs and other Hazardous Chemicals that are aimed to be eliminated during the Project's implementation Period. Among the activities that have been identified there are namely: Power transformer dechlorination (PCB), Elimination of PCB containing materials and Development of National Capacities.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)
UNDP	GET	Brazil	Chemicals and Waste	POPs	9,660,000	917,700
				Total Grant Resources($)	**9,660,000.00**	**917,700.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **false**

PPG Amount ($)

200,000

PPG Agency Fee ($)

19,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)
UNDP	GET	Brazil	Chemicals and Waste	POPs	200,000	19,000
				Total Project Costs($)	**200,000.00**	**19,000.00**

Core Indicators

Indicator 9 Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (metric tons of toxic chemicals reduced)

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

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)

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 Quantity of 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)
15,000.00	15,000.00		

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	9,440,000	9,440,000		
Male	9,440,000	9,440,000		
Total	18880000	18880000	0	0

Part II. Project Justification

1a. Project Description

a. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed;

1. Activities carried out during the PPG phase were aimed at complementing information and validating the assumptions underlying the Project Identification Form (PIF). The Table below shows an overview of stakeholder additions made in alignment between the project design at the ProDoc stage and the original PIF, as well as defining the role of project counterparts. After an extended participatory process (please refer to Table 2 of Annex 7 of the ProDoc: Stakeholder?s Classification, some adjustments were made to the original project strategy (as outlined in the PIF) in order to respond to changes in project institutional context and the identified stakeholders.

Changes in Project?s Strategic Results Framework between PIF and CEO ER	
Outputs	**Comments / Rational for additions**
Output B.1 is now rephrased as ?Pilot Projects (3) for decontamination (retrolling) facilities of PCBs contaminated transformers?, instead of ?Pilot Projects (3) for decontamination (retrolling) facilities of PCBs contaminated transformers in sensitive sites?. –	The rationale for this adjustment is that decontamination activities will take place not only in sensitive sites but also in large industrial facilities.
Additional stakeholders integrated at the PPG stage	**Comments / Rational for additions**
Beneficiaries	For the purposes of the project, the FSP beneficiaries have been split in two categories, i.e.: Sensitive sites and Indigenous Peoples and Civil Society. Table 4 of the ProDoc now describes the meaning of these stakeholders for this FSP.
Extended participation of private, CSOs and academic sectors	During the PPG, a wide range of stakeholders will be actively engaged during the execution of the different activities to achieve the foreseen outcomes, depending on the natura of the participating sector. Table 4 of the ProDoc now describes the meaning of these stakeholders for this FSP and their role in the FSP.
Academy	Two well-recognized universities have been engaged during the PPG. Table 4 of the ProDoc now describes their role in this FSP.

Source	**Number of Transformers**	**Transformers most likely to be contaminated with PCBs (tons)**	**Total mass of equipment**[16] **[tons]**	**Volume of Oil (tons)**
Power Sector (70%)	5,670,000	340,200	36,061	10,818

Large Private Sector and Sensitive sites (30%)	2,430,000	145,800	15,455	4,636
Total (100%)	**8,100,000**	**486,000**	**51,516**	**15,455**

PCB Main Core Business	Quantity	Main Locations
Sources of PCBs		
Electrical engineering and maintenance enterprises	To be reported by the Mid Term Review (MTR)	To be reported by the MTR
Transformer maintenance and overhaul workshops	Estimated in 1,000 facilities (it will be reviewed by the MTR)	Nationwide, generally located in the Southeast states of S?o Paulo, Minas Gerais and Rio de Janeiro
Retrofilling enterprises[1]	1,200 tons/year solids and 3,600,000 lts/year of mineral oil in one shift, which can triple the capacity on demand	Paran?: WPA
	2,500 tons/year of solid and 2,880 tons/year of mineral oil in 1 shift, being able to triple the capacity on demand	S?o Paulo: TECORI
	864 tons/year of air transformer and 1,536,000 lts/year of mineral oil in one shift, which can triple the capacity on demand	Minas Gerais: MG TRAFOS
PCB Stockpiling		
Interim PCB storage facilities	7,207 installations registered	Regions[2]: Southeast: 3,621 installations (50%) South: 1,705 installations (24%) Northeast: 994 installations (14%) Westcenter: 524 installations (7%) North: 363 installations (5%)
PCB Transport		

PCB transport companies	3,360 companies registered	Regions[3]: Southeast: 1,596 installations (48%) South: 772 installations (23%) Northeast: 579 installations (17%) Westcenter: 244 installations (7%) North: 169 installations (5%)
Incineration/chemical Elimination		
Incineration/chemical elimination facilities	Thermal Incineration Plants	
	47,520 tons/year of waste in general (not only PCBs)	Minas Gerais: ECOVITAL
	10.000 tons/year of liquids and 7,500 tons/year of solid waste in general	Bahia: CETREL
	7,000 tons/year of waste in general (not only PCBs)	Rio de Janeiro: FOXX Haztec
	Chemical Treatment Plants (dehalogenation process):	
	3,600,000 lts/year of mineral oil in one shift, which can triple the capacity on demand	Paran?: WPA Ambiental
	1,536,000 lts/year of mineral oil in one shift, which can triple the capacity on demand	Minas Gerais: MG Trafos
Recycling		

Scrap and metal recyclers	5,562 scrap facilities with an annual processing capacity of 2,800,000 tons	Regions[4]: Southeast: 3,463 facilities (62%) South: 1,219 facilities (22%) Northeast: 515 facilities (9%) Westcenter: 256 facilities (5%) North: 109 facilities (2%)
	29 facilities (10 companies) with a total installed capacity of 51,000,000 tons/year	States[5]: Par?, Maranh?o, Cear?, Pernambuco, Bahia, Minas Gerais, Espirito Santo, Rio de Janeiro, S?o Paulo, Paran?, Rio Grande do Sul

Project	Agency	Main relevance for this FSP
POPs -Stockholm Convention-		
GEF Project - Review and update of the National Implementation Plan (NIP) for the Stockholm Convention on Persistent Organic Pollutants (POPs) in Brazil.	UNEP	The general objective of the NIP update project is to contribute to Brazil's efforts to implement the Stockholm Convention and, consequently, to protect human health and the environment from the risks inherent in the use, management and release of POPs. The specific purpose of updating the NIP is to comply with Article 7 of the Stockholm Convention, which states that the Parties shall ?review and update, as appropriate, their implementation plans, from time to time, as specified by decision of the Conference of the Parties?. In this regard, information gathered during the preparation of the NIP, enhances the data gathering for the preparation of the ProDoc.
Mercury ?The Minamata Convention-		
Project GEF SB - 001062.03.01- Development of Initial Assessment of the Minamata Convention on Mercury in Brazil.	UNEP	Implementation of the Minamata Convention on Mercury in Brazil, providing the main national stakeholders with technical and scientific knowledge as well as the necessary instruments for this function. Strengthening of institutional capacities at the MMA, thanks to both GEF projects, will substantially contribute to knowledge management gains for senior officers.
Chemical Management		

Special Program to Build Institutional Capacity for Chemicals Management by Establishing the Structure Required to Implement National Legislation for the Control of Industrial Chemicals.	UNEP	The Special Program aims to support institutional strengthening for the implementation of the Basel, Rotterdam, Minamata and Stockholm Conventions, and the Strategic Approach to International Chemicals Management (SAICM). Brazil will get support from the Special Program for strengthening institutional capacity for the development, adoption, monitoring and enforcement of policies, laws and regulations, in addition to gaining access to financial resources to establish effective structures for implementation of the legally mandatory chemicals and waste.
Others		
Knowledge Management on PCB in compliance with the Stockholm Convention.	CIGRE	On-going training events for its members on PCB management for CIGRE?s members in Brazil.

1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description);

The global environmental problem

2. Brazil signed the Stockholm Convention on Persistent Organic Pollutants in 2001 and the National Congress ratified it in 2004, through the Legislative Decree No. 204; it was later ratified through the Executive Decree No. 5,472 on June 20, 2005, which prohibits the use and production of 12 POPs, including dioxins, furans, and PCBs. Since the Stockholm Convention was signed, substantial progress has been made to achieve the objectives this Convention has foreseen, related to the identification, prevention, reduction and elimination of hazardous chemical substances and their waste, as well as to guide the actions of the different stakeholders involved for its integral management.

3. PCB chemical substances are one of the most common and widely dispersed organic pollutants, mainly used as insulating dielectric fluid in electrical equipment like voltage transformers[1], capacitors and in other electrical components, i.e.: technically named as ?closed applications?, but this substance is also present in a variety of PCB wastes and in ?open applications? like thermal and hydraulic fluids. According to Annex A (Elimination), Part II of the Stockholm Convention, Parties of the Convention are required to eliminate electrical equipment and oils containing PCBs from use by 2025 and to manage those wastes using environmentally sound practices by 2028.

4. Polychlorinated Biphenyls (PCBs) were never manufactured by Brazil; however, the country has imported equipment containing PCB oil from producing countries, until the PCB production was banned after 1981[2]. PCB consumption was limited to imported equipment containing finished products and of commercial formulation oil for various uses (Penteado, 2001). During a very long time, PCBs were mostly used in high voltage transformers. There are no records of the direct use of PCB in civil construction; its main use was by the power industry. Other products containing smaller amounts of PCBs were sold in Brazil, such as antiseptic soaps (mainly in hospitals), paints, pesticides and hydraulic fluids[3].

5. The country has conducted relevant initiatives to improve the management and elimination of PCBs, as they represent risks for workers, public health and the environment in the event of leaks, electrical failures and fires. However, important challenges should be taken into account regarding the management of chemical products in Brazil; one from the environmental and financial aspects is logistics, given the long distances between the PCB stockpiles with respect to the locations of the elimination/destruction plants.

6. Brazil has a wide diversity of territories; with a power system that operates over large territories complex landscapes[4], i.e.: i. specialized maintenance service providers are located in large urban centers and also in remote areas, ii. commercially available PCB decontamination centers are located in urban areas, mainly concentrated in the South and Southeast Regions, and iii. a large volume of contaminated equipment still shows the presence of PCBs and corrosive sulfur compounds that can trigger functional risks.

7. The National Implementation Plan (NIP) under the Stockholm Convention was published in 2015. The improved management of disposal of PCBs is one of the priorities established in the ?NIP Action Plan for the Sound Management of PCBs?. This Action Plan encompasses a set of recommendations, from the legal, technical and institutional bounds, that the country needs to implement, which serves a guiding route for preparing this Full Size Project (FSP).

8. From the gender perspective, Brazil, as many of other countries in the Latin American and the Caribbean region, needs more gender disaggregated information related to the level and frequency of exposure to toxic chemicals and their impacts on human health, as well as on developing indicators to measure hazardous chemical?s impacts on women and men; especially data gathering in the labor market and health sector, because gender-determined occupational roles have a direct impact on the exposure to PCBs and it is necessary to launch specific policies to focus on gender and hazards of this and other polluting substances. Even though women are not strongly represented in the activities, less than 34% related to phase-out, protection of women from hazardous chemical needs to be strengthened.

9. In daily life, men, women, and children are exposed to different kinds of chemicals in different concentrations. Biological factors ?notably size and physiological differences between women and men and between adults and children? influence susceptibility to health damage from exposure to toxic chemicals. Social factors, primarily gender-determined occupational roles, also have an impact on the level and frequency of exposure to toxic chemicals, the types of chemicals encountered, and the resulting impacts on human health; for example, in the power sector, men have a greater risk of exposure to toxic chemicals due to the higher proportion working in this sector (65%).

Root causes and barriers that need to be addressed

10. The development challenge is to overcome a national context that encompasses a series of legal, technical, institutional, financial and environmental gaps that may delay the national capacity to phase-out by 2025 all PCB-contained equipment, and dispose of PCBs and waste by 2028, in an environmentally sustainable market approach.

11. The PPG has estimated an amount of 51,516 tons of PCBs contained in electrical equipment and wastes, nationwide, that needs to be eliminated in an environmentally sound manner.

12. This alternative scenario is of great significance for human health, environment and sustainable growth; in order to comply with the existing national regulation and international guidelines on chemical substances and hazardous waste management, specifically, to comply in due time with the commitments signed by Brazil under the Stockholm Convention.

13. The baseline does not reflect any gap of major concern amid the coronavirus (COVID-19) for the elaboration of the Theory of Change, however, an analysis carry out during the PPG has identified critical risks due to this pandemic which are fully considered in Section IV, under the Risk sub-section. Three key risks have been identified ? in this regard - which may threat the project?s activities and the management strategy to seize them while minimizing harm.

14. This set of shortfalls are summarized in Figure 1 below.

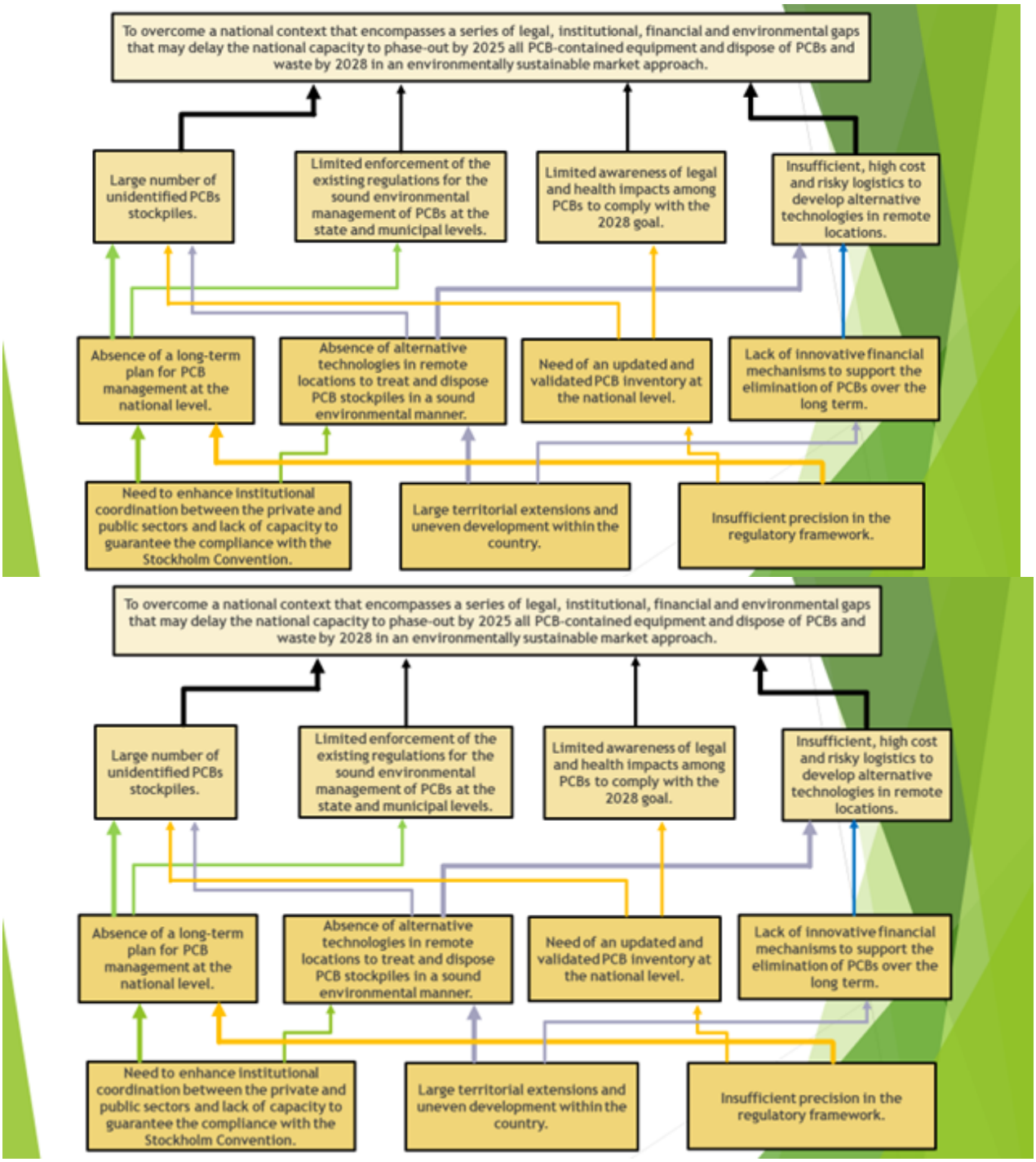

Figure 1. Theory of Change: Problem Tree Analysis Diagram

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•Barriers to overcome for the strengthening of national capacity to manage industrial POPs

15. The analysis of the development challenge carried out at the PPG stage for the preparation of the problem tree above has distinguished three different levels of causes for managing PCBs within the

framework of national and international guidelines on chemical substances and hazardous waste management, i.e.: immediate causes, underlying causes and structural/root causes.

16. Four immediate causes identified were:

i. Large number of unidentified PCBs stockpiles.

Even though Brazil has made significant efforts to assess the existence of PCB stocks, it is unknown large stocks of existing equipment in operation and out of use that contain PCBs outside the power industry, which includes sensitive sites such as hospitals, schools, shopping centres and universities; according to the priorities set forth in Annex A, Part II of the Stockholm Convention.

ii. Limited enforcement of the existing regulations for the sound environmental management of PCBs at the state and municipal levels.

Several state and municipal environmental authorities lack of technical and institutional capacities to enforce federal and local PCB regulations, like the Complementary Law #140/2011, especially in those socially depressed and remote territories.

iii. Limited awareness of legal and health impacts among PCB stakeholders to comply with the 2028 goal.

There is a large group of stakeholders made up by small power utilities and large privately-owned PCB holders that do not have enough information as well as sensitive sites that are not aware of the legal requirements for PCB environmental regulations, neither the corresponding health impacts, in order to comply with the Stockholm Convention goals.

iv. Insufficient, high cost and risky logistics to develop alternative technologies in remote locations.

The territorial and cultural complexities of many remote locations limit the availability of alternative technologies for treatment and disposal of PCBs in an environmentally sound manner.

17. Four major underlying causes were also identified as the basis of the immediate causes mentioned above. These were as follows:

v. Absence of a long-term strategy at the national level.

The need to structure and implement a long-term vision (for 2028) is a key step for the development of technical capacities and institutional strengthening at the Federal, state and municipal levels.

vi. Absence of alternative technologies in remote locations to treat and dispose PCB stockpiles in a sound environmental manner.

There is a challenging gap in the large territories of the Westcenter and Northern Regions to develop alternative BAT/BEP to deal with the long distances and high dispersion of the PCB holders, which are currently resulting in a high risk on their release into the environment. In addition, environmental stakeholders of the civil society have severely criticized the use of incineration as a method of destruction of POPs, due to the risk of dioxins and furans emissions and increasing CO2 emissions.

vii. Need of an updated and validated PCB inventory at the national level.

Even though a ?*Guideline for the Development of National Inventory for PCBs*? has been prepared since 2015, its official enforcement is still a pending matter; data are scattered and in need to compile a standard system at the national level.

viii. Lack of innovative financial mechanisms to support the elimination of PCBs over the long term.

In the current context of environmental project financing, an economically viable option to leverage the full elimination of all PCB stocks and contaminated equipment needs to be enhanced, implemented and validated.

18. Three structural/root causes were identified as follows:

ix. Need to enhance institutional coordination between the private and public sectors and lack of capacity to guarantee the compliance with the Stockholm Convention.

Governance, for the overall compliance with the Stockholm Convention, is limited due to the large complexities of the institutional arrangements at the Federal, state and municipal levels that exist in the country.

x. Large territorial extensions and uneven development within the country.

There is a need to determine the optimal logistical needs for broad elimination, due to long distances in the territories; considering the locations of the PCB stockpiles and the most appropriate elimination/destruction facilities as well as the differentiated state of development among the states.

xi. Insufficient precision in the regulatory framework related to PCB limits, the safe operation of contaminated equipment, safe handling according to international standards, transportation, elimination and final disposal.

This is of critical relevance at the national level; because of the need to enhance the existing regulatory framework at the federal level as well as to integrate it with the States, in order to achieve sound environmentally management of PCBs by 2028.

b. The baseline scenario and any associated baseline projects;

The baseline scenario

19. The Federative Republic of Brazil, with a population of about 211 million, is the largest country in Latin America. It has a very diverse social, cultural, environmental and geographical composition in its 8.5 million square kilometers. The country is composed by 26 states and the Federal District - where the Capital Brasilia is located - and about 5,570 municipalities, spread in five different geographic regions, as shown in Annex 1.1. The Southeast and Southern states of Rio Grande do Sul, Santa Catarina, Paran?, S?o Paulo, Rio de Janeiro and Minas Gerais share the great part of the economic activity. The last three states concentrate the largest socio-economic activity (70% of the Gross Domestic Product ?GDP-)[5]. The country has been expanding its presence in international financial and commodities markets and it is one of the five largest emerging world economies, being one of the BRICS countries[6].

20. Brazil's Gross Domestic Product (GDP) is composed of a wide range of services, industry and agriculture are the mainstays of the economy. The service sector is responsible for 69.4% of the total, the industry for 24.9% and agriculture accounts for 5.7% (IBGE, 2014)[7]. Before the world crisis that emerged amid coronavirus (COVID-19), Brazil's Gross Domestic Product (GDP) grew 1.1% in 2019 two tenths less than the previous two years, when the Brazilian economy has grown at a rate of 1.3%. The country had experienced three years of consecutive growth, compared to the declines in 2015 and 2016. In terms of industry, electricity, water, sewage and waste management activities grew 1.9% in 2019 compared to 2018, in part by a substantial increase in the construction sector (1.6%). In contrast, the minerals, gas and oil extraction industries decreased 1.1% in the year, while the manufacturing industry remained stable (0.1%)[8].

21. However, the World Bank has announced difficult times for the LAC economies, and Brazil is not an exception[9]. The GDP of the largest economy in Latin America will contract at least by 4.5% in 2020, compared to a 1.7% decline of a previous forecast. As an oil producer country, at the end of 2019 the country faced a setback in the revenues of this commodity due to the decrease in the international price of oil; and a second shock due to the pandemic that begun materializing in the first quarter of 2020. In addition, a key challenge under this context is to determine the economic costs of the unprecedented social measures the Government of Brazil needs to take over the short and medium terms to face the 2020 pandemic crisis.

22. In Brazil, environmental public policies are harmonized with various Multilateral Environmental Agreements (MEAs) of which the country is a signatory. Likewise, through the implementation of this Full Size Project (FSP), these policies seek to facilitate and promote compliance with the provisions of the Stockholm Convention which purpose is to protect human health and the environment of Persistent Organic Pollutants (POPs), taking into account that the substances to be addressed are classified as such because they have toxic properties, are resistant to degradation, bio accumulate and are transported by air, water and migratory species across international borders and deposited away from the place of their release, accumulating in terrestrial and aquatic ecosystems[10].

23. The 2015 NIP identified activities which are in accordance with specific actions and recommendations, including alternatives focused on the substitution and the environmentally sound management of items of equipment contaminated with PCBs owned by large private industries[11] and sensitive sites[12], strengthen personnel capacity at the laboratories and facilities that manage these substances, establish the guidelines for the sound environmental management of waste containing or contaminated with PCBs, among others. Most of these and other priorities have not been fully

addressed and provide the reasoning for this project. The main advances so far with respect of the Stockholm Convention obligations have been achieved on PCB management and destruction of *Askarel* oils and contaminated equipment by the power industry.

24. From the technical point of view, the 2015 NIP refers to a study published in 2000 that estimated the total existence of 130,000 metric tons of PCBs in Brazil, mainly owned by the power industry and other large industrial and commercial sectors[13]. In 2009, a survey-based inventory was carried out by the National Electricity Agency (ANEEL) when 75 electricity transmission and 64 power distribution utilities were consulted[14]. This inventory estimated that around 80% of the existing PCBs in Brazil were found in the power industry, representing a volume of 2,665 tons of liquid oils with PCB, a figure that most likely is underestimated.

25. In 2015, the Ministry of Environment (MMA) carried out another survey (ranging from 2012-2013) of the PCB stock, existing equipment in operation and out of use that contain PCBs outside the power industry. It included large areas at risk, such as schools, shopping centers, hospitals and universities according to the priorities set forth in Annex A, Part II of the Stockholm Convention (populated areas). The sample was made up by 3,339, identifying 1,904 items with PCB contamination with 823,8 tons of oil suspected of contamination with PCBs. Approximately 80% of all equipment inventoried was found in the states of Sao Paulo (56%), Minas Gerais (15%) and Esp?rito Santo (8%)[15], as shown in Annexes 1.3 and 1.4.

26. Based on the estimates from these PCB holding sectors, it was conservatively estimated by the PPG team that at least 51,516 tons of equipment contaminated with PCBs still require elimination before 2028. The PPG team also estimated a PCB oil volume of 15,455 tons, as shown in Table 1. It includes permeable solid waste of materials capable of absorbing PCBs and containing more than 50 ppm of PCBs, such as paper, cards, wood and other construction elements of transformers and capacitors. This is consistent with the estimated number of electrical transformers in the country, of about 8.1 million units, assuming that, by 2020, 70% of which belongs to the power companies and the remaining 30% to private owners (large industries) and third parties like sensitive sites. Considering that other countries in the LAC region presents 6% of electrical transformers contaminated with PCBs, the PPG has estimated that 486,000 transformers contaminated with PCBs in Brazil need to be eliminated or disposed in an environmentally sound manner.

27. Table 1, prepared during the PPG, provides an overview of the status of the main electrical equipment that contains dielectric oil based on the estimated calculation carried out during the PPG; this information will be revised during the implementation of the FSP and accordingly updated.

Table 1: PCB Electrical Equipment Context

Source: PPG Team (June 2020)

28. Recently, one progress in the area of POPs in Brazil is the integral environmental management of PCBs, which was leveraged through the implementation of the UNDP/GEF PCB Project 63774 *"Establishment of PCB Waste Management and Disposal System in Brazil?*, an initiative formulated in accordance with the ?*NIP Action Plan for PCBs?* included in the NIP. The implementation of the project started in 2009 and was completed in 2019 which triggered the elimination of about 11,000 tons of PCB electrical contaminated equipment, owned by large-private power companies[17], the project also contributed to the strengthening of the governmental and regulatory frameworks for the appropriate management of PCBs, the development of national capacity for technical personnel and the execution of five demonstration projects for the environmentally sound management of PCBs. The

project also delivered the *?Guideline for the National Inventory of PCBs?*, published in 2015 and the ?*Guidelines for PCB Management and Phase-Out*, to be published. Consequently, it is important to further strengthen and continue with some activities that were already started, enhancing the national context to comply with the obligations under the Stockholm Convention by the year 2028.

29. The PPG Team carried out an analysis of the current composition of the market chain for PCB treatment and elimination in accordance with the Life Cycle Management (LCM) of hazardous substances, from the most relevant electrical engineering and maintenance enterprises, transformer maintenance enterprises, retrofilling enterprises, *interim* PCB stockpile holders, PCB transport companies, incineration/chemical elimination facilities and scrap and metal recyclers, as it is shown in Table 2.

30. The existing treatment installed capacity of the six available facilities is about 70,000 tons/year for POP chemical hazards, not just for PCBs[18], as per Table 2. In other words, the existing nominal incineration capacity in Brazil, specifically for PCBs, needs to be reassessed, considering especially effective environmental licensing permits in place. All treatment plants are privately owned facilities that charge for their services; some have received financial support thanks to the incremental funds provided by the GEF under the UNDP/GEF PCB Project 63774[19].

Table 2: Main stakeholders involved in the PCB Elimination Chain

Source: PPG Team (June 2020)

[1] This category includes:

i. recycling of contaminated mineral oil with PCB,

ii. reclassification of active transformers contaminated with PCB to PCB-free operational units, and

iii. final disposal of contaminated equipment with PCB for recycling.

[2] https://www.gov.br/ibama/pt-br ?IBAMA - Cadastro T?cnico Federal de Atividades Potencialmente Poluidoras-?

[3] https://www.gov.br/ibama/pt-br ?IBAMA - Cadastro T?cnico Federal de Atividades Potencialmente Poluidoras-?

[4] http://www.inesfa.org.br/

[5] https://institutoacobrasil.net.br/site/en/steel-park/

31. Brazil has enough capacity at the national level for the treatment and elimination of *Askarel* oils, equipment and wastes contaminated with PCBs[25]. There are currently six privately-owned companies in the country which are registered for PCB management, as shown in Annex 1.2, i.e.: three thermal treatment/incineration plants (Minas Gerais, Bahia and Rio de Janeiro), two chemical treatment/decontamination plants (Paran? and Minas Gerais) and one mobile dehalogenation plant. These facilities have a combined treatment capacity of about 75,000 tons per year for different kinds of

hazardous waste, including PCBs, a volume that might be sufficient for the entire country. Additionally, Brazil has exported a portion of this substance for elimination.

32. However, one of the existing barriers is related to the logistics and transport of contaminated equipment and waste with PCB. In accordance with the existing regulations, Resolutions CEMA No. 50/2005 and COPAM No. 223/2018, of the states of Paran? and Minas Gerais, respectively, prohibit imports of PCB contaminated waste (above 50 ppm) from other states. In this regard, stakeholders during the PPG reiterated the need to allow the mobilization of PCB waste between states without restriction on the final destination.

33. Nevertheless, the complete and economically viable elimination of the remaining PCB stocks and contaminated wastes is a challenge for Brazil. Since 1991 up to 2018, only 23,680 tons of PCBs have been eliminated, of which 77% (18,134 tons) were domestically destroyed and 23% (5,546 tons) were exported for destruction[26]. It is important to note that figures presented by ABRADEE/ABRATE indicate a minimum estimate of final destination already treated of about 36,000 tons (equipment, fluids, materials and waste) in companies licensed between 1991 and 2018, mostly by the Brazilian Electric System[27]. The in-country destruction facilities operate at a fraction of the authorized capacity due to the long distances between their locations with respect to the PCB stockpile facilities. In addition, in some states, interstate transportation of hazardous substances is prohibited, impairing the ability to process and dispose of PCBs nationwide.

34. It is estimated that 80% of the contaminated equipment remains in the Southeast states of S?o Paulo, Minas Gerais and Esp?rito Santo, an area of about 1.2 million square kilometers where two facilities available are thermal incineration plants and another one operates using metallic sodium processes, as shown in Annex 1.5, a technique which brings up environmental concerns.

35. In Brazil, no other technology than the traditional metallic sodium chemical process for PCB destruction is used, with incineration plants built in the 1980s and 90s. For instance, the new plasma pyrolysis, pressure oxidation and hydrogen reduction technologies that are able to eliminate or significantly reduce the problems of unintentional dioxins and furans emissions in the treatment of PCB wastes. None of them, however, is available in Brazil, either to treat PCB or other wastes[28]. Therefore, in the current context, an economically viable option under the principle of Best Available Techniques/Best Environmental Practices (BET/BEP) for full elimination of all PCB stocks and contaminated equipment needs to be identified, validated and provided.

36. Power utility companies and large industries are willing to identify, label and dispose safely of the PCB equipment and wastes they own with their own budget. In terms of PCB elimination, the market value for treatment at national level is USD 3,500 per ton of waste, which is lower than the cost of exporting this waste to an accredited treatment facility in other country; that is near to USD 5,000 per ton. The financial burden to implement this compliance is a foreseen cost for the other key stakeholders located in sensitive sites, such as hospitals and large educational facilities, in the order of USD 263 million[29].

37. In addition to the equipment owned by companies from the power industry, there is still a large group of potential PCB holders, that will require additional external assistance, approximately 145,800 units, as per Table 1, owned by large private stakeholders and also located in sensitive sites which for the most part have not yet been analyzed/tested for PCB content; but are found along the distribution lines of the power utilities. A similar context appears with the small power companies located in less developed States within large geographic areas that do not have the same technical and financial leverage of the large power utility companies to label, classify and decommission equipment containing PCBs. The main risk is that the potentially PCB contaminated oil contained in these transformers might

be drained, subject to electrical failures and fires; therefore, these and other PCB contaminated wastes, if not properly disposed, may result in PCBs release into the environment.

38. As the total weight amounts of these porous wastes are low and they have high volume, safe transport or export of these contaminated materials become challenging and expensive, impacting the potential for their environmentally sound management; during the FSP implementation these materials will be also assessed for treatment/destruction. This assessment should include elements for staff use and operational instruments, clothing and soil contaminated which are stored for subsequent treatment and final disposal in industrial processing facilities that have the capacity to eliminate this type of waste.

39. Regarding scrap recyclers, as shown in Table 2, it has been observed that there is a wide diversity of service providers with a large installed capacity, however, based on an assessment carried out in 2011, these stakeholders showed an evident lack of productive capacity in the technology process, like the respective dismantling and reuse of undistilled solvent[30].

40. Since 1981, the commercialization of PCBs is prohibited in Brazil, so it is considered as a waste. The Brazilian Technical Standards Association (ABNT) is the national body in charge of preparing technical standards (NBR). Based on these technical standards, the norm SEMA/STC/CRS/No 001 ? effective since 1983 - sets up the conditions of handling, storage, safe transport and first aid in relation to PCBs and their residues for the licensed treatment/elimination plants operating in the country. In Brazil, the obligatory observance of the technical norms related to the storage and labeling of chemical products is enforced by the Decree N? 2.657/1998 and from the Work Safety Norm (Regulatory Norm NR-26). In this regard, another fundamental step for PCB sustainable management is the implementation of a reference method for the determination of PCBs in insulating oils, through the adoption of an update of the Brazilian Technical Standard for PCBs analysis in dielectric oil (NBR 13882 rev. 2013).

41. Other technical standards, like the ABNT NBR 8371:2005, establishes technical guidelines for handling, packaging, labeling, storage, safe transportation and final destination for *Askarel* oils, ABNT NBR 10004:2004, on classification of PCB solid wastes and ABNT NBR 8840:1992, guide for sampling insulating liquids; all together, the implementation of these norms becomes a difficulty for some stakeholders, like the sensitive sites, which are not fully familiar with this sort of environmental regulations.

42. The country has adopted the Globally Harmonized System of Classification and Labeling of Chemical Products (GHS) since the publication of the technical standard ABNT NBR 14725:2009, which established that as of February 2011, all chemical products traded in the country must follow the classification and labeling according to the GHS, in addition to the Chemical Safety Data Sheet (MSDS). For hazardous waste, ABNT Standard NBR 16725:2011 establishes the information for the preparation of the Label and the Waste Safety Data Form (FDSR) for containers or materials contaminated with hazardous waste. In its last revision, August 2017, it was added to the Technical Standard NBR 14725-3: 2017 a sub-section entitled "Chemical products: information on safety, health

and the environment", which sets up the mandatory nature of the safety information related to the hazardous chemical to be included on the label.

Institutional and legal framework

43. The environmental sector is led by the *Ministry of Environment* (MMA), as the entity responsible for formulating and monitoring several policies relates do the environment, such as the National Environmental Policy Act (PNMA); with the support of the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) and state environmental authorities to enforce federal regulations. This Ministry, along with IBAMA, coordinates the implementation of international conventions related to chemicals: Stockholm, Rotterdam, Basel and Minamata; all together respond to the different commitments made by Brazil under various multilateral environmental treaties.

44. In Brazil, the Federal Law 6938 of 1981 enacted the National Environmental Policy Act (PNMA); that aims to define principles and instruments to guide government action in guaranteeing environmental quality, based on the structuring of the national environment system and the definition of mechanisms for maintaining ecological balance. This Law also gears *the National Environmental System* (SISNAMA), through which the Brazilian Government is organized to meet the needs of environmental governance.

45. The National System of the Environment (SISNAMA) aims to improve the coordination between different levels of government (federal, state and municipal) in order to support the formulation and implementation of the environmental policy. In that sense, the SISNAMA is composed by:

- Government Council - Superior organ of the system, gathers all the ministries and the Civil House of the Presidency of the Republic in the function of formulating the national policy of development of the Country, taking into account the guidelines for the environment.

- National Council of the Environment (CONAMA) - is the consultative and deliberative organ, formed by representatives of the different government sectors (in federal, state and municipal scopes), the productive sector and the civil society. It advises the Government Council and has the function of deliberating on environmental norms and standards.

- Ministry of the Environment (MMA) - central organ, with the function of planning, supervising and controlling actions related to the environment at the national level.

- Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) - in charge of executing and enforcing the national policies and guidelines for the environment.

- Sectional Organs, state entities responsible for environmental execution in the states, i.e., the state environmental secretariats, institutes created for environmental defense.

- Local agencies or municipal entities responsible for environmental control and inspection in the municipalities.

46. The *National Agenda for Urban Environmental Quality conducted by the Ministry of the Environment (MME) since 2019* is the main public policy instrument and strategic guideline that manages the complexity of pollution prevention, control, mitigation and recovery of environmental quality. Environmentally sound management of hazardous chemicals and pollutants, particularly PCBs, requires coordination between the Federal and state governments, the private sector, NGOs, and the academia, following the priorities established in the *?NIP Action Plan for the Sound Management of PCBs?*.

47. The *Ministry of Mines and Energy* (MME) is the responsible policy maker for the mining and metallurgy, petroleum, fuels and power sectors, and plays an important role in electrical equipment management containing PCBs (e.g. transformers, capacitors and system breakers and others), in compliance with the national regulations, enforced by the *National Electricity Agency* (ANEEL).

48. MMA has led since 2018 the process of reviewing and updating of the "*National Implementation Plan of the Stockholm Convention on POPs"*, which includes actions formulated for the 28 POP substances regulated by the Convention, this Plan is complemented with normative instruments that contribute to the integral management of POPs in Brazil, in accordance with the Complementary Law 140/2011. This Plan includes the regulatory instruments applicable to POPs; more specifically, electrical equipment owners are expected to present the total inventory and waste related for the purpose of quantifying and monitoring the progress achieved in the identification and disposal of equipment and waste contaminated with PCBs in accordance with the ?*Guideline for the National Inventory of Polychlorined Bipheniles (PCB) in Electrical Equipment?.*

49. At the Federal level, the Decree 5472, of June 20, 2005 promulgated the text of the Stockholm Convention on Persistent Organic Pollutants Since 2011, a legislative draft proposal for the updating of the legal framework on the removal of PCBs and their residues has been under discussion on the National Congress.

50. The S?o Paulo State Law 12288, effective since February 2006, fulfills at this state level the commitments expected by Brazil as a party of the Stockholm Convention, according to the Decree

5472/2005 mentioned above. Under this state environment policy, PCB inventories are required to be sent periodically to the Environmental Company of the State of S?o Paulo (CETESB).

51. MMA also sets the minimum standards for national environmental protection through decrees and specific resolutions, while state authorities in each of the 26 states and the Federal District have the responsibility to implement, control and monitor these requirements, and consequently, enforce compliance within their territories. Under the guidance of MMA, each state is also required to develop programmes for implementation of the NIP?s actions. Some states have a strong legislation framework, but in others, there is limited knowledge about the existing national legislation established under the Convention?s mandates. In addition, it is possible to identify cases of hesitancy to comply with legal obligations[31]; the lack of financial resources at the state level worsens this situation.

52. However, it has been observed ? in recent years - that the enforcement capacities of the state environmental authorities are very limited due to existing gaps, specifically, in the application of existing legislation and the need for more qualified staff. For example, the need to enforce a PCB Management Information System nationwide, as a component of the *National Information System on Solid Wastes* (SINIR). Currently, this information is furnished on a voluntary basis by the private companies, but it must turn into an obligation in the near future; as such, the information flowing into the National Inventory of PCBs would improve considerably. Particularly, improved enforcement capacity would potentially allow the country to make better use of the existing operating disposal facilities at the national level, reducing the long storage time in the interim stockpile facilities for PCBs and wastes.

53. Brazil is a key partner of the Organization for Economic Co-operation and Development (OECD); which has developed high-quality common policies and instruments that form the frameworks for co-operation and work sharing among countries[32]. This FSP is enabling policies and instruments that make the country?s regulatory system for managing PCBs as efficient and robust as possible, while protecting human health and the environment. Strategically, the project will work together with the OECD countries to combine their skills and knowledge, and ultimately be more efficient and effective.

54. Brazil is also a signatory of the Strategic Approach to International Chemicals Management (SAICM), and as such, has undertaken efforts to ensure the effective implementation of the objectives of the Global Action Plan in the country. The outcomes of this project will contribute, incrementally, to carry out this Plan at the national level.

Associated baseline projects

55. Also related to institutional partnerships, there is a group of GEF-financed projects and other initiatives in Brazil currently under implementation related to the development challenge that this project is also addressing, which could provide some additional support to strengthening this institutional partnership approach. Thanks to the involvement of the institutional partners in some of them, under the leadership of the Ministry of the Environment, it seems of mutual benefit the achievement of the outcomes for this project Specifically, this FSP will ensure coordination and count on the capacity built and knowledge gathered from the concurrent projects that are already in progress, as shown in the Table below:

Other on-going projects related to this FSP

Project	Agency	Main relevance for this FSP
POPs -Stockholm Convention-		
GEF Project - Review and update of the National Implementation Plan (NIP) for the Stockholm Convention on Persistent Organic Pollutants (POPs) in Brazil.	UNEP	The general objective of the NIP update project is to contribute to Brazil's efforts to implement the Stockholm Convention and, consequently, to protect human health and the environment from the risks inherent in the use, management and release of POPs. The specific purpose of updating the NIP is to comply with Article 7 of the Stockholm Convention, which states that the Parties shall ?review and update, as appropriate, their implementation plans, from time to time, as specified by decision of the Conference of the Parties?. In this regard, information gathered during the preparation of the NIP, enhances the data gathering for the preparation of the ProDoc.
Mercury ?The Minamata Convention-		
Project GEF SB - 001062.03.01- Development of Initial Assessment of the Minamata Convention on Mercury in Brazil.	UNEP	Implementation of the Minamata Convention on Mercury in Brazil, providing the main national stakeholders with technical and scientific knowledge as well as the necessary instruments for this function. Strengthening of institutional capacities at the MMA, thanks to both GEF projects, will substantially contribute to knowledge management gains for senior officers.
Chemical Management		
Special Program to Build Institutional Capacity for Chemicals Management by Establishing the Structure Required to Implement National Legislation for the Control of Industrial Chemicals.	UNEP	The Special Program aims to support institutional strengthening for the implementation of the Basel, Rotterdam, Minamata and Stockholm Conventions, and the Strategic Approach to International Chemicals Management (SAICM). Brazil will get support from the Special Program for strengthening institutional capacity for the development, adoption, monitoring and enforcement of policies, laws and regulations, in addition to gaining access to financial resources to establish effective structures for implementation of the legally mandatory chemicals and waste.
Others		
Knowledge Management on PCB in compliance with the Stockholm Convention.	CIGRE	On-going training events for its members on PCB management for CIGRE?s members in Brazil.

c. The proposed alternative scenario with a brief description of expected outcomes and components of the project;

The proposed alternative scenario

56. Brazil offers great opportunities for successfully demonstrating how a BRICS country in the LAC context, with a well-diversified industrial sector, may comply with the commitments agreed under the Stockholm Convention, specifically, the environmentally sound management of PCBs within the framework of national and international guidelines, aligned with the Sustainable Development Goals (SDGs), the National Development Plan and the *Environmental Quality Agenda*. In accordance with its Federal policy indicated in the provisions stated in the ?*National Implementation Plan of the Stockholm Convention on POPs*?, the contributions expected from this UNDP/GEF FSP should facilitate the implementation of this Federal policy framework.

57. The project's strategy is based on three principles:

Principle 1: The proposed PCB related project interventions in priority sectors will build on the national capacity already in place, which includes increasing capacity for labeling, classification and PCB analysis of equipment and wastes, in compliance with the Stockholm Convention for the environmentally sound treatment/disposal processes on POPs;

Principle 2: encouragement of reliable innovation, accompanying decision makers to foster the necessary structural changes in public policies and among key private stakeholders for introducing alternative technologies for PCB destruction, in accordance with national capacities and by economic and social constraints due to the COVID-19 pandemic crisis;

Principle 3: fostering a more resilient policy environment by adopting an integrated approach and coherent strategy, including the implementation of demonstration projects as an effective way to remove barriers to change, to learn from experience, to accelerate the adoption of alternative and nontoxic processes and best practices at all levels, from policy makers-to practitioners-to end users, over the long run.

58. As a large economy, Brazil has already taken important steps to comply with the commitments related with the implementation of the Stockholm Convention, as presented throughout Section II. Nevertheless, it should be taken into account that there are substantial aspects that need to be explicitly established or complemented, in order to improve the provisions to protect human health and the

environment against POPs. Specifically, for PCBs, there are significant challenges that need to be faced to overcome the barriers addressed in the previous section.

59. The first challenge is to phase-out, by 2025, all PCB-containing equipment and PCB disposal and waste in an environmentally sound manner by 2028, as per the Stockholm Convention, particularly in the case of the power companies that have the largest amounts of contaminated materials. One of the key recommendations indicated in the Terminal Evaluation of the GEF/UNDP PCB Project (2013-2019) was to continue strengthening the governmental and regulatory frameworks for the appropriate management of PCBs that would allow Brazil to comply with its obligations under the Convention.

60. The second challenge is the full implementation of the project?s objectives considering the fact that the regulatory context sets up the timeline for the implementation of PCB elimination, a hard step for the large private industries and sensitive sites still owing PCB-contained equipment, besides, there is a group of power companies that needs to comply with this obligation, in accordance with the Stockholm Convention. Within the national context, identification, labeling and disposal activities for PCBs wastes need of a guarantee that the appropriate installed capacity for treatment and destruction is in place countrywide.

61. The third challenge is the complexity of the Brazilian territory and the wide variety of PCB equipment that needs to be eliminated in a sustainable environmental manner. For the large industrial sectors, this project will implement the activities through strategic alliances with large national associations, as well as for the sensitive sites. These stakeholders are quite active and represent adequately the interest of their members; and have been fully engaged during the PPG stage.

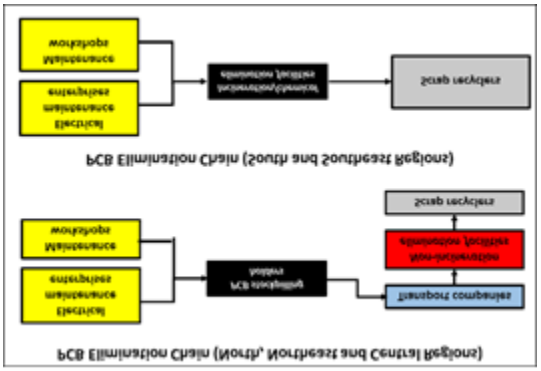


Figure 2: PCB Elimination Approach per Regions

62. These three challenges will gear the implementation of the FSP?s strategy to be performed with a common vision and will seek to carry out the activities with the different stakeholders at the national, state and municipal levels, in a coordinated manner. Figure 2 shows the FSP?s integrated approach

bearing in mind that this approach considers one of the key structural causes explained in the previous section, i.e.: the long distances within the country, which highly increases the costs of logistics and transportation of PCBs, between the PCB source regions and the elimination/destruction facilities.

63. In order to achieve its outcomes, the project?s strategy will require attention and collaboration (technical and financial) with the private sector, in particular, with the holders of PCB contaminated equipment and materials. The project will provide technical assistance through the process lifecycle to bring about integrated institutional support and coordination of groundbreaking technology interventions and it will provide incremental support to the pilot projects proposed for implementation in ?Outcome B?. It is important to note that the main share of these costs will be borne by the private sector. Contribution from the GEF will add value in many ways, yet two elements are highlighted:

i. the project will help to assure that disposal activities are done in accordance with national and international standards; and

ii. the project will play a coordination role among possessors of PCBs contaminated equipment and materials, which will lead to lower the individual disposal costs through an improved coordination among all the stakeholders participating in the PCB elimination chain.

64. The alternative path will be based on reliable sources in order to mitigate potential risks. Alternatives to the business-as-usual scenario will be evaluated and compared in light of the identified risks, and the safest, most feasible alternatives that fit the intended users will be selected. Pilot projects will be undertaken to identify the required technological changes and business models as well as environmental and health impacts, and to establish the necessary control measures; more challenging, critical risks recently idenfied amid the coronavirus (COVID-19). Criteria for the feasible path will be drawn up and aligned with Brazil?s large industrial sector and sensitive site?s specific needs, recognizing gender needs and implementing ?inclusively- a gender equality action plan.

65. This FSP will build upon ongoing efforts of the Government of Brazil to fulfil its global environmental commitments through the implementation of the Convention of Stockholm, in accordance with the *?NIP Action Plan for the Sound Management of PCBs?*. This Plan has provided policy guidance for the development of appropriate administrative and regulatory frameworks for the pursuance of an alternative development path through suitable and relevant strategies and actions to address federal and state capacities to the environmentally sound management of industrial POPs.

66. Under this policy guidance, two main purposes emerged, i.e.: the first one is to protect human health and the environment of PCBs while strengthening collateral socioeconomic and environmental

sustainability actions over the very large industry facilities and sensitive sites, in order to fully comply with the country?s commitments to phase out all electrical equipment containing PCBs from use by 2025, and to manage those dielectric oils and wastes using environmentally sound practices by 2028. The second purpose is to trigger innovative actions for alternative technologies in order to manage them in an environmentally sound manner. However, the baseline actions on this front have a significant limitation; the need to ensure ?jointly- the maximum delivery of Global Environmental Benefits with prevention, reduction and elimination because of the high levels of human exposure to these substances while boosting the national development in Brazil; considering the context of the wide variety of sectors in the industry and sensitive sites that have already used this chemical substance for decades.

Theory of Change for this FSP

67. The project?s vision is to strengthen the national capacity to minimize risks of PCBs exposure for human beings and environment in Brazil, within the framework of national and international guidelines on chemical substances and hazardous waste management, which will deliver multiple benefits at -global, national and local levels- through the management and elimination of PCBs and development of BAT/BEP alternatives, as established by the Stockholm Convention.

68. The country?s aim is to achieve a direct elimination of 15,000 tons of PCB contaminated wastes as a successful implementation of this FSP, while increasing the country?s economic competitiveness. The project also aims at introducing an innovative approach for outreach information for broad dissemination with other parties of the Convention on reduction, disposal/destruction, phase out and elimination of PCBs.

69. This vision is achieved by direct interventions on the immediate, underlying and root causes identified in the previous section. The project will provide institutional and capacity-building support, incorporating a break-through experience for UNDP in Brazil by contributing to the development challenge, i.e.: to overcome a national context, which leads to a series of institutional, legal, financial and environmental gaps that delay the national capacity to sound environmental management of PCBs of great significance for the human health, economic growth and the environment.

70. As summarized from the Theory of Change analysis, Figure 3 shows the alternative pathway and solutions to address on the causal chain analysis shown in Section II, based on the entries proposed by the project:

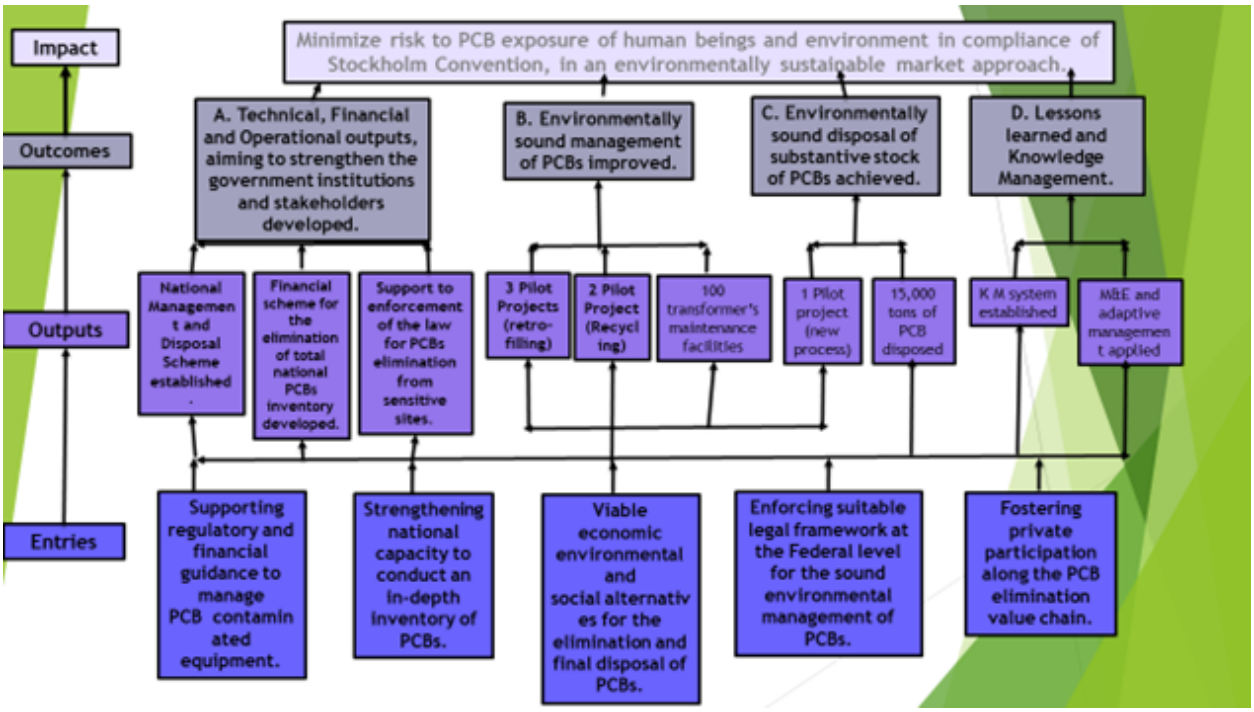


Figure 3. The Theory of Change Diagram

The project approach

71. As indicated in Figure 3, the objective of this FSP ?through its three components- is to minimize risk to PCB exposure of human beings and environment thanks to their environmentally sound and safe management. This impact is clearly aligned with the UNDAF/CPD Outcome *?Strengthened institutional capacity to promote public policies for the sustainable management of natural resources and ecosystem services, and combating climate change and its adverse effects, and ensure the consistency and implementation of these policies?*. Additionally, this FSP is aligned with UNDP Strategic Plan Output 2.1.1 ?*Low emission and climate resilient objectives addressed in national, sub-national and sectoral development plans and policies to promote economic diversification and green growth?*.

72. Component 1 ?*Institutional strengthening of government and other stakeholders, relative to POPs emissions reduction and management and elimination?* aims at enabling a policy environment to ensure that power generation, transmission and distribution utilities, large PCB owners like private holdings and sensitive sites and the private companies associated to the PCB elimination chain, under the guidance of environmental policy-makers at the Federal and State level governments, have sufficient capacity to meet the withdrawal deadline for the use of equipment that is contaminated with PCB by 2025, and are aware of the importance of advancing with the proper disposal of contaminated elements and wastes by 2028.

73. Key stakeholders, both at the Federal and State level governments, will be strengthened in their capacity through the implementation of a technical training program -taking into account the gender dimension-, consolidation of the regulatory framework and putting in place an innovative financial scheme to advance an adequate management and disposal of about 51,516 tons of equipment and waste contaminated with PCBs that still remain nationwide, as key element of the successful FSP?s exit strategy. This will be added to the incremental funds that the project will contribute to intervene 15,000 tons during its execution, about 10,000 tons belonging to the industrial and power sectors and 5,000 tons belonging to specific equipment owners (large private holdings and sensitive sites), who do not have enough capacities to fulfil their management responsibilities related to PCB management, including 15,455 tons of PCBs as *Askarel* oil that needs to be eliminated by large industries and sensitive sites in order to comply with the obligations under the Stockholm Convention, as initially calculated by the PPG team and shown in Table 1.

74. Outcomes under Component 1 would directly address the causes i., ii., iii., v., vii, viii., ix., and xi; as indicated in Figure 1. Theory of Change: Problem Tree Analysis Diagram.

75. Component 2 *?Environmental sound management and disposal of PCBs?* will focus mainly on strengthening the country's technical capacity to identify viable alternatives for the sound management of PCBs, taking gender needs into account in accordance with the recommendations of the Stockholm Convention and viability for the national interest, while in parallel the stakeholders involved ?both from the private and public sectors- will become aware of the importance of advancing an adequate management of industrial POPs and their waste, as well as in using BAT/BEP.

76. In addition to completing a national inventory of PCBs, the identification of cost-benefit assessments, hazards, risks, technological requirements and impacts associated with the possible substitutes for the identified technologies and management arrangements, will allow defining a set of criterion for the selection of the most viable substitution alternatives for this chemical substance to define a long-term path, in accordance with the guidelines of the Stockholm Convention, but within the structural context of the national industry and the best interest for the national economy. In this regard, risk assessment considerations will be given during FSP execution of the state, Federal and global contexts due to the impacts of the coronavirus pandemic.

77. Likewise, activities under this Component will be implemented considering the ?*Guidelines for PCB Management and Elimination*?, which will be a collateral output to the implementation of the demonstration projects taking into account the risk of exposure by gender, as well as other actions

focused on strengthening information systems for industrial chemicals and on environmental interests, complemented with a hazard and risk communication system.

78. Based on the above, for Component 2, there will be sufficient inputs for the validation of technical standards for reduction, management and elimination of PCBs and waste, as well as for defining environmental guidelines that facilitate the integral enforcement in accordance with the recommendations of the Stockholm Convention, providing at the same time the appropriate technical background for the issuance of new regulations that would allow the adequate management of wastes of PCBs, including handling, storage and final disposal.

79. The two outcomes for Component 2 would remedy causes iv., vi., and x.; as indicated in Figure 1. Theory of Change: Problem Tree Analysis Diagram.

80. Lastly, Component 3 of this FSP will capture lessons-learned, monitor the project?s activities and provide the required feedback, through an awareness raising campaign and information strategy, which includes dissemination at the State, Federal, Latin America and the Caribbean (LAC) region and global levels. Annual workshops will be organized to create awareness, allow request for and capture of feedback. Information on the benefits of an adequate integral management of PCBs and their waste and its available options would also now reach more stakeholders and the general public; acting directly on cause iii.; as indicated in Figure 1. Theory of Change: Problem Tree Analysis Diagram.

Key assumptions

81. The project?s approach is based on various assumptions that will be critical for achieving the expected changes as per the Theory of Change analysis:

- A collaborative approach to policy making that is sustained and continuously improves, integrating gender related issues across the implementation of the proposed activities.

- Increased attention to social equity, since there is a growing concern regarding fairness and opportunities for other key stakeholders, like the large private companies and the sensitive sites that still owe 30% of the PCB contaminated equipment.

- New legislation when approved by National Congress and the State legislative bodies/assemblies will be well accepted and under implementation by all stakeholders guaranteeing a sustainable exit mechanism for the project.

- Impacts for the Brazil economy amid the coronavirus situation (COVID-19) will be timely mitigated to guarantee successful completion of the proposed activities and achievement of outcomes.

- Stakeholders provide true, reliable and accurate information about these substances and are willing to participate freely in their substitution process; likewise, the Brazilian industry ?in overall- is in pursuit of environmentally friendly processes and is interested in implementing them.

- From the alternative technologies to be deployed, the selection of the equipment considers BAT/BET aspects and affordability (operation costs and maintenance) as well as the compliance in due time of all the environmental permits ?at the Federal government, state and municipal levels- for their proper operation.

- Effective synergies and communication created between the public authorities at the Federal and State levels and private industries will enable a favorable environment with a wide range of different stakeholders in the national economy, thanks to awareness raising and overall training probe to be successful during the FSP?s implementation.

- Collecting the lessons learnt would foster continuous improvement during the implementation phase and assisting in the development of innovative demonstration approaches and testing for other similar implementations elsewhere after the project?s completion.

Expected outcomes and components of the project

82. The project has three substantive components aligned with four main outcomes and ten outputs, embracing the *institutional*, *regulatory*, *technological* and *information-outreach* dimensions needed to reach the proposed structural change, in order to strengthen the national capacity in Brazil to the environmentally sound management of PCBs within the framework of national and international guidelines, on chemical substances and hazardous waste management.

Component 1: <u>Institutional strengthening of government and other stakeholders, relative to POPs emissions reduction and management and elimination.</u>

83. This project will support Brazil with the planning of the management and disposal of remaining stocks of PCB contaminated equipment and wastes and would put Brazil well on track to comply with its obligations under the Stockholm Convention on PCBs for the year 2025 (remove from use, equipment containing PCBs) and by 2028 (environmentally sound waste management). As a result, the country would not require additional assistance from the GEF for PCB management and disposal after that.

84. <u>Outcome A</u> of Component 1 is: ?*Technical, financial and operational outputs, aiming to strengthen the government institutions and project stakeholders developed*?.

The *rationale* to explain this outcome, and the following three closely interrelated outputs, is that without the GEF, the institutional transition to the management and disposal of the remaining stocks of PCB contaminated equipment would probably progress at a much slower rate. Effectively improving actions for this transition would demand the strengthening of the current institutional setting (MMA), building capacities of key national regulatory and inspection institutions (IBAMA and OEMAS); innovative financing through commercial lenders with ground-breaking mechanisms, as well as a regulatory enforcement and compliance in place by this FSP?s completion.

85. The outputs for this first Outcome consider the development of a National Management and Disposal Program including the operational guidance of maintenance practices for the elimination of PCBs in Brazil and best-practice sharing (Output A.1); the design of a financial scheme to sustain the total elimination of existing PCBs at national level (Output A.2); and the strengthening of environmental public entities, including an update of the existing registry for the PCB inventory and the enhancement of PCB inspection activities for all sectors (Output A.3).

86. Output A.1: *?National Management and Disposal Program established?*.

This output aims to enable an organizational environment at the national level including the relevant stakeholders for full implementation of the proposed FSP. This outcome embraces potential PCB holders located in all the 26 States and Federal District, including the whole power system (generating, transmission and distribution entities), large private holdings and selected sensitive sites, as well as current interim stocks containing high concentrations of PCBs.

87. The existing draft of the *?Guidelines for PCB Management and Elimination?* will be updated and expanded into a participatory strategy to incorporate the (large private holders and sensitive sites, as well as the market stakeholders involved in the PCB elimination chain introduced in Table 2 of Section II. It will be considered that specific guidelines should be prepared for other stakeholders, so as not to further delay the publication of the first draft, which may have a greater impact on meeting the deadlines established by the Convention.

88. The launch of a comprenhensive inventory and management criteria, such as those defined by the referred Guidelines, will guide other sectors ?besides the power sector- on how to make the identification of the residual mass of PCBs remaining. Only the execution of a statistical inventory will allow the quantification of the remaining mass, essential for any destruction planning. Therefore, it will be necessary to focus on the analysis of the results of the inventories that will be submitted, when it will be possible to identify other sectors with suspected contamination, as well as the respective companies in the power sector that still need to undertake greater efforts of PCB inventory, management and final destination.

89. The following incremental activities will be carried out to achieve Output A.1:

i. Setting up a *?Federal Coordination Unit?* for the elimination of PCBs in Brazil.

This Unit, under the leadership of the Ministry of the Environment - MMA, will organize and promote the identification, registry and logistics of PCB contaminated equipment existing throughout the country and monitor their elimination.

ii. Updating of the ?*Guidelines for PCB Management and Elimination*?.

This activity will carry out a in-depth review of the existing Guidelines for update and expansion, adding an operational guide for maintenance practices based on Best Available Techniques/Best Environmental Practices (BAT/BEP), as established by the Stockholm Convention, with the participation of all relevant market stakeholders involved in the PCB elimination chain.

This *Guidelines* will also include gender equity considerations as per the guidance of Annex 9, indicating how the development of this activity considers different roles for women and men in the work place, for instance, at the treatment plants, for the sustainable management of PCBs.

iii. Updating the National PCB Inventory[33].

Planning for the total inventory activities including volume calculations, the removal, decontamination and final disposal of electrical equipment and wastes identified as contaminated by PCBs, integrating technical, operational, economic and financial planning, definition of the criteria for choosing and implementing the BAT/BEP in accordance with the regulations set up by MMA, taking into account the available methodologies and the environmental and safety criteria for self-sufficiency and functional recovery.

iv. Setting up the National System on PCB Inventory.

This activity will assist current ongoing efforts of MMA in order to update and validate the national system for the PCB inventory.

v. Completing a PCB disposal capacity assessment at the national level.

The project will conduct a capacity assessment for national level PCB treatment as well as capacity for export, assess costs and identify which capacities would need to be created/improved at national level, focusing on large private industrial groups and sensitive sites but also integrating the power sector companies.

vi. Monitoring System creation.

This activity will design and operate an online system, as a main function of the *?Federal Coordination Unit?,* to keep track of the reports submitted to MMA by the PCB holders, in order to monitor the compliance agreed by the country under the Stockholm Convention.

90. Output A.2: ?*Financial scheme for elimination of total national PCBs inventory developed*?.

Since this FSP aims at setting up an alternative path for the full compliance with the 2025 and 2028 targets on PCBs under the Stockholm Convention, one important aspect is to extend the impacts of this project beyond its lifetime; a long-term financing of PCB management and destruction services is key to this. Based on an accurate feasibility study, the project will therefore develop the basis for a concrete and adapted financing scheme that will launch the conditions for the financing of the destruction of the remaining PCB stocks in Brazil.

91. The activities proposed under Output A.2 will put special attention into those stakeholders that need support to comply with its obligations under the Stockholm Convention in order to meet the 2028 deadline because they do not have the financial resources neither the technical capacity to properly dispose of PCB-containing equipment. For these stakeholders, it is necessary to mobilize incremental financial resources to support testing, labeling and classification activities for dielectric oils and the elimination of identified PCB wastes. Private companies from the power industry are willing to contribute with some technical resources required to identify, label, classify and eliminate the contaminated equipment owned by those individuals who obtain their electricity supply from those companies, but for most part, there is a need to assist a variety of large private holders and sensitive sites with incremental funding.

92. The following incremental activities will be carried out to achieve Output A.2:

i. Developing a technical and economic feasibility analysis to support the total elimination of the PCB inventory.

This analysis will undertake a technical and economic feasibility study and design a financial scheme that will optimize the disposal of PCB stockpiles for treatment and/or export, owned by PCB holders nationwide, once there will be a dimension of the residual mass of PCBs remaining (Activity A.1, iv).

It will include a compilation of viable and competitive commercial options and viable international experiences[34], including a full cost analysis when selecting the technologies and their maintenance and operatig costs; supported by technical specifications defining the required environmental performance and due diligence and international social and environmental safeguards requirements to be applied.

ii. Identifying innovative lending sources of green financing.

The market-driven financial mechanism and their capital funding sources to support the destruction/elimination of all PCBs in Brazil over the long term will identify commercially-driven financers willing to invest in deals amongst the market stakeholders involved in the PCB elimination chain.

iii. iii. Strengthening capacities of conventional financial intermediaries ?commercially driven- towards PCB elimination.

This activity will furnish conventional financial intermediaries with basic understanding of the main findings of business opportunities for due diligence in this market niche.

iv. Assisting sensitive sites with technical assistance and financial support.

This activity will provide technical assistance and non-reimbursable financial support for the elimination and replacement of PCB-contaminated devices owned by sensitive sites in partnership with their corresponding territorial power distribution companies.

v. Carrying out a duly climate change risk assessment.

As a key component of any POP project, this activity will assess -for the technical design of the facilities- climate change risks that could eventually affect operations in the places where the planned pilot projects will be implemented.

93. Output A.3: ?*Support enforcement of the strategy for PCBs elimination*?.

This output will allow to develop a support-mechanism/strategy with States? authorities to enforce regulations for PCBs destruction nationwide, through a combination of aided strong inspection activities and awareness/communication of obligations of PCBs owners.

94. Coordination arrangements will have to be undertaken between MMA and the enforcement authorities IBAMA and OEMAS, at the Federal and State level governments, respectively. This FSP will support relevant enforcement entities for both, sustainable management of PCBs and supervision of contaminated sites, in an intensive inspection campaign since the beginning of the project?s

implementation. This will be based under an *Inspection Model*, which consists in the sequence of five actions, i.e.: *Promote-Inspect-Apply Law-Verify-Communicate*.

95. The following incremental activities will be carried out to achieve Output A.3:

i. Institutional strengthening.

Promote collaboration between MMA and the state enforcement authorities through OEMAS to boost the enforcement of PCB management related obligations; likewise, through the ABEMA.

ii. Regulatory enforcement.

Developing a ?Quality Management System? to minimize the impact of staff turnover in order to sustain the BAT/BEP and lessons learned related to environmentally sound management of PCBs at the national and state levels. This system will also contribute to increase national capacity building by including other chemicals of national and global importance.

iii. Developing a capacity building program.

Training of a group of at least 10 professionals at the Federal, State and Municipal levels that can support PCBs inspection procedures, integrating gender equality aspects throughout the training sessions. This group of trained staff will enforce their role with assistance and supervision ?nationwide-of the corresponding environmental agency at the state level.

This program will also target inspectors in need to enhance their actions on the environmentally sound management of PCBs and the elimination of PCB contaminated wastes, in accordance with the guidelines set up by the MMA for the fulfilment of PCB disposal goals, by identifying technical focal points in each state in order to establish a national network to help implement the NIP 2015 recommendations.

iv. Designing and implementing an outreach communication strategy.

This activity will allow the dissemination of BAP/BEP to PCB-contaminated equipment possessors for the development of a national-level platform in order to create awareness for compliance. This strategy will also publish success stories and will provide recommendations for other potential PCB holders.

It will also include a gender approach for communication, education, training and capacity building workshops aimed at the FSP team, participating entities, key stakeholders and beneficiaries, related to risk management of chemical substances and hazardous waste.

Component 2: <u>Environmentally sound management and disposal of PCBs</u>

96. Through this Component, this FSP aims to establish closer interaction and collaboration among stakeholders (Federal, State, Municipal governments and private sector) involved in the management of hazardous wastes, with focus on PCBs. Coordination mechanisms and the implementation of commercially-driven pilot experiences will foster private sector investments in the hazardous waste management sector; by creating incentives for the private companies and by enhancing collaboration between owners of PCBs and waste and those who treat them in a sustainable manner. The ultimate objective of the coordination mechanism is to balance benefits for each of the participating stakeholders in the PCB elimination chain to ensure its long-term sustainability.

97. In order to avoid, reduce, mitigate and manage potential impacts as identified in the SESP (Annex 4) for the target sectors and worker health and safety and pollution risks resulting from project activities, a targeted assessment and management of potential social and environmental risks will be prepared and mitigation measures in place, prior to the initiation of any project activity that may cause adverse impacts, in particular any actions that may lead to or cause environmental and health impacts and impacts on indigenous peoples, as clearly indicated in Annex 8, *?Environmental and Social Management Framework?*.

98. Outcome B of Component 2 is *?Environmentally sound management of PCBs improved*?.

The rationale for this outcome is that there is a need to enhance Brazil?s technical capacity to phase-out PCBs elimination by testing and demonstrating the use of feasible, cost-efective, alternative technologies and methodologies in a business model scheme; hence, it is necessary to integrate the sectors, key stakeholders and on-going activities that drive this market, which in turn will facilitate to conduct exposure analyzes and risk assessments for alternative processes. This issue was identified during the development of the NIP 2015; this FSP aims at implementing the recommendations towards PCBs that were identified in this Report and to deal, especifically, with the underlying cause vi. identified in Section II.

99. Output B.1: *?Pilot Projects (3) for decontamination (retrofilling) facilities of PCBs contaminated transformers?*.

The objective of this output is to decontaminate *in-situ* transformers in operation or consolidated stocks of transformers already decommissioned, in the former case allowing equipment to be kept in operation (when possible and according to the useful life still remaining) and in the latter proceed with further treatment (cleaning) of the scrap. Activities under this output will boost decontamination practices not only with the existing supply companies of these services but also with new comers, like large electrical maintenance workshops, which have already knowledge about electrical equipment retrofilling.

100. A specific business model will be tested to demonstrate the possibility of PCBs destruction in sensitive sites (preferably), through a combination on retrofilling and elimination (in situ or at facilities) at a lower cost than present. It will be based on the following premises:

a. the retrofilling services enterprises will provide decontamination operations to transformers, allowing the equipment (when possible and according to the useful life to be kept in operation;

b. consolidated amounts of contaminated *Askarel* oil will be then transported safely to PCBs elimination processing facilities considering that the freight enterprises will also require a hazardous waste transport authorization; and

c. transport requirements of PCB freight waste, including porous waste, on public roads in light of national and international guidelines.

101. The model is expected to lower the overall cost of PCBs elimination, while economically favoring small enterprises for the development of new business. A specific business model will be documented, and its operation is expected to boost decontamination (retrofilling) practices not only with the existing suppliers of these services but also with potential new ones. Among the likely interested stakeholders are large electrical maintenance workshops, which will be provided with technical assistance in training, guidelines development and if possible, a certification. The activities will be coordinated by the Project, as stated in Output A.1.

102. The Project Management Unit (PMU) will prepare and carry out the due diligence with the UNDP CO, if needed, with the corresponding service enterprise, so that the terms of reference for the pilot interventions will guarantee that the chosen company has been selected on a competitive bidding process, as indicated in Annex 10 ?Guidelines for Pilot Projects?.

103. Under the management of the *?Federal Coordination Unit?* described in Output A.1, the following incremental activities will be carried out to achieve Output B.1:

i. Carrying out a first-of-a-kind inventory.

This activity will consider an identification and assessment of the key stakeholders related to the chain of PCB treatment and elimination, i.e.: electrical maintenance and transformer enterprises, retrofilling enterprises, interim PCB stockpile holders, transport companies, incineration/chemical elimination facilities and scrap and metal recyclers, in order to be able to provide MMA with decision making information for policy making and planning purposes.

For that power electrical companies that have not yet enforced PCB regulations, the FSP will assist them with the development of a form of field-testing that will allow electrical companies to identify PCB content at least in three groups (less than 50 ppm, 50 ppm to 500 ppm and above 500 ppm).

ii. Preparing a specific business model.
This activity includes:

Preparation of retrofilling enterprises
a. Identification of retrofilling enterprises.
b. Engagement of large maintenance workshops.
c. Habilitation, training and permits obtained of large maintenance workshops for retrofilling.

Retrofilling and elimination
a. Identification of PCBs contaminated transformers (and owners).
b. Agreements developed between retrofilling and destruction enterprises (if not existent).
c. Decontamination of transformers by retrofilling services enterprises (according to their useful life remaining).
d. Storage of consolidated amounts of contaminated oil (in case it is located in remote location and to be destroyed in-situ).
e. Destruction (thermal or chemical) of contaminated oil, either at processing facilities (thermal) or at in-situ (chemical).
f. Contaminated solid waste products of the retrofilling operation sent to thermal processing.

iii. Carrying out three pilot projects for retrofilling facilities of PCBs contaminated transformers in sensitive sites and large industrial locations, cleaning and removal techniques incorporating safeguards for workers by gender and local environment.
Their locations, preliminarily indicated in Annex 1.6, will be selected from a roster to be validated during the Inception Workshop, and will consider, at least the following targets identified during the PPG:

- Location #1: A hospital facility, chosen in close coordination with the interested associated FSP partners, most likely located in one of the Northeast states.
- Location #2: Use the installed disposal capacity of a large industrial plant preferably located in the Northern Region, to eliminate PCBs. The pilot project will be chosen in close coordination with the interested associated FSP partners, avoiding the need to transport them to any of the Eastern Regions of the country.
- Location #3: A decontamination (retrofilling) facility of PCBs contaminated transformers in one of the largest facilities located in the Southeast region, also chosen in close coordination with the interested associated FSP partners.

iv. Developing a capacity building program for technical assistance to the participating companies. This program will include the preparation of training and materials for the group of participating stakeholders that make up the market chain for PCB treatment and elimination. The program will consider lessons learned from the execution of the three pilot projects.

The program will develop workshops and training events related to the empowerment and leadership, aimed at companies linked to the project and to the participating women, professionals, technicians and employees.

v. Designing and setting up a monitoring plan of PCB elimination in the key sectors, i.e.: power sector, large private companies and sensitive sites.
This monitoring plan will allow the setting of benchmarks with respect to international guidelines and BAT/BEP as per the Stockholm Convention.

104. Output B.2: *?Decontamination/ Recycling Pilot Projects (2) of associations between elimination facilities and scrap recyclers for metals recovery?*.

This output aims at decontaminating ?in a joint operation- consolidated stocks of the metal components of the transformers already decommissioned and then to recycle the resulting scrap in an economically manner by large scrap metal companies. Scrap management companies will benefit of recycling valuable metals such as copper and steel, through collaboration in decontamination business in an environmentally sound manner, as per the Stockholm Convention.

105. Through a business model, scrap companies will bid for transformers stocks from electrical companies in particular, and other large industrial sectors such as the aluminum, steelmaking and mining companies. This FSP will promote synergies and launch strategic alliances between these large PCB users and the decontamination/treatment companies to participate in joint bidding processes. The remaining oil and other contaminated materials will be shipped to the incineration/chemical elimination facilities and the PCB free clean metal scrap will be recycled for profitable business.

106. The Project Management Unit (PMU) will prepare and carry out the due diligence with the UNDP CO and if needed, with the corresponding decontamination/treatment services enterprises, so that the terms of reference for the pilot interventions will guarantee that the chosen companies have been selected on a competitive bidding process, as indicated in Annex 10 ?Guidelines for Pilot Projects?.

107. The following incremental activities will be carried out to achieve Output B.2:

107. The following incremental activities will be carried out to achieve Output B.2:

i. Assisting with strategic alliances between the decontamination companies and the scrap/metal recyclers.

This activity will identify and validate the most favorable alternatives for making alliances between the decontamination companies and the scrap/metal recyclers considering their technical feasibility and commercial availability.

ii. Preparing a specific business model.

This activity includes:

Preparation of decontamination/treatment enterprises

a. Identification of decontamination/treatment enterprises;

b. Identification of metal scrap enterprises;

c. Training and permits obtained for metal scrap enterprises;

d. Identification of PCBs contaminated transformer (and owner).

Oil removal, scrap decontamination and recycling

a. Agreements developed between decontamination/treatment and metal scrap enterprises (if not existent)

b. Identification of PCBs contaminated transformer (and owner)

c. Oil removal from transformers by decontamination/treatment services enterprises;

d. Decontamination of metal scrap by decontamination/treatment services enterprises;

e. Scrap metal recycling by known methods (steel or copper foundry);

f. Destruction (thermal or chemical) of contaminated oil;

g. Contaminated solids waste product of the decontamination operation sent to thermal processing.

iii. Carrying out a cost-benefit analysis.

This activity will carry out an assessment including to support the selection of the Stockholm Convention recommended feasible paths, in order to change the business-as-usual practices that are currently being used in Brazil for PCBs contaminated scrap recyclers for metals recovery.

iv. Carrying out two pilot projects.

With respect to their execution, this activity will support alliances between the decontamination companies and the scrap/metal recyclers. Their locations, preliminarily indicated in Annex 1.6, will be selected from a roster to be validated during the Inception Workshop. It will consider, at least two scrap fragmentation processes, chosen in close coordination with the participating trade union association, as well as the environmental authorities of at least one of the Northeast and the Southeast states.

108. Output B.3: ?*Improvement of 100 transformer?s maintenance facilities in Best Practices and Standards developed*?.

An identification as comprehensive as possible of electrical maintenance service enterprises will be developed. Promotion activities will be advanced by the ?Federal Coordination Unit? described in Output A.1 to promote the participation of the large electrical maintenance companies. In the training program, the larger in size and better organized will be the first to be trained up to certification point. The certified workshops will be the first group to start participating in the coordinated services described in Activity vi. of Output A.1.

109. The following incremental activities will be carried out to achieve Output B.3:

i. Developing a roster of electrical maintenance enterprises and transformer maintenance workshops.

This activity will include promotional activities to trigger their participation in the FSP in order to choose the ones that are willing and committed with the environmentally sound management of products and wastes containing PCBs.

ii. Training of electrical maintenance enterprises for the sound management of PCBs in transformers through a capacity-building program.

This program will develop and implement a training plan for workshops, facilities and personnel in charge of/involved in the handling, maintenance and repair of electrical equipment in order to prevent and avoid spills, cross-contamination and mismanagement of potentially PCB contaminated equipment. All trainings will include a gender module and participation of women in trainings will be highly encouraged. The training program will be developed in collaboration between MMA and key institutional stakeholders of the private sector through the trade union associations.

iii. Developing a participatory approach to enforce the ABNT Standard for BEP on hazardous waste management.

This activity will implement best environmental practices in electrical maintenance enterprises and transformer maintenance workshops, in close coordination with the Brazilian Association of Technical Norms (ABNT).

iv. Preparing and disseminating one (1) guideline for Best Environmental Practices (BEP).

Develop and publish a guideline for best environmental practices in handling, managing and maintaining electrical equipment and insulating oils to prevent and avoid spills, cross-contamination and mismanagement of potentially PCB contaminated equipment. The guideline will include gender-inclusive language.

110. Outcome C of Component 2 is ?*Environmentally sound disposal of large stock of PCBs achieved?.*

The Ministry of the Environment is already developing a Registry Form to elaborate the national inventory on PCBs. Under this FSP, the *Federal Coordination Unit* for the elimination of PCBs -set up under Output A.1- will perform the maintenance, consolidation and updating of the inventory data to access the PCB elimination progress in Brazil (Activities iv. and v. of Output A.1).

The technical capacity of environmental, health/sanitation, trade and labour authorities at the Federal level needs to be strengthened so they are able to verify, check and assess information submitted to the Registry in their corresponding fields. Therefore, the project will not also strengthen this Registry but also will train staff authorities at the Federal level, which will ultimately result in better control on the use, elimination and final disposal of PCBs nation-wide.

111. Output C.1: *?Pilot project (1) of new processes for PCB destruction with assessment?*.

This output aims at introducing, in the current technology destruction processes for PCBs, a commercial-driven alternative validated in the international markets, environmentally sound, following the guidelines of the Stockholm Convention, most likely, semi-mobile units operating non-incineration and decontamination waste treatment technologies through chemical processes to access, preferably, the Northeast/Westcentral Regions of the country.

112. The project will promote synergies and launch strategic alliances by assisting in the preparation of a business model integrating the commercial interests of the existing or new retrofilling enterprises and the new chemical elimination enterprises, the last ones considering the logistics associated with road transportation due to the long distances in Brazil; like the power companies servicing large and remote areas in the North Region where the policy should be oriented towards maintaining a minimum level of self-sufficiency within the company, which can be integrated with third-party services though the acquisition of integrated, mobile, treatment technologies.

113. The Project Management Unit (PMU) will prepare and carry out the due diligence with the UNDP CO and if needed, with the corresponding Civil Society Organization (CSO), so that the terms of reference for the pilot interventions will guarantee that the chosen company has been selected on a competitive bidding process, as indicated in Annex 10 ?Guidelines for Pilot Projects?.

114. Semi-mobile units operated new PCBs destruction through chemical processes will be tested in a pilot. This will translate into an ?easy access point? for chemical treatment of the transformers. The semi-portable equipment will provide services as a follow-up to a previously implemented promotion campaign in the chosen specific region under logistics coordinated by the *?Federal Coordination Unit?*. Alternatively, in coordination with Output A.1, the decontamination (retrofilling) enterprises can carry consolidated amounts of dielectric oil to the above selected location.

115. The following incremental activities will be carried out to achieve Output C.1:

i. Identifying and validating the most favorable alternative of new processes for PCB destruction.

The implementation of this alternative will follow the guidelines of the Stockholm Convention and the Best Environmental Practices (BEP) and Best Available Technologies (BAT).

ii. Carrying out an assessment including a cost-benefit analysis.

This activity will help triggering a change in the business-as-usual practice that are currently being used in Brazil for PCB destruction, given especial consideration to the territorial features of the Northeast/Central Regions of the country.

iii. Implementing one pilot project.

With respect to the execution of this pilot project, its location, preliminarily indicated in Annex 1.6, will be selected from a roster to be validated during the Inception Workshop, and will consider treatment and final disposal of PCBs with mobile units in one state either in the Northern Region or in the Westcentral Region.

116. Output C.2: *?Fifteen thousand (15,000) tons of PCB containing materials coming from sensitive sites and industry eliminated?*.

The elimination of PCBs materials will be achieved in the most cost-effective possible manner. Under this Output, two groups will be the target: the first group will be those representing sensitive sites with PCB equipment to which a larger portion of the GEFTA contribution will be directed, for instance, large hospitals and school premises. As such, project resources will be used in the most cost-efficient way, while optimum effectiveness of the project is achieved in terms of high disposal rates by bundling project and private sector resources and efforts. For these sort of sensitive sites, an inventory will be conducted financed by the incremental costs (PCBs free hospitals campaign) and further, PCB elimination will be facilitated by the Project.

117. The second group is made up by of large PCB private equipment holders that will be identified through promotion by the Registry System referred to in Output A.1 and through the inspection campaign conducted by enforcement authorities (Output A.3). To these, the GEFTA contribution will be lower in amount, but the main advantage will be the technical assistance in the elimination processes. Under this approach, elimination will not exclude the option of exporting dielectric oils and waste materials.

118. The following incremental activities will be carried out to achieve Output C.2:

i. Carrying out a program to support the identification, labeling, classification and elimination in sensitive sites.

This activity will support the elimination of at least 5,000 tons of equipment and wastes that may contain PCBs and which are owned by large stakeholders in sensitive sites, who do not have the technical and financial capacity to ensure environmentally sound PCB disposal, and which therefore, are not considered under the responsibility of the power distribution utility.

ii. Developing a proposal for large PCB private holders.

This activity will support the elimination of at least 10,000 tons of equipment and wastes that may contain PCBs and which are owned, mainly, by large private stakeholders. Through logistics coordinated by MMA and based on the National System on PCB Inventory-and after holders? agreement- this activity will develop standards and guidelines and to dispose and eliminate additional PCB equipment owned by large private stakeholders, in close cooperation with the power sector companies.

Component 3: <u>Lessons learned identified, monitored and assessed</u>

119. The core of this component is to strengthen the national capacity and institutional frameworks in order to make the change to an environment without industrial PCBs over the long term as established by the Stockholm Convention, in which market-oriented goals govern public policy, planning, and investment decisions, for both, the short and long term.

120. <u>Outcome D</u> of Component 3 is *?Lessons learned and knowledge managed?*.

It is important to note that awareness will be raised on the impact of PCBs through the group of activities to be carried out under Output A.1. The Federal Registry System (Output A.1, Activity v.)

will help to create awareness of the current use of PCBs and its elimination chain among various sectors (power, aluminum, steelmaking and mining, among else) and their potential negative impacts, both on health and environment.

121. Output D.1: ?*Knowledge management system for best practices and communication platform at national level established?*.

This Output includes the design of an awareness raising campaign and information strategy, as well as a programmatic monitoring of FSP global indicators (specifically, GEF Core Indicators 9 and 11), together with dissemination of on-going activities to ensure successful project implementation in accordance with UNDP and GEF procedures. Awareness raising and gender sensitive training materials will be developed and made widely available.

122. Best practices, project experiences and lessons learned obtained through adaptive management reviews and evaluations will be incorporated in knowledge management tools for its better dissemination at national, regional and global levels. Activities, results and lessons-learned will also be published in individual case study reports, which will help ensure access to this information by the wider stakeholder community to the experiences, failures and successes of the activities undertaken by the project.

123. A permanent dissemination and knowledge and information exchange platform for the FSP and demonstrative and pilot knowledge products will be established, outputs B.1, B.2 and C.1, respectively, shown that have been identified as feasible alternatives, taking into account the risk of exposure by sex. This platform will make use of social media to disseminate materials and scheduled presentations among selected audiences made up by key stakeholders. The platform will produce a yearly compendium.

124. Furthermore, awareness will be raised with the environmental authorities ?both, at the Federal and State level governments- on the sound management of PCBs which will help them in strengthening the overall monitoring (Output A.1, Activity vi.) together with the launch of a training programme on labeling, sampling and disposal for the maintenance and service companies staff.

125. The following incremental activities will be carried out to achieve Output D.1, in accordance with a Gender Action Plan (Annex 9 -*Gender Analysis and Action Plan*-) and awareness raising activities detailed in Annex 7 -*Stakeholder Engagement Plan*-.

i. Developing a comprehensive communication strategy.

This strategy will create awareness amongst all stakeholders and public in general about project activities and expected outcomes. Information outreach for the citizens, as main beneficiaries of the project, is critical to sustain the project?s interventions over time. Cost-efficient innovations will be documented and accessible to the public on a timely and regular basis, as this FSP develops.

ii. Raising awareness among power utility companies.

On the sound management of PCB containing equipment, this activity will assist power utility companies in their control in line with the guidelines established by MMA, to encourage the overall management and disposal of remaining PCB containing equipment.

iii. Establishing and implementing a strategy on gender perspective that includes a Gender Action Plan on the elimination of PCBs by engaging key institutional stakeholders of the private sector:

a. Conduct specific surveys for gender analysis to identify the different roles and tasks that men and women perform on this subject matter, in order to structure an Action Plan, to be carried out during the first year of project implementation.

b. Design and implementation of data collection instrument to be used during the site visits.

iv. Knowledge management.

Gathering the main findings, all lessons-learned, best practices and project experiences and capturing them in user-friendly means to update, share and disseminate communication materials through mass media and other channels of communication, both in printing and online forms, integrating the corresponding gender-related challenges.

v. Carrying out technical workshops to disseminate the main findings of the FSP with policy makers, CSOs, academia and the end-users.

126. Output D.2: ?*M&E and adaptive management in response to necessities and results from the Mid-Term Review and final findings with lessons learned applied*?.

The project results as outlined in the Project Results Framework (Section V), will be monitored periodically during implementation to ensure the project effectively achieves these results; these will be reported in a public intermediate and final evaluation report. Project-level monitoring and evaluation

will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP?s Evaluation Policy.

127. As a standard practice for every UNDP project, continuous monitoring of FSP results and achievements will be ensured, while the application of adaptive management of the project after conclusion of the Mid-Term Review (MTR) will be warranted. The Project Management Unit (see Section VII below on Governance and Management arrangements for detailed information) will design the project?s M&E system and will be responsible for implementing the project?s M&E plan, including the project?s inception workshop, annual planning workshops and PIRs.

128. The following incremental activities will be carried out to achieve Output D.2:

i. Carrying out the Project's Inception Workshop.

ii. Following up to the monitoring indicators.

This monitoring will include the Project Results Framework with outcome indicators, GEF Core Indicators, baseline and annual target indicators.

iii. Carrying out monitoring of the Project Risk Matrix, ESMF/SESP, the Gender Analysis and Action Plan, and the Stakeholder Engagement Plan.

iv. Organizing and carrying out the Project Steering Meetings.

v. Carrying out annual external financial audits.

vi. Carrying out the ?Mid-term Review? (MTR).

The MTR will be carried out after the second submission of the Project Implementation Report (PIR); it will assess the progress of each project activity and attainment of the project?s indicators presented in the Project Results Framework (Section V) and Multiyear Work Plan (Annex 2). This review will also consider one Gender Assessment of project impact completed as part of MTR and the disbursement of financial resources and co-financing provided by project partners, and it will monitor and assess administrative aspects for the execution of the project. The MTR will also inform the adaptive management of the project and improve its implementation for the remainder of the project?s duration.

vii. Carrying out the Terminal Evaluation (TE).

The TE aims to evaluate whether all planned project activities have been developed, resources granted by the GEF have been disbursed and spent in line with GEF and UNDP policies and rules, and in accordance with the activities as set out in this Project Document. The Terminal Evaluation will also extract and identify lessons-learned, how to disseminate them most efficiently and make recommendations to ensure that project results become sustainable.

d. Alignment with GEF focal area and/or Impact Program strategies;

129. The proposed FSP is fully aligned with the GEF-7 Programming Directions of April, 2018 within its *Chemicals and Waste* Focal Area Strategy. It seeks to eliminate or significantly reduce chemicals subject to better management by *?the Stockholm Convention on Persistent Pollutants?,* through supporting projects and programs that address chemicals and waste at the end of life, i.e.:

- Elimination of the use of Polychlorinated Biphenyls (PCBs) in equipment by 2025.

- Environmentally sound waste management/disposal of mercury/mercury containing waste or persistent organic pollutants including liquids containing PCBs and equipment contaminated with PCBs having a PCB content above 0.005% (50 mg/kg), in accordance with Paragraph 1 of Article 6 and Part II of Annex A of the Convention, as soon as possible and no later than 2028.

e. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

130. As follows, these are the expected contributions from the Baseline, the GEFTF and Co-financing.

Component 1: Institutional strengthening of government and other stakeholders, relative to POPs emissions reduction and management and elimination.

5.1 Contributions from the baseline: In this regard, these are the following actions:

i. Brazil signed the Stockholm Convention on Persistent Organic Pollutants in 2001, which was later ratified by the National Congress ratified it in 2004. Since the Convention was signed, the country has conducted various activities aimed at improving the management and elimination of PCBs.

ii. Since then, at least 23,680 tons of PCBs of electrical equipment and waste containing PCBs have been eliminated. Additionally, the country has six privately-owned companies which are registered for PCB management to eliminate equipment and waste containing PCBs. These facilities have been established with funds provided by the Global Environmental Facility (GEF) as well as significant investments from national companies. However, the PPG has estimated that there are around 486,000 transformers contaminated in Brazil with PCBs and therefore in need to be eliminated or disposed in an environmentally sound manner, equivalent to about 51,516 tons of PCBs contained in electrical equipment and wastes, nationwide that still needs to be disposed of.

iii. However, Brazil needs to overcome a national context that encompasses a series of legal, institutional, financial and environmental gaps that delay the national capacity to phase-out by 2025 all PCB-contained equipment, and dispose of PCBs and waste by 2028, in an environmentally sustainable market approach. one of the existing barriers is related to the logistics and transport of contaminated equipment and waste with PCB.

5.2 Contributions from GEFTF: Funding from the GEFTF will be allocated to:

i. Support the capacity building of environmental authorities through the establishment of a training programme that will provide national and state environmental authorities with the tools to identify PCB owners and help environmental authorities establish a monitoring and control programme (Output A.1).

ii. Create a financial scheme to support full elimination and final disposal at the national of the remaining stocks of PCB-contaminated equipment and wates owned by the large industries and in sensitive sites, such as hospitals, municipal facilities, schools, shopping centers and large public facilities that are not aware of the toxic dangers of PCBs and do not have the technical and financial capacities to manage and mitigate these risks (Output A.2).

iii. Support, through the Ministry of Environment the enforcement of the new regulations that are in the process of being issued and/or already released/adopted. This support will be critical in addressing the sound management of PCBs described in this proposal (Output A.3).

5.3 Contributions from co-financing: The cofinancing of this FSP includes:

i. In Component 1, capacity-building activities, including training and better information management through the promotion of inter-institutional coordination, will allow for the incorporation of innovative approaches along the project continuum not only taking into account the decision making process of the high-level authorities at the Federal level with the policy and regulatory instruments but also including specific actions for the proactive participation of the state-driven environmental authorities in order to level off the ground for putting in place an overall approach for Brazil to comply with its 2025/2028 Stockholm obligations on PCBs.

ii. The project's approach will require interest and collaboration (technically and financially) from the private sector, to achieve the projected results, outcomes and project targets. In particular, support from the holders of PCB contaminated equipment and materials in the power, by several large industry holders and a group of sensitive sites will be critical. The project will provide Technical Assistance to the sensitive sectors mentioned above. |

Component 2: Environmentally sound management and disposal of PCBs.

5.4 Contributions from the baseline: In this regard, these are the following actions:

i. Brazil has sufficient installed capacity at the national level for the treatment and elimination of Askarel oils, equipment and wastes contaminated with PCBs. However, one of the existing barriers is related to the logistics and transport of contaminated equipment and waste with PCB, due to the size of the projects.

ii. The in-country destruction facilities operate a just a fraction of the authorized capacity due to the long distances between their locations with respect to the licensed interim PCB stockpile facilities. In addition, in some states, interstate transportation of hazardous substances is prohibited, impairing the ability to process and dispose of PCBs nationwide.

iii. In Brazil, no other technology than the traditional metallic sodium chemical process for PCB destruction is known, with incineration plants built in the 1980s and 90s. Therefore, in the current context, an economically viable option under the principle of Best Available Techniques/Best Environmental Practices (BET/BEP) for full elimination of all PCB stocks and contaminated equipment needs to be found, validated and provided.

5.5 Contributions from GEFTF:

i. The alternative pathway supported by the GEF should facilitate the removal of barriers to the deployment of BEP/BAT options. A substantial part of the project resources is budgeted under Component 2, accounting for 78% of the GEF funding (excluding project management) which is dedicated to this Component. This high share is justified by the need to level off throughout the whole country considering a wide array of differences among the states, requiring the involvement of a variety of technical services, territorial approaches and governance issues in the five different regions (Outputs B1., B.2 and C.1).

ii. Of the 15,000 tons of PCBs to be disposed of with project support, elimination and disposal costs will be allocated to support the disposal of 5,000 tons of PCBs owned by the sensitive sites who do not have sufficient capital to cover disposal costs. As such project resources will be used in the most cost-efficient way, while optimum effectiveness of the project is achieved in terms of high disposal rates by bundling project and private sector resources and efforts (Output C.2).

5.6 Contributions from co-financing: The cofinancing of this FSP includes:

?i. In partnership with the power utility companies, the project will establish a support programme for individual financially retrained PCB owners in this large sector, as well as for large industries. For the sensitive sites, the project will provide technical and financial support to substitute and eliminate; all together it will allow the direct elimination of at least 15,000 tons of PCB-containing equipment. Co-financing provided by private stakeholders along the PCB elimination chain will cover costs related to the identification, classification, testing and labelling of electrical equipment owned by individuals who purchase their electricity from these companies.

ii. The project will subsidize the pilot projects identified in the proposal, but it is important to note that the main share of the costs will be borne by the private sector.

Component 3: Lessons learned identified, monitored and assessed.

5.7 Contribution from the baseline: In this regard, these are the following actions:

i. In the diverse context of Brazil, with insufficient institutional coordination between the private and public sectors, large territorial extensions and uneven development within the country, the flow of communication will help Federal and state levels to identify complementarity and joint planning together with the execution of the planned activities, making this unique project in the LAC region very cost-effective.

5.8 Contribution from GEFTF: Funding from the GEFTF will be allocated to:

i. A knowledge management system will contribute to a cost-effective expansion and reproduction of project results, as well as other to other countries in LAC; the project will enhance baseline knowledge on the sound management of PCBs in Brazil. This is complemented by a strategy to facilitate the access of women to the new jobs generated from the shift in the existing paradigma. Cultural change is foreseen to generate a more positive attitude towards less-developed states, sensitive sectors and more careful consideration of their needs regarding with its 2025/2028 Stockholm obligations on PCBs (Output D.1).

5.9 Contribution from co-financing: The cofinancing of this FSP includes:

i. The participation of stakeholders at all levels will contribute to the cost/effectiveness of the project. A communication and dialogue platform will ensure adequate planning and execution of activities in line with the project's objectives, environmentally sound management and disposal of PCBs, as well as the complementarity of national policies with state-driven environmental policies.

f. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

131. The following Global Environmental Benefits (GEB) of the project at the CEO Endorsement stage are the same as presented at the PIF stage: 15,000 tons of additional PCB-contaminated materials and wastes eliminated.

132. The methodology to monitor the Global Environmental Benefits of this project related to the 15,000 tons of PCB contaminated wastes will be implemented as follows. Under Component 2 ?Environmentally sound management and disposal of PCBs?, it is estimated that this amount of oil and wastes will be treated and dispose of. The Stockholm Convention establishes that equipment and oil with levels of contamination above 50 ppm must be taken out of use and disposed of, and this FSP aims at exactly that as a direct GEB. The information reported by the power utility companies and owners of equipment contaminated with PCBs, i.e.: large private industries and sensitive sites, will be collected and processed through the update of the National PCB Inventory (Activity iv. Output A.1) to be available at the Federal level and managed by the MMA. This platform will have verification processes by the state local environmental authorities (OEMAs) and will allow the monitoring of progress regarding overall PCBs disposal goals for all the national sectors.

g. Innovativeness, sustainability and potential for scaling up. ?

133. For the global environment, the strategy of this FSP for greater results is intended to seize opportunities for higher impact through three manners:

134. Innovation: This project ?as compared to other POPs, chemicals and waste management related projects- is based on a market driven approach for elimination such a difficult waste as PCBs as well as on some of the alliances and synergies launched with private business corporations. The project is expected to generate increased awareness among stakeholders about their obligations on PCBs management under cost-effective options for the participants.

135. Sustainability: through integration, this project will harness synergies across the public sector and the private sector by creating a more sustainable policy environment in order to enhanced efforts to mobilize investments to environmentally sound management of PCBs, within the framework of national and international guidelines on chemical substances and hazardous waste management, in order to sustain the change over time without GEF grant financing once this project is completed.

136. Scale up: this innovative approach will also reflect the fact that this FSP will generate significant lessons and best practices that can be intensified in the whole Latin American and the Caribbean region, in a way to increase the potential to deliver significant global and local environmental benefits (elimination of PCBs and their related hazardous wastes).

Innovativeness

137. Under Component 1 with respect to PCB management, the innovative project aspects are related to the fact that the project is based on the assumption that most of the necessary capacity, financial, analytical, management and treatment/disposal structures are in place to eliminate all PCBs from the large PCB holders before the 2028 deadline; additional support will be predominantly required for sensitive PCB holders that do not have the technical or financial capacity to test, label and replace PCB containing equipment.

138. Another innovative aspect under Component 1 is that the project will put in place a programme that will provide financial and technical support to financially deprived individual equipment holders (the sensitive sites), to enable and allow them to dispose of PCB contaminated equipment in an environmentally sound manner. An additional innovative aspect of this Component 1 is the launch of a financial scheme targeting large private holdings and sensitive sites that would ensure that this country

disposes of the full disposal/treatment cycle for for elimination of total PCB inventory and most types of PCB wastes.

139. Under Component 2, the innovation related resides predominantly in the aspect that with this FSP?s support, Brazil would be able build the necessary capacity to launch ?for the first time- very innovative aspects in terms of capacity building and by the implementation pilot projects for decontamination facilities of PCBs contaminated transformers in sensitive sites and decontamination/recycling pilot projects through strategic alliances between PCB elimination facilities and scrap recyclers for metals recovery.

140. Another innovative aspect of the project under Component 2 will be the *first-of-a-kind* elimination plan for the management and treatment/disposal of products and wastes containing PCB substances which will be followed by very innovative pilot projects to demonstrate the management, treatment and/or disposal of products and wastes containing PCBs, following a cost-benefit analysis based on the selection criteria of the Stockholm Convention, recommended feasible alternatives and technological requirements that should be put in place.

Sustainability

141. The project has been designed to create an enabling framework for strengthening the national capacity in Brazil to minimize risk to PCBs exposure of human beings and environment in compliance of the Stockholm Convention, in an environmentally sustainable market approach within the framework of national and international guidelines on chemical substances and hazardous waste management. This is planned through enhanced inter-institutional coordination, based on sectorial planning and defining short, medium and long-term goals, in accordance with Brazil?s National Implementation Plan (NIP) and in particular with its *?NIP Action Plan for the Sound Management of PCBs?*, thus ensuring sustainability.

142. In this sense, the sustainability of interventions proposed as part of Component 1 lie in the fact that after this project has been fully executed, Brazil has implemented the full disposal/treatment cycle for PCB waste and the human resource capacity to meet the 2025 deadline, making an effort to ensure that all PCB waste can be treated nationwide in a cost-effective way. The establishment of the support programme for individual PCB holders who are financially restrained (the sensitive sites), will ensure that remaining PCB containing equipment and wastes can be disposed of in an environmentally sound manner along the PCB elimination chain.

143. For Component 2, this FSP has considered the fact that current elimination/destruction alternatives to PCBs will be identified and introduced with the proactive role of the private sector companies, guaranteeing the sustainability of the project, which aims to phase out the use of these technologies and replace them with feasible, safe and cost-effective alternatives. In accordance with these actions, the project will built the necessary incremental capacity for the treatment of such wastes, and after the project ends, these companies will continue to finance treatment in a sustainable way, as stipulated by the Federal and state environmental regulations, ensuring sustainability.

144. Through the financial scheme proposed under Outcome A.2, large private holdings will foster and increase the investment in the hazardous waste management sector by fostering their business activities for the private companies and by enhancing the collaboration between owners of PCBs and contaminated waste treatment companies. The ultimate objective of this outcome will be to balance benefits for each of the stakeholders to ensure its sustainability.

145. In short, the sustainability after completion of this FSP depends on three main effects aligned with the Development Challenge:

i. Improve the institutional and regulatory frameworks. This is in tune with its commitments under the Stockholm Convention and in accordance with Brazil?s National Implementation Plan (NIP), in particular its ?NIP Action Plan for the Sound Management of PCBs?;
ii. increase the flow of private investment capital to launch alternatives to elimination/destruction of PCBs to sustain the change over time once this FSP is completed; and
iii. build up the national capacity to sustain alternative, private sector-driven markets in the chemical industry for full compliance of the existing environmental regulations for the reduction, disposal/destruction, phase out, elimination and avoidance of PCBs by 2028.

Potential for scaling up

146. For Component 1, extending the financial FSP?s support to the large private sector holdings and sensitive sites is where the potential for scaling up lies at the national level. While the capacity for PCB management and disposal built by the proposed project and past GEF supported interventions (full disposal/treatment cycle plus capacity building and a stronger regulatory framework) will allow Brazil to scale up PCB disposal from at least 23,680 tons of PCBs contaminated wastes destroyed/eliminated/exported from 1991 up to 2018 to an additional 15,000 tons of additional PCB-contaminated materials and wastes eliminated by the project?s completion.

147. Under Component 2, the activities proposed for the identification of alternative technologies for elimination/destruction will build the necessary capacity through the demonstration projects for Brazil to scale-up such efforts to replace additional POPs or other chemical substances of concern.

[1] The power transformer stock is made up by units in use or decommissioned for high-voltage/power generation -in lower proportion with respect to whole stock- in transmission systems with a higher proportion; and smaller units of different capacities used in the distribution lines and in a wide variety of end-uses, which made up the highest proportion of the stock.

[2] PNUD ?Projeto BRA/08/G32 Produto 13-, page 12.

[3] MINISTRY OF THE ENVIRONMENT. National Inventory of Polychlorinated Biphenyls (PCBs): Convention Stockholm. Bras?lia: MMA, 2015, page 23.

[4] The power transmission and distribution system for Brazil is made up by 53 companies and 21 concessionaries, respectively, serving a market of about 85 million consumers, as shown in Annex 1.2. The total installed capacity, by 2020, is of 164,388 MW (ABRADEE/ABRATE for the PPG, 2020).

[5] National Implementation Plan (NIP) 2015, page 45.

[6] Brazil, Russian Federation, India, China and South Africa.

[7] NIP 2015, page 45.

[8] https://www.americaeconomia.com/economia-mercados/finanzas/el-pib-de-brasil-crecio-un-11-en-2019-dos-decimas-menos-respecto-los-dos

[9] https://www.worldbank.org/en/news/video/2020/04/13/la-economia-de-america-latina-y-el-caribe-en-tiempos-de-covid-19-coronavirus

[10] These substances refer, in general, to all chemical products in the categories of pure substances, dilute solutions and mixtures that meet the characteristics of POPs.

[11] Large industry associations in Brazil include cement plants (ABCP), aluminum (ABAL), steel (IABr), chemical (ABIQUIM), among others.

[12] Sensitive sites mainly include hospitals (ABRAUE/EBSERH), schools, shopping centers and large public facilities that are not aware of the toxic dangers of PCBs and do not have the technical and financial capacities to manage and mitigate these risks.

[13] NIP 2015, page 83.

[14] Ministry of the Environment. National Inventory of polychlorinated biphenyls (PCBs): Convention Stockholm. Bras?lia: MMA, 2015, page 79.

[15] NIP 2015 (Costa 2000), page 83.

[16] This category includes transformers, capacitors, system breakers and other electrical equipment contaminated with PCBs.

[17] UNDP/GEF PCB Project 63774 Terminal Evaluation, page 30.

[18] PNUD/MMA. Eletrobr?s Distribui??o Rond?nia ? CERON. Cons?rcio Brasil sem PCB. Produto 3: Plano de Gest?o de PCB, page 49.

[19] UNDP/GEF PCB Project 63774 Terminal Evaluation, page 29.

[20] This category includes:

i. recycling of contaminated mineral oil with PCB,

ii. reclassification of active transformers contaminated with PCB to PCB-free operational units, and

iii. final disposal of contaminated equipment with PCB for recycling.

[21] https://www.gov.br/ibama/pt-br ?IBAMA - Cadastro T?cnico Federal de Atividades Potencialmente Poluidoras-?

[22] https://www.gov.br/ibama/pt-br ?IBAMA - Cadastro T?cnico Federal de Atividades Potencialmente Poluidoras-?

[23] http://www.inesfa.org.br/

[24] https://institutoacobrasil.net.br/site/en/steel-park/

[25] Decontamination processes include waterproof materials, contaminated insulating oils and other permeable materials, transformers and electrical equipment contaminated by PCBs and all types of waste.

[26] UNDP/GEF PCB Project 63774 Terminal Evaluation. ?Annex I: PCBs destroyed/ eliminated/ exported from 1991 to 2018 (Ton)?, March 2019, page 64.

[27] ABRADEE/ABRATE: ?*Gerenciamento de PCBs no Setor El?trico Brasileiro*?, Webinar t?cnico da fase preparat?ria do projeto ?Destrui??o ambientalmente adequada de PCBs no Brasil?, slide 15, 29 de maio de 2020.

[28] NIP 2015, page 128.

[29] It is estimated a residual volume of about 75,000 tons of PCBs that still needs to be disposed at a cost of about USD3,500/ton.

[30] Fernandes, P. BRA/08/G32: BRASIL ? Estabelecimento da Gest?o de Res?duos de PCB e Sistema de Disposi??o, Contrato N?2010/000708, S?o Paulo, julho de 2011, page 32.

[31] NIP 2015, page 123.

[32] OECD: ?Work-on-chemical-safety-and-biosafety.pdf, 2019-20?, page 09.

[33] An inventory, in the light of this project, is a system managed by a Federal institution that keeps a record of PCBs currently in use and PCB stockpiles disposed for elimination at the national level; including dielectric oils, components and wastes.

[34] As requested by the STAP Review comment, consider the following reference on financial models: ?https://www.iisd.org/sites/default/files/publications/green-finance-soil-remediation-international.pdf?

1b. Project Map and Coordinates

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

148. Please, refer to Annex E of this document for detailed geo-referenced information and map where the project interventions will take place.

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

149. UNDP has formed mutually beneficial long-standing relationships with senior policy makers at the national level and has assisted the strengthening of the Department of Environmental Quality and Waste Management of MMA during the formulation of the PIF and in the implementation of the PPG. It has also created a synergy with key stakeholders in the private sector, academic and CSO sectors during the formulation of the ProDoc and will continue in the upcoming execution phase.

150. A stakeholder engagement plan was undertaken in order to identify key stakeholder institutions and relevant beneficiaries to be involved in the project implementation process. Annex 7 of the ProDoc ?Stakeholders Engagement Plan- describes the process of assessing the project's key stakeholder?s interests and the ways in which these stakeholders may influence the project?s outcomes, how stakeholders will be consulted in project execution, the means and timing of engagement. This Plan is important because it enhances local ownership, strengthens project integrity and design, and helps to create foundational relationships that may contribute to constructive problem solving if difficulties or challenging issues arise.

151. To achieve the planned outcomes, this FSP has engaged a variety of stakeholders, i.e.: national policy makers (mainly MMA and MME), primarily interested in achieving the project?s overarching objective of development by accomplishing the necessary implementation of national policies, in accordance with the mandates of the Stockholm Convention signed by the country as well as reporting the Global Environmental Benefits to the GEF, large private sector players (like power utility companies, industrial associations, waste management and disposal companies, chemical analysis laboratories, metal scrapers), academic stakeholders (University of Santa Maria and University of S?o Paulo; integrating the gender equality approach and the cultural change needed to achieve the project?s objective.

152. Alliances will be established with the corresponding indigenous peoples and sensitive sites where many of the foreseen activities will be implemented, based on workshops and awareness-raising meetings that will be held with local authorities and beneficiaries.

153. In short, the implementation of this project requires the active participation of diversity of partners. Responsibilities of these partners in the project?s implementation as well as initiatives supported by these partners in addressing the project?s development challenge are presented in the Table below.

Type	Group	Stakeholder	Role

Type	Group	Stakeholder	Role
National Entities	Federal Government	Ministry of the Environment (MMA)	MMA is responsible for the general implementation of the Stockholm Convention and other MEAs- is the lead public partner responsible for the coordination and implementation of the environmental national policy for POPs and PCBs in Brazil. It is also responsible for development, detailed design and implementation of this FSP, and as such, member of the Project Steering Committee. It is also responsible for liaison work with MMA, IBAMA, OEMAs, municipalities, private sector, academic stakeholders and CSOs. MMA will be the Implementing Partner for this project. It is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outputs and outcomes, and for the effective use of GEF and UNDP resources.
		Ministry of Mines and Energy (MME)	MME represents the Federal Government as the granting authority and policy maker of public policies for mineral and energy sectors, as well as the public entity in charge of monitoring the implementation of these policies. MME also participates in the development of the environmental national policies applicable to the mining and energy sectors, such as the compliance with the elimination of PCBs in the power sector. MME will support and contribute to the development of activities and engaging the power sector (generators, transmission, and distribution companies) for achieving different project outputs.

Type	Group	Stakeholder	Role
		Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA)	It is the executing branch of the National Environment Policy at the Federal level and is linked to the Ministry of the Environment. IBAMA is the institution that effectively controls production, use, trade, movement and disposal of chemicals and hazardous waste and carries out environmental inspections at both regional and national levels. It is responsible for the licensing of imports and exports of several products including chemicals controlled by international conventions. IBAMA is also responsible for the implementation of the public policies aiming the environmental preservation, monitoring and control activities. IBAMA is also in charge of environmental licensing of potentially pollutant activities (location, installation, enlargement, and operation) when its impacts affect frontier regions, federal conservation unit territories or more than one State. IBAMA will participate actively in the developing and implementing of a Quality Management System (QMS) within the Enforcement Unit to minimize the impact of staff turnover. In coordination with the MMA and OEMAS, IBAMA will boost the enforcement of PCB management related obligations.

Type	Group	Stakeholder	Role
	Public agencies	State Environmental Agencies (OEMAS)	These 27 agencies, one for each Brazilian State and of the Federal District, are the executing institutions of the environmental policies at the State level. OEMAS are responsible for controlling and supervising the economic environmental licensing and enforcement of potentially pollutant activities facilities (location, installation, enlargement, and operation) when the impacts have localized effects. Regarding hazardous chemicals management, the State Environmental Implementing Agencies are responsible for controlling the production, commercialization and use of techniques, methods and substances that pose a risk to health and the environment. State environmental agencies are responsible for licensing and inspection of potentially polluting activities, including electrical equipment maintenance, decontamination of PCB oils plants, heat treatment (incineration), waste treatment and disposal plants. In coordination with the MMA and IBAMA, OEMAs will boost the enforcement of PCB management related obligations.
		National Electricity Agency (ANEEL)	ANEEL is an institution dedicated to the public interest and the quality of electric energy throughout Brazil. It provides favorable conditions for the electricity market to develop in a balanced environment amongst agents, for the benefit of society. ANEEL is the official data source in the power industry for this FSP.

Type	Group	Stakeholder	Role
		Brazilian Association of Municipal Environmental Governments (ANAMMA)	According to CONAMA Resolution 420/2009, state and municipal environmental agencies are responsible for managing contaminated sites. ANAMMA?s main objective is to strengthen Municipal Environmental Systems for the environmental policies implementation and activities enforcement in order to preserve natural resources and environmental quality. Due to its articulation capacity at the municipal level, this Association will contribute to the coordination and information outreach of the activities to be developed by different municipalities within the territory.
		Brazilian Association of State Environmental Governments (ABEMA)	ABEMA is a civil association that represents the environmental state governments that are responsible for environmental policy implementation, environmental licensing, surveillance, forest, biodiversity, and water resources management. Due to its articulation capacity at the State level, ABEMA will contribute to the coordination and divulgation of the activities to be developed by different states within the territory.
		Brazilian Association of Technical Standards (ABNT)	ABNT, as the public body responsible for the preparation and revision of technical norms, will support Activities iii and iv, of Output B.3 for the strengthening of technical capacities of two stakeholders, i.e.: electrical maintenance enterprises and transformer maintenance workshops.

Type	Group	Stakeholder	Role
		Empresa Brasileira de Servi?os Hospitalares (EBSERH)	EBSERH is a public company associated with the Ministry of Education, created by Law 12.550 for providing free medical-hospital care services to the community, as well as providing support to federal public schools and similar institutions, for teaching, research and extension, teaching-learning and training of people in the field of public health. EBSERH is the largest network of public hospitals in Brazil. EBSERH will: ? Contribute with the project by providing updated and reliable data/information related to the current PCBs contaminated equipment in operation and PCB wastes existing at public hospitals. ? Be involved with their technical personnel in awareness and training activities for PCBs environmental sound management.
International Organizations	Cooperation Agency	UNDP CO	UNDP and its Brazil Country office have extensive experience working with the private sector, governmental institutions and civil society.

Type	Group	Stakeholder	Role
Civil Society Organizations (CSOs)	Industrial Associations	Brazilian Association of Electrical Energy Distributors, (ABRADEE)	ABRADEE brings together 42 electric power distribution concessionaires -state and private- operating in all regions of the country and together are responsible for serving 99.8% of Brazilian consumers. ABRADEE will: ? Support the project by providing reliable data/information related to the current PCBs contaminated equipment and stockpiles available in energy distributors companies. ? Support the assistance for the elimination and replacement of PCB-contaminated devices owned by sensitive sites. ? Provide co-financing in the form of investment in the technologies to treat wastes containing PCBs through their associates. This Association will also contribute to the effective design and implementation of activities under Component 2.
		Brazilian Association of Electricity Generators (ABRAGE)	ABRAGE is a private association, constituted by large electric power generating companies of predominantly hydraulic origin that aims to achieve through research, studies and debates among its members, the better development of activities related to the generation of electric energy. ABRAGE will support the project by providing reliable data/information related to the current PCBs contaminated equipment and stockpiles available in national energy generations facilities. This Association will also contribute to the effective design and implementation of activities under Component 2.

Type	Group	Stakeholder	Role
		Brazilian Association of University and Teaching Hospitals (ABRAHUE)	ABRAHUE is a non-profit civil society representing the interests of the -Teaching Hospitals at the Federal, State and Municipal levels and to other national and international associations and/or institutions. ABRAHUE will: ? Contribute with the project by providing updated and reliable data/information related to the current PCBs contaminated equipment in operation and PCB wastes existing at public hospitals. ? Be involved with their technical personnel in awareness and training activities for PCBs environmental sound management and elimination of PCB contaminated wastes.

Type	Group	Stakeholder	Role
		Brazilian Association of Electric Power Transmitters (ABRATE)	ABRATE is a civil association that brings together 19 concessionaires and electric power transmission companies, public and private, covering the Brazilian territory. It is also responsible for the management of the main substations and transmission lines that make up the National Interconnected System, responsible for servicing electricity to all Brazilian consumers. ABRATE will: ? Support the Project by providing reliable data/information related to the current PCBs contaminated equipment and stockpiles available in Energy Transmission Companies. ? Support the assistance for the elimination and replacement of PCB-contaminated devices owned by sensitive sites. ? Participate in the execution of the demonstration projects under outputs B.1 and B.2. ? Provide co-financing in the form of investment in the technologies to treat wastes containing PCBs. This Association will also contribute to the effective design and implementation of activities under Component 2.
		Steel Institute of Brazil, (IABr)	IABr is the representative entity of the Brazilian steel producing companies. IABr will: ?——Support the project by providing reliable data/information related to the current PCBs contaminated equipment in operation and PCB wastes existing at steel industries.

Type	Group	Stakeholder	Role
Academy	Universities	University of Santa Maria and University of S?o Paulo	Considering the on-going activities to be carried out by the University of Santa Maria (USFM) in the State of Rio Grande do Soul and the University of S?o Paulo on PCB destruction through supercritical fluid technology, both academic centres will participate on the implementation of a pilot test for the treatment of PCBs contaminated materials, considering feasible decontamination, cleaning and removal techniques, as well as incorporating safeguards for workers and the environment.
Private sector	Power Utility Companies	In light of the project, this group represents companies from several states. is made up by the following companies: ? CHESF ? COPEL (State of Parana) ? Eletrobras Amazonas ? CEEE ? CERON ? EDP ? ENEL ? CELESC ? Eletrosul ? CEMIG ? FURNAS ? And other	These are power generation and distribution utility companies that will be fully engaged to help design and implement the activities planned under Component 2 on PCB Management and Elimination in Priority Sectors. These companies will also finance and ensure the elimination and disposal of PCB contaminated equipment of their ownership as well as they will provide technical support to large private holdings and sensitive sites by eliminating PCB contaminated equipment.

Type	Group	Stakeholder	Role
	Waste management and disposal companies	In light of the project, this group is made up by several the following private companies. ? CETREL S/A ? Foxx Haztec (Tecnologia e Planejamento Ambiental AS) ? MGTrafos ? TECORI Ltda (Tecnologia Ecol?gica de Reciclagem Industrial Ltda.) ? WPA Ambiental Ltda ? And other	This FSP will work together with these licensed companies, which do chemical treatment or incineration of Askarel oils in order to help implement Component 2. Specifically, these stakeholders will: ? Provide integrated technologies in the destruction/elimination process of PCBs. ? Assist the FSP with decontamination and final destination services for PCB wastes. ? Support the identification of feasible alternatives to elimination/destruction of PCBs. ? Provide co-financing in the form of investment in the technologies to treat wastes containing PCBs. ? Participate in the execution of the demonstration projects under outputs B.1 and B.2.
	Chemical Analysis Laboratories	In light of the project, this group is made up by several the following private laboratories. ? Vegoor ? ACS ? Lab Oil ? And other	These labs carry out chemical analysis of PCB in insulated oils, according to the NBR ISO 13.882 -Standard for PCBs content in oil quantitative analysis by gas chromatography-.

Type	Group	Stakeholder	Role
	Metal scrapers	About 5,562 facilities of scrap recycling.	These facilities collect and trade metal wastes from different sources and are suppliers of the steel industries, and in alliance with these industries, they will be engaged to help carry out activities under Component 2. In line with environmental regulations, these stakeholders will establish collection and disposal programs for generated PCB waste under Output B.2.
Other beneficiaries	Sensitive sites	Sensitive sites	Sensitive sites, in partnership with the participating municipalities, will be involved in the development of FSP activities that could have direct impact on their facilities, as those related with the disposal of PCB-containing equipment, mainly electrical transformers, to be carried out in their geographic areas.
	Civil Society	For the purposes of the project, the beneficiaries are the citizens of Brazil; the end-users that are exposed to PCB substances in varying concentrations and a wide variety of hazardous equipment in their daily lives, which are found in homes, workplaces, and in general, in the rural and urban environments.	

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

154. As indicated above, Outcome D.1 of Component 3 of this FSP is fully dedicated to raise awareness of project stakeholders raised on the sound management of PCBs, related wastes and safer alternatives. The activities planned to achieve this output include the design of an awareness raising campaign and information strategy and a programmatic monitoring of FSP global indicators (specifically, GEF Core Indicators 9 and 11), together with a review of on-going, activities to ensure successful project implementation in accordance with UNDP and GEF procedures, integrating awareness raising and gender sensitive training materials.

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier; Yes

Member of project steering committee or equivalent decision-making body;

Executor or co-executor; Yes

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

155. From the gender perspective, Brazil?s women and men need more information on environmental stresses and more data?disaggregated by sex, age and other factors?is urgently needed to build policies that are more comprehensive. Chemical markets, specifically in the context of this project, are usually male oriented, from the supplier and the producer perspectives, however from the demand point of view protection of women from hazardous chemical needs to be strengthened. Annex 9 (Gender Analysis) of the ProDoc describes the process of assessing the gender challenges for the project and how these may influence the project?s outcomes.

156. The project has developed a strategy that links the most important gaps identified in relation to its components, the country's reality in terms of equality and the SDGs, particularly SDG 5. The gaps identified in the analysis and which are considered in the strategy include parity in decision-making spaces around the sound management of PCBs, in an integral approach to promote compliance of the Stockholm Convention in Brazil and improvement of women's income and livelihoods. These gaps require the strengthening of institutional capacities to promote equality between women and men in a structural manner, as the proposed Gender Action Plan also included in Annex 9 of the ProDoc.

157. As a standard practice during the preparation of UNDP-GEF projects (during the project?s PPG phase), a detailed gender analysis was conducted to identify potential gender-responsive measures that will be introduced during project implementation, as presented in Annex 9. Project interventions were designed and tailored to the various project beneficiaries, population groups at risk and project stakeholders to enable the project to employ gender sensitive approaches to reduce exposure risks to women, children, men and their families, and address gender gaps by reducing the breach between men and women, promote gender equality, improve women?s participation and decision-making (women empowerment) with respect to the environmentally sound management of PCBs and wastes.

158. This FSP will accelerate the transition to an environmentally sustainable management market approach for the elimination of PCBs, it will encourage another way of addressing equity gender in this field. This is an opportunity to give women an active role in male-dominated sectors and to fit in different approaches, tapping into the opening to give women an opportunity for profound and positive

changes in this subject matter; making sure that decision-making processes are participatory, inclusive, and collaborative.

159. FSP components are gender sensitive, facilitating the access of women to leadership positions associated with decision-making to create an enabling framework for strengthening the national capacity in Brazil to minimize risks to PCBs. This approach is expected to be sustained after the FSP?s completion through the full inclusion of the project?s gender Action Plan within the business-as-usual operations of the key stakeholders, both in the public and private sectors. The different gender mainstreaming strategies to be promoted are innovative (e.g. measures to give participation to women and men in various activities of the prioritized sectors, being consistent with the appropriate exposure levels for each case and taking special measures in groups with greater vulnerability such as women in pregnancy and lactation stages, among others) and will generate a number of lessons that will be documented and shared with the beneficiaries and with the relevant state and municipal institutions, regional initiatives in LAC and other knowledge management platforms worldwide through the support of the UNDP Regional Coordination Unit/Chemicals for LAC.

160. For this purpose, and in accordance with the proposed gender strategy:

- Each activity was analysed to include the necessary elements to guarantee the reduction of identified gaps and establish more pro-active actions when appropriate.
- Specific activities that focus on the empowerment of women have been included (capacities, and access to planning and decision-making processes).
- Two indicators have been included to help measure progress in this field and will be monitored as part of the M&E process .
- A budget has been included to guarantee the measures and actions to be taken. The strengthening of the project team's capacities is planned to ensure the adequate mainstreaming of the gender perspective into all project activities.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes
Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes
4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

161. The project has a significant number of private sector partners (please, refer also to Section 2 ?Stakeholders?). A good sign of private sector engagement in the project?s implementation is that 82% of the project?s co-financing (USD50.8 million) is being provided by the private sector; as such it can be concluded that Private Sector Engagement for this project is substantial.

162. The involvement of the private sector in the project will be two-fold. Firstly, regulatory, enforcement and awareness raising activities supported by the project under Component 2 will have as the main target the private sector in various chemical-intensive partners (power generation, transmission and distribution companies, cement, steel, aluminum, among others) as they are the owners of about 90% of the remaining electrical equipment with PCBs; another 10% is owned by sensitive sites. Secondly, another private stakeholder group is made up by the service suppliers for the management, elimination and treatment of PCBs, which has shown high interest in the implementation of the activities under Component 2.

163. Private sector stakeholders are involved throughout the project, for instance, in the disposal of the 15,000 tons of PCBs (Component 2), either as lead implementors, project partners, contractors or beneficiaries (e.g. waste generator, industry, waste operator, waste transporter, waste recycler, laboratories, etc.), throughout the PCB elimination chain.

164. The private sector partners who are engaged in the project?s implementation can be grouped as follows:

Corporate associations:
- Brazilian Aluminium Industry Association (ABAL)
- Associa??o Brasileira de Cimento Portland (ABCP)
- Brazilian Association of State Environmental Agencies (ABEMA)
- Brazilian Association of Electrical Energy Distributors, (ABRADEE)
- Brazilian Association of Electricity Generators (ABRAGE)
- Brazilian Association of University and Teaching Hospitals (ABRAHUE)
- Brazilian Association of Electric Power Transmitters (ABRATE)
- Steel Institute of Brazil, (IABr)

Private sector and sectors to intervene:
- Power utility companies (involved in the phase-out and disposal of PCB containing electrical equipment)
- Waste management and disposal companies
- Chemical Analysis Laboratories
- Metal scrapers

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

165. A group of risks has been identified and must be taken into account during the execution of the project. As per standard UNDP requirements, the National Project Coordinator will monitor risks quarterly and report on the status of risks to the UNDP Country Office (CO) in Brazil. The UNDP CO will record progress in the UNDP ATLAS risk log (UNDP Risk Register). Risks will be reported as critical when the impact and probability are HIGH (i.e. when impact is rated as 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks will also be reported to the GEF in the annual Project Implementation Report (PIR).

166. The key risks that could threaten the achievement of project results have been summarized in the Table below. For further details of this analysis, please refer to the UNDP Risk Register in Annex 5, and an assessment of the social and environmental risks identified in the SESP (Annex 4).

Risk Class	Risk and Description	Risk Management Response

Risk Class	Risk and Description	Risk Management Response
Social and Environmental	Risk 1: Related to Human Rights Description: Temporary suspension of power supply to sensitive sites (schools/hospitals) as well as rural and poor populations during the testing and maintenance of the transformers.	Based on the Stakeholder Engagement Plan (Annex 7 of the ProDoc) that has been prepared during the PPG, a communication strategy will be developed during the implementation of the FSP, emphasizing on the benefits of the project to participating partners and will include briefings, especially for those facilities located in sensitive sites. These spaces will inform the possibility of interruptions in the power supply, previously scheduled and reported due to the intervention of the qualified technical teams, which in turn may affect access to other services; the above in order to take the appropriate measures and avoid affecting any population, either at the nearby community level and with patients (hospitals), customers (commercial centers) and students (academic centers) located in the sensitive sites. The project will thus develop and implement a testing and maintenance schedule and procedure that ensures hospitals and health facilities are equipped with operating generators prior to suspension of power, and that schools are not in service during the testing and maintenance periods (See PRODOC section IV). The schedule will also take into account stakeholder concerns and preferences to the extent possible. Free and Prior and Informed Consent (FPIC) will be obtained should any Indigenous Peoples be identified as potentially affected by this impact. The activities related to identification, labelling, classification and elimination of PCBs contaminated equipment will be developed by qualified technical staff following their existing protocols and attending the principles of continuity and quality of the electric power service established in the Brazilian Power Regulation Laws . These activities are described on Section IV of the PRODOC. (Activities for Output B.1)

Risk Class	Risk and Description	Risk Management Response
Social and Environmental	Risk 2: Related to Human Rights Description: Increase in electricity tariff for the poor rural population due to replacement of transformers.	As this project is rated overall as a High Risk project, and according to the Environmental and Social Management Framework (ESMF) that was prepared during the project preparation phase (Annex 8 of the ProDoc), an Environmental and Social Impact Assessment (ESIA) with an Environmental and Social Management Plan (ESMP) will be carried out at the start of Project Implementation ahead of any project activity that will be covered by the assessment. As part of this ESIA, an affordability study will be undertaken to ensure that vulnerable communities are able to absorb the additional expense, and if not, then a livelihoods restoration plan will be prepared and implemented. In addition, FPIC will be obtained should any Indigenous Peoples be identified as potentially affected by this impact. (Activities for Output B.1)
	Risk 3: Related to Gender Equality Description: Adoption of BAT/BEP, participation in demonstration projects and capacity building activities could potentially reproduce already existing discriminations against women, by excluding them from decision-making and participation.	During the PPG phase, an Action Plan was prepared based on a Gender Analysis (Annex 9 of the ProDoc). This plan focuses on three lines of work: (i) Strengthening capacities for the gender approach mainstreaming. (ii) Protection from gender-differentiated exposure to hazardous wastes and chemicals (iii) Participation and empowerment of women. (iv) Introduce gender aspects in project monitoring, communication and evaluation actions. These gender-sensitive activities will be carried out to address this identified risk and take advantage thereof to generate multiple benefits for men and women.
	Risk 4: Related to Climate Change Mitigation Description: The project's demonstrative interventions for the elimination of PCBs may result in the increase of (or no reduction of) CO2 emissions due to current technologies for incineration treatment/destruction of PCBs.	As part of the ESIA that will be prepared for the project, CO2 emissions from the demonstrative interventions for the elimination of PCBs will be estimated, options compared and measures proposed to minimize CO2 emissions such that the alternative technologies must ensure compliance with "Best Available Techniques" (BAT) and "Best Environmental Practices" (BEP) practices as per the Convention. (Activities B.1-iii, B.2-iv and C.1-iii)

Risk Class	Risk and Description	Risk Management Response
	Risk 5: Related to Climate Change Mitigation Description: A natural disaster such as flooding could affect the facilities and operations of the planned demonstration projects, generating environmental, social and operational complications for the execution of the planned activities, such injuries to workers and release of chemicals.	Within the framework of the project, it is planned to build capacity with the involved stakeholders, as well as with the project staff, for the immediate response to manage this risk, primarily in the surroundings of the facilities of the demonstration projects, including vulnerability factors to natural events and climate change. (Activities for Output A.2) The selection of companies for the implementation of the pilot and demonstration projects will consider that the infrastructure to be used is not located in areas classified as high risk due to landslides, erosion, floods or extreme weather conditions. This climate vulnerability risk assessment will be undertaken in Activity A.2-v as part of the ESIA that will be prepared for the project and as described in the ESMF and the proposed measures will be included in the ESMP. (Activities B.1-iii, B.2-iv and C.1-iii)
	Risk 6: Related to Pollution and resource efficiency. Description: Release of PCBs during transport and interim storage could harm the nearby communities and environmentally sensitive areas (soil and water contamination, toxicity, bioaccumulation and bio-magnification in living tissues)	The PPG Phase has identified the sites for the demonstration projects based on human exposure and proximity to sensitive sites, such as schools and hospitals, as shown in Annex 1 of the ProDoc. In line with the ESMF that has been prepared for the project, the ESIA will also identify environmentally sensitive receptors that may be affected by accidental releases such that mitigation measures will be developed and included in the ESMP through a spill prevention and management plan. This plan will describe how the project will handle, transport and store PCBs in accordance with IFC Health and Safety Guidelines. In addition, FPIC will be obtained should any Indigenous Peoples be identified as potentially affected by this impact. Furthermore, all activities will be carried in compliance with applicable State and Federal Environmental Regulations. (Activities B.1-iii, B.2-iv and C.1-iii)

Risk Class	Risk and Description	Risk Management Response
	Risk 7: Related to Community Health, Safety and Working Conditions Description: PCBs incineration could generate other POPs emissions, affecting the workers, local community and the environment.	In line with the ESMF that has been prepared for the project, the ESIA will assess the risk of exposure to POPs emissions resulting from PCB incineration. Measures to eliminate and reduce the impact on local community and workers will be included in the ESMP for the project. In addition, FPIC will be obtained should any Indigenous Peoples be identified as potentially affected by this impact. (Activities B.2-iv and C.1-iii)
	Risk 8: Related to Related to Community Health, Safety and Working Conditions Description: Exposure to personnel that own and provide services along the PCBs elimination chain to harmful chemicals.	In the framework of the project, it is planned to undertake the promotion with the companies, actors involved, as well as the project staff, for the definition of risks in health and environment of the use of the chemical substances involved, including the analysis of risks under local conditions of the facilities to be used (Outputs B.1 and B.3), as well as the implementation of a capacity building program for personnel from public entities and the industrial sector in the use of international protocols for risk assessment and the introduction of alternative substances, respectively. This will consider the provisions of the Gender Equity Action Plan. Likewise, compliance with International and National health, work and environmental regulations, as well as safety standards for the development of activities that include exposure to physical and chemical hazards will be promoted with the companies, actors involved, as well as with the project staff. This will be undertaken as part of the ESIA that will be prepared for project and in line with the ESMF such that occupational safety measures will be included in the ESMP in the form of an occupational health and safety plan. Personnel participating in the project will be required to be enrolled in the occupational risks system, and the same directive must be applied for personnel hired by a third party. (Activities B.1-iii, B.2-iv and C.1-iii)

Risk Class	Risk and Description	Risk Management Response
	Risk 9: Related to Related to Community Health, Safety and Working Conditions Description: Participation of minors in hazardous activities associated with the project, directly or indirectly.	Child labor is strictly forbidden by Brazil. The FSP being a National Project, neither the Ministry of Environment nor UNDP will not tolerate any forms of child labor. The ESIA that will be conducted at the beginning of the FSP as stated in the ESMF will assess the likelihood of this risk and prevalence of child labour within the proposed demonstration sites. The subsequent ESMP will propose measures to reduce it and find working children tasks in line with the provision of ILO Convention 138 (Minimum Age Convention, 1973). In addition, activities under this FSP will take place in existing well-recognized existing facilities, operated by senior companies with all the licensing and permits in effect that will undergo the UNDP private sector risk assessment tool to ensure adherence to ILO standards. (Activities B.1-iii, B.2-iv and C.1-iii)

Risk Class	Risk and Description	Risk Management Response
		Having ratified ILO?s Convention 169, Brazil has strongly positioned itself for the defense of Indigenous Peoples and the implementation of the Convention?s best practices. For this project, an effective Stakeholder Engagement Plan (Annex 7) has been prepared, which will include informational meetings, including, among others, aspects related to the management of identified risks (Activities for Output D.1). In addition, and in line with ESMF, FPIC will be obtained if it is confirmed that Indigenous Peoples will likely be affected by this impact, and an Indigenous Peoples Plan (covering this risk and all others that trigger Standard 6) will be prepared if confirmed by the ESIA.
	Risk 10: Related to indigenous people. Description: Marginalization of indigenous peoples present in the project area from economic opportunities and decision making	As part of the participation plan, actions focused on vulnerable groups are contemplated, which guarantee their participation in the project and allow incorporating considerations raised by them, during the project development (Annex 7). Once the awareness and communication process has been carried out, in the case of indigenous communities, they will be the ones to validate the approval of eventual activities within their territories. In addition, for very sensitive regions, the project will carry out their activities in cooperation with the existing public power utilities operating in these territories, enhancing their ongoing Social Responsible Programs. (Activities B.1-iii, B.2-iv and C.1-iii)

Risk Class	Risk and Description	Risk Management Response
		Within the framework of the project, it is planned to develop standards and guidelines that define the "low POP content" of industrial PCBs in waste and establish technical guidelines for the storage, collection and final disposal of PCBs contaminated waste (hazardous waste) (Activities for Output C.2), as well as guidelines to carry out processes for the use of non-hazardous waste (with low POP content or free of POPs). In addition, and as part of the ESIA that will be prepared upon project implementation and in line with the ESMF, the amount, type and disposal method and location of hazardous and non-hazardous waste will be identified and assessed. Potential impacts on community health and safety or natural habitats will be evaluated and mitigation measures described within the project ESMP, which will include a waste management plan.
	Risk 11: Related to Pollution and resource efficiency. Description: Generation of waste (both hazardous and non-hazardous).	This will be complemented by strengthening the capacity of waste managers for the comprehensive management of products, items and waste that contain PCBs for industrial use, as well as through training programs on implementation of the waste management plan to guarantee the environmentally sound management of hazardous waste and the strengthening of the processes to use residues not contaminated with PCBs (non-hazardous). On the other hand, companies that carry out activities associated with the storage, transport, use, disposal of hazardous chemicals and hazardous waste involved in the project and involved therein will be asked to complywith local regulatory and IFC environmental, health and safety standards, as well as complying with the provisions of the Stockholm Convention on the matter. Companies will be asked to sign a safeguards commitment letter to implement all measures stipulated in the ESMF and will be monitored accordingly and to adhere to Federal and State Environmental Regulations. (Activities B.1-iii, B.2-iv and C.1-iii)

Risk Class	Risk and Description	Risk Management Response
	Risk 12: Related to Human Rights Description: Duty bearers may not have the capacity to meet their obligations in the Project	The project will train professionals at Federal, State and Municipal levels to support PCBs inspection procedures. A training needs assessment will be undertaken for these professionals (guided by the SES), and a post-training assessment will be conducted to ensure that the information has been delivered to the participants as required and will have a meaningful impact on their job performance. (Activity A.3-iii)
Financial	Risk 13: Very critical context of the national economy. Description: High variations in interest rates, restricted liquidity, fluctuations of the currency exchange and high inflation may provoke unexpected changes in the FSP Total Budget (Section IX) and prevent a proactive involvement of the private stakeholders.	For FSP expenses, UNDP monitors expenditure on a regular basis. Further UNDP HQ provides global oversight of project delivery minimizing the risk due to economic unrest. For co-financiers along the PCBs elimination chain, the FSP will coordinate among the owners to obtain the lowest possible disposal cost through economies of scale. The project will co-finance disposal activities for private holders and sensible sites.
	Risk 14: Increasing electricity tariffs. Description: The PCBs replacement cost may increase electricity tariffs to the final consumer due to the transfer of costs for the final disposal of PCBs in accordance with existing cost structure acknowledged by ANEEL for power companies.	The project, under Output B.1, will prepare a business model so that metal scrap companies will bid for transformers stocks. It is foreseen that this transaction will level off the costs associated with environmental disposal of these substances along the PCBs elimination chain.
	Risk 15: Poor engagement from the private partners. Description: Private stakeholders are reluctant to play an active role during the FSP execution.	During the PPG stage, the main concerns and interests of the stakeholders interested in the project, mainly industrial corporations and corporate associations were compiled, allowing the formulation of activities aiming at the elimination of the identified set of barriers and emphasizing on the benefits of being part of the project.
Operational	Risk 16: Inadequate reporting and communication. Description: Deficiencies in communication and relationship with stakeholders.	An effective communication strategy will be developed during the implementation of the FSP to raise awareness among the stakeholders and the community in general aware of the project's characteristics.

Risk Class	Risk and Description	Risk Management Response
	Risk 17: Limited access to elimination facilities. Description: PCBs contaminated equipment located throughout the territory. However, the facilities that carry out the decontamination of equipment and the destruction of PCBs waste are concentrated in the Southeast Region.	The FSP?s strategy (Section III) has been planned and validated with the main stakeholders participating in the PCBs Elimination Chain to deal with this risk and made possible to develop an alternative path to the business-as-usual situation.
	Risk 18: Limited capacity development of national partners. Description: National authorities, public officials and other stakeholders may lack the knowledge and skills necessary for the environmentally sound management of hazardous chemicals.	During the implementation of the FSP, awareness-raising, training and technical training programs will be developed and implemented, as well as capacity building in national authorities, public officials and other interested parties who are working on issues related to the management of chemical products and waste, to ensure the knowledge and experience needed to carry out their tasks properly.
	Risk 19: Weak legal compliance. Description: Limited capacity of stakeholders to develop innovative alternatives in order to comply with environmental standards and licensing processes.	In the framework of this FSP, the signing of collaboration agreements for the development of specific activities with each of the stakeholders is foreseen, which will include mechanisms that require compliance with environmental, health, labor and other regulations that may be applicable.
Organizational	Risk 20: Poor FSP monitoring and extreme delay periods. Description: Limited capacity of the MMA and other key stakeholders due to insufficient trained staff on the implementation of proposed alternatives, may cause an inadequate tracking and monitoring of the agreed activities, Objective and Outcome indicators.	Component 3, Outcome B. comprises a series of actions aimed at periodic monitoring and follow-up on the development of the project, including a comprehensive evaluation under the MTR, where possible deviations from the programed actions can be identified at an early stage. Besides, UNDP CO staff and the UNDP Panama RTA will do their utmost to inform and convince policymakers on the relevance of this FSP to put it on track.
Political	Risk 21: Lack of interest at the national level. Description: Environmental, health and trade public authorities do not actively participate in the development and implementation of project activities.	In the situation that this institutional context would happen, technical personnel from MMA, UNDP CO staff and the UNDP Panama RTA will do their utmost to inform and convince policymakers on the relevance of this FSP, the reasons why it was developed and the positive impact it will have on human health and environment, in tune with the Development Objective, SDGs and the obligations under the Stockholm Convention for 2025 and 2028.

Risk Class	Risk and Description	Risk Management Response
	Risk 22: Lack of political will at the State and Municipal levels. Description: It may happen that in certain circumstances ? at the territorial level ? some State or Municipal authorities may show disagreement with the scope of some of the proposed activities.	If agreements cannot be reached at the State and Municipal levels, decisions will be made at the Federal level to define a territorial-driven, feasible Action Plan, following the principles agreed in this FSP and the interest of the participating stakeholders. UNDP, as the GEF implementing agency, will assist the Government of Brazil in finding the most suitable path to overcome any consequence of this risk that may affect the FSP execution.
	Risk 23: Lack of political will and Federal government?s commitment. Description: Public authorities for the environment and energy do not actively participate in the development and implementation of project activities.	The PMU and the Project Steering Committee will provide continuous feedback and monitor the project results on a regular basis.
Strategic	Risk 24: Erroneous intervention of the media and adverse public opinion. Description: Possible misinformation regarding the scope and benefits of the project could generate unfavorable opinions of some stakeholders about the project which could hinder its implementation.	During the PPG stage, the main concerns of the stakeholders interested in the project were compiled, especially from industrial corporations and corporate associations allowing the formulation of actions that would mitigate this risk, emphasizing the benefits of being part of the project (Annex 7: Stakeholder Engagement Plan). Furthermore, an effective communication strategy will be developed during the implementation of the FSP to raise awareness among the stakeholders and the social weave to make them aware of the project's outcomes.
	Risk 25: Weak engagement of stakeholders. Description: Limited capacity in the MMA and other key stakeholders that can generate conflicts, misinformation and misunderstandings of the overall objective of the project.	The response to mitigate this risk is the design and implementation of policies and regulations that can increase the sustainability of the project outcomes.

Risk Class	Risk and Description	Risk Management Response
	Risk 26: Difficulties with the co-financing. Description: Private power companies fear that participation in the project might affect their image or brand.	The project will estimate PCBs inventories to determine market for disposal activities in Brazil, and the improved enforcement should lead to more demand for disposal capacity. This should encourage potential private sector participation to invest in upgrading new disposal capacity and adapt it to the conditions of each sector and region, given the fact that this market-driven niche for the participating companies in the pilot and demonstration projects.
Safety and Security	Risk 27: Endangered safety during the life cycle. Description: Failures in the enforcement of technical standards, norms and safety protocols to eliminate PCBs in an environmentally sound manner.	The criteria for classifying and prioritizing the sites to intervene in Component 2 of the project includes the enforcement of security safeguards for the execution of the planned activities, in accordance with the security protocols have already established by the companies in the power sector as well as the NBR applicable norms and standards.

?

167. Reduced resilience of the potential outcomes of the Project due to potential negative impacts is low because the project design has addressed critical challenges with three main avoidance actions:

- The first one refers to the challenge to be addressed by this project is to phase-out, by 2025, all PCB-containing equipment and to dispose of PCBs in an environmentally sound manner by 2028.

- The second action refers to the adoption of public policies, led by MMA, through private-driven measures to reduce or eliminate releases by the implementation of the pilot projects, considering appropriate preventive and reactive measures for the alternative technologies.

- The third one, is that the risk management responses are not only related to PCB contamination, but allows the prevention and mitigation of functional and environmental risks (for instance, explosion and fire, formation of PCB by-products such as PCDD-, undesirable emissions of Dioxins and PCDF-Furans, contamination cross-linking of PCBs and emission of Askarel oil and or PCBs into the environment).

168. This FSP has also considered, as part of its risk management assessment carried out during the PPG, several coronavirus (COVID-19) pandemic threats. Incremental project activities will require, by the PMU, regularly scanning for emerging risks across the FSP?s activities to ensure to continue delivering the

expected outputs, prevent unintended harm because of the planned activities, and proceed quickly with adaptive management response under this rapidly changing context.

169. For this project, the following three risks have been identified due to this pandemic:

Social (COVID-19) risk: Potential harm to people and the environment.

Description: Potential health and safety, including contagious exposure for stakeholders the FSP has planned to engage with, including the staff of the PMU and institutional partners, plus third party workers where the field project demonstrations will take place.

Management strategy: This strategy will be implemented in twofold: i. develop innovative virtual and remote methods for working and implementation, as much as possible, and ii. since the World has not yet found a vaccine for this virus, for the implementation of those activities that require social gathering, the FSP?s PMU, with assistance from the UNDP CO, will look at COVID-19 as a public health crisis, implementing the solutions for which are social distancing, careful sanitization, widespread testing, access to safety equipment, and immediate competent medical care, if needed.

Financial (COVID-19) risk: Reduce the committed cofinancing by the project partners.

Description: Potential delays of anticipated cofinancing, both in kind and cash sources, due to COVID-19 corporate response, especially from the private sector stakeholders that need to react immediately to adjust their cash flows to cover unexpected labor costs and significant drop of business revenues.

Management strategy: Regular monitoring of this risk by the PMU and carry out period assessment of changing the market context, both at the national and international levels, to ensure the project remains a relevant and trusted partner of the private sector stakeholders.

Organizational (COVID-19) risk: Limited domestic travel.

Description: Immediate impacts from domestic travel restrictions per United Nations and the Government of Brazil requirements and unavailability of land and air transport means.

Management strategy: Develop innovative virtual and remote methods for working and implementation, as much as possible.

170. During the project implementation, these three COVID-19 related risks should be regularly screened, managed and reported to ensure the Project Coordinator has relevant data from across all activities for timely and effective decision-making and to determine when escalation is required. As part of its track-monitoring role of GEF projects, UNDP, through the Country Office, will track and monitor this global outbreak and its immediate implications for this FSP; if necessary, the UNDP Atlas Risk Register (Annex 5) will be updated consequently. Likewise, indicators convened under the Project Results Framework (Section V) will be adjusted. These two actions will be also tracked, monitored and reported in the Mid Term Review.

171. Environmental and social risks have been discussed with the executing partners and with a variety of stakeholders through the workshops held during the PPG . These risks were discussed and were analysed in the ?Social and Environmental Screening Procedure? (SESP, Annex 4) and the ones rated as MODERATE have been reviewed in more detail within the ?Environmental and Social Management Framework? (ESMF, Annex 8). An assessment and ESMP (and site-specific plans if necessary) must be prepared and mitigation measures in place, prior to the initiation of any project activity that may cause adverse impacts, in particular any actions that may lead to or cause environmental and health impacts and impacts on indigenous peoples.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

172. Implementing Partner: The Implementing Partner for this project is the Ministry of the Environment of Brazil.

173. The Implementing Partner is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

174. The Implementing Partner is responsible for executing this project. Specific tasks include:
- Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.
- Risk management as outlined in this Project Document;
- Procurement of goods and services, including human resources;
- Financial management, including overseeing financial expenditures against project budgets;

- Approving and signing the multiyear workplan;
- Approving and signing the combined delivery report at the end of the year; and,
- Signing the financial report or the funding authorization and certificate of expenditures.

175. Responsible Parties: Does not apply for this project.

176. Project Stakeholders and Target Groups: The stakeholders of the project correspond to a diversity of entities of the Federal Government, States, Municipalities, private sector and sensitive sites, as indicated in Table 4. Partnerships of the FSP, such as:

- The Ministry of the Environment (MMA) is responsible for the general implementation of the Stockholm Convention and member of the Project Steering Committee.
- Ministry of Mines and Energy (MME) as key participant in the elimination of PCBs in the power sector.
- The Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) which is responsible for environmental licensing of potentially pollutant activities, Including previous, installation, and operation licenses.
- The state environmental authorities (OEMAS) will participate in the development of the project since they must carry out control and monitoring activities that guarantee the proper management of PCBs substances and their waste.
- The Brazilian Association of Municipal Environmental Governments (ANAMMA) which represents municipalities in environmental area.

177. Stakeholders of this project are also the large enterprise sector corporations of the power sector such as the power generation, transmission and distribution companies, which will support activities related to the identification and labeling of equipment aiming at the compliance of PCB elimination as per the Stockholm Convention.

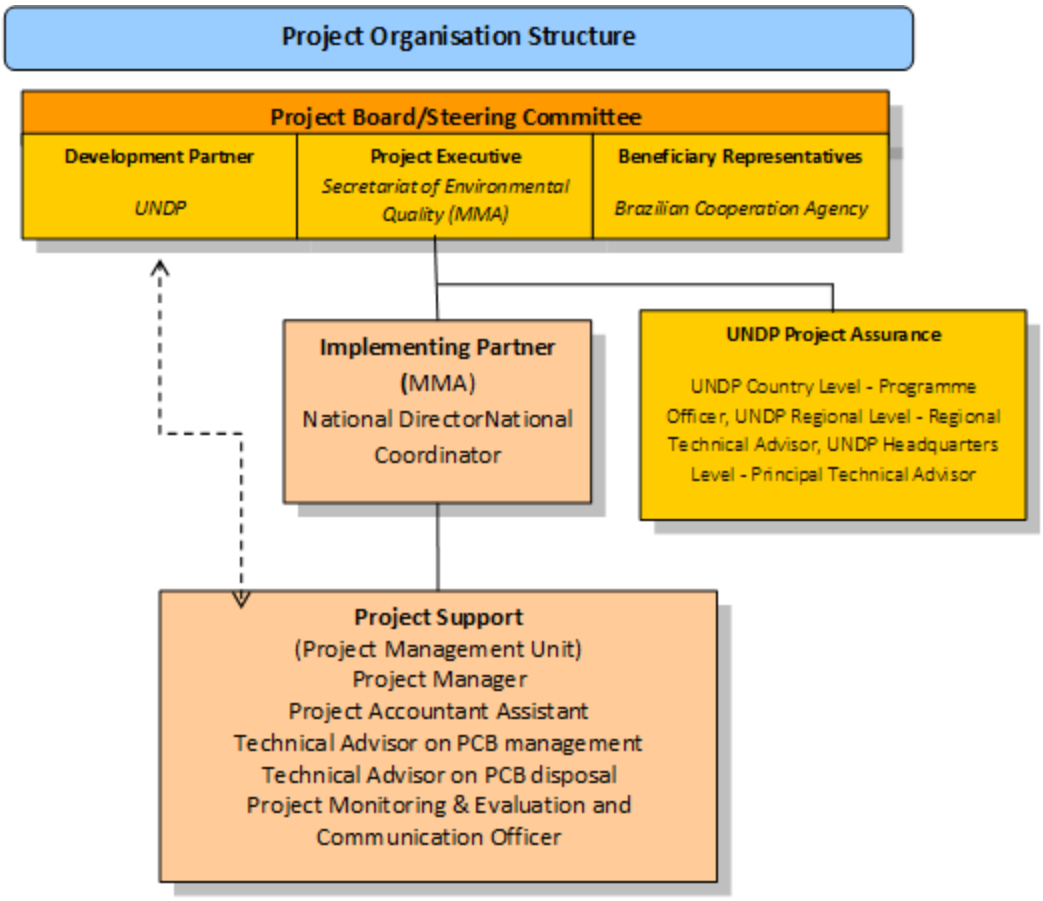
178. Non-profit entities created by the large private holdings of the industrial sector. These Civil Society Organizations (CSOs) will facilitate the elimination of materials and waste containing PCBs and will participate in the implementation of alternatives for their environmental sound elimination such as ABAL, ABCP, ABRADEE, ABRAGE, ABRAHUE, ABRATE, IABr and sensitive sites represented by CSOs such as EBSERH that still own large volumes of PCB contaminated equipment.

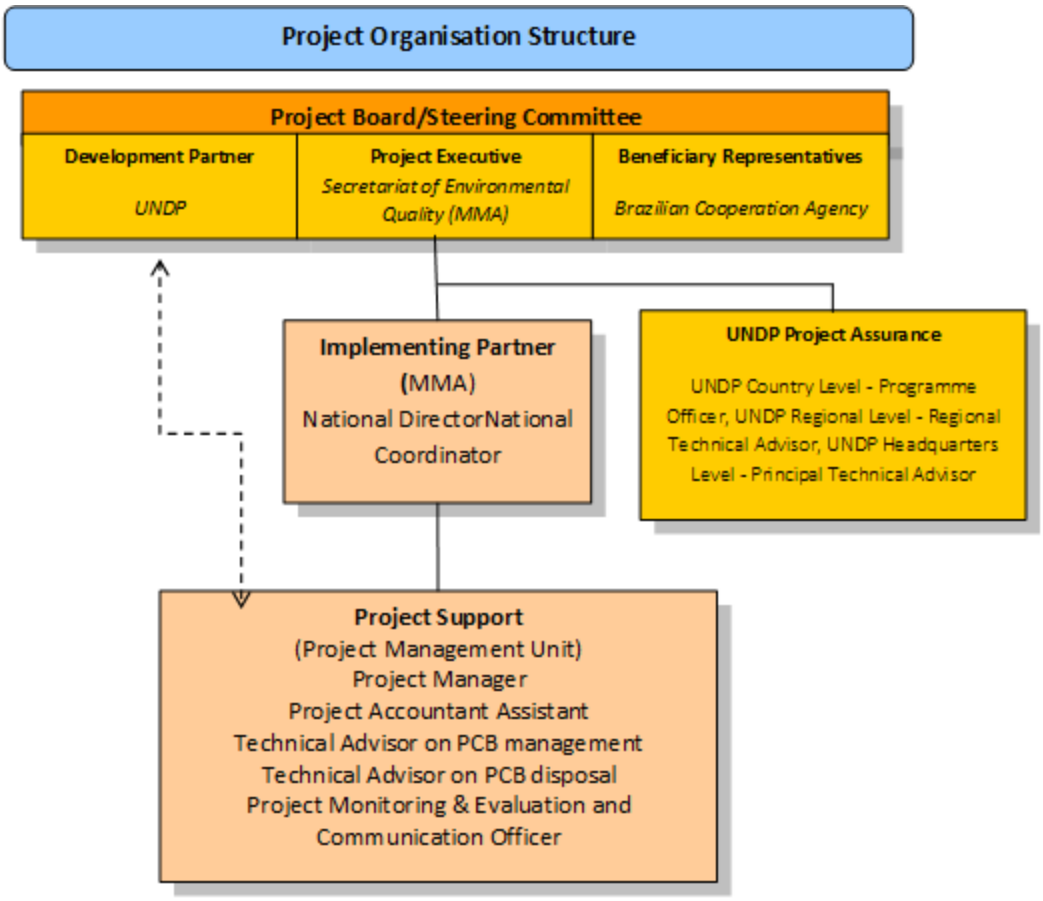
179. The other group is made up by those private enterprises that perform the activity of waste sound management, disposal and elimination along the PCB elimination chain who develop a variety of activities including storage, transport and disposal of waste containing PCBs, as presented in Table 2.

180. UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Board/Steering Committee.

181. Project Organisation Structure: The project organization structure is as follows:

Figure 4. Project Organization Structure


Project Organisation Structure
Project Board/Steering Committee
Development Partner
UNDP
Project Executive
Secretariat of Environmental Quality (MMA)
Beneficiary Representatives
Brazilian Cooperation Agency
Implementing Partner
(MMA)
National DirectorNational Coordinator
UNDP Project Assurance
UNDP Country Level - Programme Officer, UNDP Regional Level - Regional Technical Advisor, UNDP Headquarters Level - Principal Technical Advisor
Project Support
(Project Management Unit)
Project Manager
Project Accountant Assistant
Technical Advisor on PCB management
Technical Advisor on PCB disposal
Project Monitoring & Evaluation and Communication Officer



182. The Project Board (also called Project Steering Committee) is responsible for taking corrective action as needed to ensure the project achieves the desired results. In order to ensure UNDP?s ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.

183. In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

184. Specific responsibilities of the Project Board include:

? Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;

? Address project issues as raised by the project manager;

? Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;

? Agree on project manager?s tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project manager?s tolerances are exceeded;

? Advise on major and minor amendments to the project within the parameters set by UNDP-GEF;

? Ensure coordination between various donor and government-funded projects and programmes;

? Ensure coordination with various government agencies and their participation in project activities;

? Track and monitor co-financing for this project;

? Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;

? Appraise the annual project implementation report, including the quality assessment rating report;

? Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;

? Review combined delivery reports prior to certification by the implementing partner;

? Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;

? Address project-level grievances;

? Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;

? Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

185. The composition of the Project Board must include the following roles:

a. Project Executive: It is an individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. The Project Executive is the Secretariat of Environmental Quality of the Ministry of the Environment, who will chair the Steering Committee.

b. Beneficiary Representatives: Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often civil society representative(s) can fulfil this role. The Beneficiary Representatives are the large power utilities, large private industries and

sensitive sites. The Beneficiary Representatives is Ministry of Foreign Affairs, throught the Cooperation Brazilian Agency (ABC). If necessary, and in face of specific contexts, other institutions could be invited to collaborate on time with Board.

c. Development Partner: Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner is UNDP.

d. Project Assurance: UNDP performs the quality assurance role and supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. UNDP provides a three ? tier oversight services involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is totally independent of the project execution.

186. Project extensions: The UNDP Resident Representative and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: one extension only for a project for a maximum of six months; the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; the UNDP Country Office oversight costs during the extension period must be covered by non-GEF resources.

Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

187. There is a group of GEF-financed projects and other initiatives in Brazil currently under implementation related to the development challenge that this project is also addressing, which could provide some additional support to strengthening this institutional partnership approach. Thanks to the involvement of the institutional partners in some of them, under the leadership of the Ministry of the Environment, it seems of mutual benefit the achievement of the outcomes for this project Specifically, this FSP will ensure coordination and count on the capacity built and knowledge gathered from the concurrent projects that are already in progress, as shown in the Table below:

Table 5: Other on-going projects related to this FSP

Project	Agency	Main relevance for this FSP
POPs -Stockholm Convention-		

GEF Project - Review and update of the National Implementation Plan (NIP) for the Stockholm Convention on Persistent Organic Pollutants (POPs) in Brazil.	UNEP	The general objective of the NIP update project is to contribute to Brazil's efforts to implement the Stockholm Convention and, consequently, to protect human health and the environment from the risks inherent in the use, management and release of POPs. The specific purpose of updating the NIP is to comply with Article 7 of the Stockholm Convention, which states that the Parties shall ?review and update, as appropriate, their implementation plans, from time to time, as specified by decision of the Conference of the Parties?. In this regard, information gathered during the preparation of the NIP, enhances the data gathering for the preparation of the ProDoc.
Mercury ?The Minamata Convention-		
Project GEF SB - 001062.03.01- Development of Initial Assessment of the Minamata Convention on Mercury in Brazil.	UNEP	Implementation of the Minamata Convention on Mercury in Brazil, providing the main national stakeholders with technical and scientific knowledge as well as the necessary instruments for this function. Strengthening of institutional capacities at the MMA, thanks to both GEF projects, will substantially contribute to knowledge management gains for senior officers.
Chemical Management		
Special Program to Build Institutional Capacity for Chemicals Management by Establishing the Structure Required to Implement National Legislation for the Control of Industrial Chemicals.	UNEP	The Special Program aims to support institutional strengthening for the implementation of the Basel, Rotterdam, Minamata and Stockholm Conventions, and the Strategic Approach to International Chemicals Management (SAICM). Brazil will get support from the Special Program for strengthening institutional capacity for the development, adoption, monitoring and enforcement of policies, laws and regulations, in addition to gaining access to financial resources to establish effective structures for implementation of the legally mandatory chemicals and waste.
Others		
Knowledge Management on PCB in compliance with the Stockholm Convention.	CIGRE	On-going training events for its members on PCB management for CIGRE?s members in Brazil.

188. UNDP organizes on a yearly basis face-to-face South-South exchanges among all UNDP GEF Chemicals and Waste projects and programmes in the Latin American and the Caribbean region. These allow government counterparts, project coordinators and experts to exchange experiences and lead to long-term collaboration, exchanges and partnerships between projects and countries. Projects that participate in these exchanges include UNDP/GEF projects like those implemented in Colombia, Ecuador, Honduras and Uruguay (among others), which also focus specifically on PCBs, other POPs and Mercury issues.

189. In addition, to bring the voice of Brazil to global and regional fora, this FSP will explore opportunities for meaningful participation in specific events where UNDP could support engagement with the global development dialogue on chemical substances management. The project will furthermore provide opportunities for regional cooperation with countries that are implementing initiatives on the sound

management of PCBs in committed geopolitical, social and environmental contexts such as the proposed projects in Argentina, Colombia, Ecuador, Mexico and other Latin-American and The Caribbean countries.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

190. This project is consistent and aligned with National Priorities taken up in the: National Implementation Plan (NIP) under the Stockholm Convention on Persisten Organic Pollutants (POPs), published in 2015, which includes actions formulated for the 28 POP substances regulated so far by the Convention, a Federal policy that is complemented with normative instruments that contribute to the integral management of PCBs in Brazil.

191. Furthermore, the 2015 NIP identified priorities that are in accordance with specific actions and recommendations at the national level, and in particular with the "NIP Action Plan for the Sound Management of PCBs?as well as several official resolutions that have established the requirements for the integral environmental management of equipment and wastes that consist, contain or are contaminated with Polychlorinated biphenyl (PCBs) substances.

192. For the global development agenda, this FSP is aligned with the recently developed Agreement of the Principle 10 of the Rio Declaration, which states that environmental issues are best handled with the participation of all concerned citizens, at the relevant level, recognizing that information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes.

193. Improving the sound life-cycle management of chemicals and, in particular, the management of PCBs, and other hazardous chemicals will help the Government of Brazil to work towards achievement of the Sustainable Development Goals (SDGs). The SDGs most relevant to this project are:

- SDG 3 "Good Health and Well-being? protecting local, regional and global populations from the health impact of hazardous chemicals;
- SDG 5 "Gender Equality? promoting gender perspective;
- SDG 6 (Clean Water and Sanitation),
- SDG 9 "Industry, Innovation and Infrastructure? supporting industry in reducing its harmful releases;
- SDG 11 "Sustainable Cities and Communities? making cities and human settlements inclusive, safe, resilient and sustainable; and
- SDG 12 "Responsible Consumption and Production? phasing out products containing harmful substances.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

194. There are two key challenges faced by this FSP to build up a ?Knowledge Management Approach?. In the first place, the challenge to be addressed by this project is to phase-out, by 2025, all PCB-containing equipment and PCB disposal and waste in an environmentally sound manner by 2028, as per the Stockholm Convention, is one the alternative paths proposed by the project as a result of the Theory of Change analysis carried out during the PPG. The second challenge is related to the full implementation of a national regulatory context that sets up the timeline for the implementation of PCB elimination at the national level, by 2028.

195. Based on these two tasks, of the project?s three components, Component 3 has been dedicated to ?Lessons learned identified, monitored and assessed?, with a budget allocation of USD300,000 and co-financing of USD62,125,427.6.

196. Under the foreseen activities in Output D.1, the project will implement a ?Knowledge management system for best practices and communication platform at national level established?, making use of social media, the preparation of publications, scientific papers, articles, lessons learned reports, among else, (detailed in Annex 7 ?Stakeholder Engagement Plan?). In particular, knowledge ?both at the national and international fora- will be gathered, managed and disseminated through the list of incremental activities which will capture lessons-learned and experiences and publish them in publications and lessons-learned reports (Output D.1, Activity iv.). The timeframe for the implementation of these activities can be found in Annex 2 -Multi-year Work Plan- (attached to the UNDP Project Document).

197. The communication strategy should serve as a platform for dissemination, providing lessons learned and technical information material for other countries to implement large-scale, best practices for the elimination of PCBs, with broad dissemination at the state level. All knowledge management activities will be gender mainstreamed; this includes integration of gender dimensions into the FSP?s training activities, for instance, through the presentation of sex-disaggregated data, activities related to reducing gender, and gender mainstreaming in training programs in line with the Gender Action Plan.

198. In addition to that, it should be noted that UNDP annually organizes meetings for Government Officers and Project Coordinators of all the UNDP-GEF funded Chemicals and Waste Projects in Latin America and the Caribbean. In these meetings, lessons learned, and best practices are shared among all the projects in this region.

199. Finally, UNDP will ensure that relevant information and lessons learned will be collected as input for the Mid-term Review and Terminal Evaluation.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

200. The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and evaluated periodically during project implementation, supported by Component 3: *?Lessons learned identified, monitored and assessed?*. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in Annex 3 details the roles, responsibilities, and frequency of monitoring project results.

201. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.

202. Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the GEF Monitoring Policy and the GEF Evaluation Policy and other relevant GEF policies[1]. The costed M&E plan included below, and the Monitoring plan in Annex 3, will guide the GEF-specific M&E activities to be undertaken by this project.

203. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

204. The project results as outlined in the Project Results Framework (Annex A) will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results.

205. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

[1] See https://www.thegef.org/gef/policies_guidelines

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

206. The project's goal is to strengthen the national capacity to implement sustainable management plans and elimination goal of large PCB holders, particularly in the power generating and distribution sectors; large industrial facilities and sensitive sites, within the framework of national and international guidelines on chemical substances and hazardous waste management.

207. At the national and state levels, the implementation of coordinated demonstration actions with the private sector in the field will show the opportunities of institutional integration and coordination, private-driven investments, will demonstrate that the positive results of these demo interventions would serve to improve and enforce current regulation for environmentally sound management of PCBs. Innovative market interventions offer alternative solutions to other LAC parties of the Stockholm Convention and will follow and integrate these strategies in their efforts to phase out chemical hazardous substances. For this, a public awareness and communication strategy for the elimination of PCBs, related wastes and safer alternatives should result in direct gains for the citizens and the environment.

208. Additional economic and social benefits that will be brought on by the project:

- Reduced health impact from the exposure to hazardous chemicals, particularly PCBs as well as gender dimensions related to chemicals. The project estimates to increase awareness of 36,000 people, of which 18,000 females and 18,000 males.
- Considered newly identified risks related to the global pandemic amid the COVID-19 virus that may affect the implementation of the project.
- Job creation through opportunities enhanced in the waste treatment and metal-scrapping recycling industry.
- Improved policy, regulatory, monitoring and analysis frameworks, to safeguard human health and the environment.

209. In the BAU national context of a BRICS economy, limiting the country?s capacity on elimination and destruction of remaining volumens of PCBs will put a heavy burden in the compliance of international regulations committed by Brazil with the Stockholm Convention. The Global Environmental Benefits (GEB) of the project at the CEO endorsement stage, are the same as presented at the PIF stage. The positive impacts of the project will include the following reduction: 15,000 tons of PCB contaminated wastes

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
High or Substantial			

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

An ESMF has been prepared for the submission of the UNDP project proposal to the GEF for the purposes of assisting in the assessment of the project?s potential environmental and social impacts. Preliminary analysis and screening conducted during the project development phase via UNDP?s Social and Environmental Screening Procedure identified potential social and environmental risks associated with project activities including, in particular, replacement of transformers for the sensitive sites and demonstrative interventions for the elimination of polychlorinated biphenyls (PCBs) through transport, interim storage and incineration of PCBs. This screening resulted in the identification of 11 risks which were considered of ?moderate? significance, resulting in an overall social and environmental risk categorization of ?High? for the Project.

The ESMF has been developed based on this project risk categorization to specify the processes that will be undertaken by the Project Management Unit for the additional assessment of potential impacts and identification and development of appropriate risk management measures, in line with UNDP?s Social and Environmental Standards.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
PIMS6476_GEF10368_BraPCB_ESMF	CEO Endorsement ESS	
PIMS6476_GEF10368_BraPCB_Annex4 - SESP	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

This project will contribute to the following Sustainable Development Goals: 3 (Good Health and Well-being), 5 (Gender Equality), 6 (Clean Water and Sanitation), 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production).

This project will contribute to the following country outcome (UNDAF/CPD, RPD, GPD):
UNPDF 2017-2021. Outcome #3: 3. Strengthened institutional capacity to promote public policies for the sustainable management of natural resources and ecosystem services, and combating climate change and its adverse effects, and ensure the consistency and implementation of these policies.
National Priority #7: Planet: Sustainable management of natural resources for present and future generations.

	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target
Project Objective: To minimize risk to Persistent Organic Pollutants ? PCBs ? exposure of human beings and environment, in Brazil, with an environmentally sustainable market approach, in compliance with Stockholm Convention	**Indicator 1** (Mandatory GEF Core Indicator 9) Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products (thousand metric tons of toxic chemicals reduced).	At least 23,680 tons of PCBs contaminated wastes were destroyed / eliminated / exported from 1991 up to 2018.	4,500 tons of additional PCBs contaminated materials and wastes disposed and/or destroyed. ? 3,000 tons by the industrial and power sector. ? 1,500 tons by the private sector and sensitive sites.	15,000 tons of additional PCBs contaminated materials and wastes disposed and/or destroyed. ? 10,000 tons by the industrial and power sector. ? 5,000 tons by the private sector and sensitive sites.

	Indicator 2 (Mandatory GEF Core Indicator 11) Number of direct project beneficiaries disaggregated by gender as co-benefit of GEF investment.	1,480 people were trained in the integral management of PCBs under the UNDP/GEF PCBs Project 63774: In the framework of the PPG phase workshops, 277 people have participated: Female: 161 and Male: 116	10,800 Female: 5,400 Male: 5,400	36,000 Female: 18,000 Male: 18,000
Component 1	**Institutional strengthening of government and other stakeholders, relative to POPs emissions reduction and management and elimination.**			
Outcome A. Technical, Financial and Operational outputs, aiming to strengthen the government institutions and project stakeholders developed.	**Indicator 3** Reduce PCBs disposal costs nationwide.	Currently, individual PCBs disposal initiatives costs, on average, $3,500/ton	Bring economies of scale of about 10% - on average- for PCBs disposal costs nationwide by setting up the ?*National Management and Disposal Scheme for the elimination of PCBs in Brazil*?.	Bring economies of scale of about 25% - on average - for PCBs disposal costs nationwide by setting up the *?National Management and Disposal Scheme for the elimination of PCBs in Brazil*?.
	Indicator 4 Number of destruction authorizations/ services under the FSP?s scope. -	0	27	81
Outputs to achieve Outcome A.	**Output A.1**: National Management and Disposal Scheme established. **Output A.2**: Financial scheme for the elimination of national PCBs inventory developed. **Output A.3**: Enforcement of the strategy for PCBs elimination from sensitive sites supported.			
Component 2	**Environmentally sound management and disposal of PCBs.**			

Outcome B. Environmentally sound management of PCBs improved.	**Indicator 5** Number of pilot projects for PCBs decontamination facilities in sensitive sites.	No pilot projects implemented	0	Three (3) pilot projects implemented
	Indicator 6 Number of pilot projects for PCBs decontamination/recycling facilities with scrap recyclers.	No pilot projects implemented	0	Two (2) pilot projects implemented
	Indicator 7 Number of professionals - public and private sectors - trained to support PCBs enforcement regulations.	1,480 people were trained in the integral management of PCBs under the UNDP/GEF PCBs Project 63774	1,000 (500 women, 500 men)	3,000 (1,500 women, 1,500 men)
Outputs to achieve Outcome B.	**Output B.1**: Pilot Projects (3) for decontamination (retrofilling) facilities of PCBs contaminated transformers in sensitive sites. **Output B.2**: Decontamination/ Recycling Pilot Projects (2) of associations between elimination facilities and scrap recyclers for metals recovery. **Output B.3**: Improvement of 100 transformers? maintenance facilities in Best Practices and Standards developed.			
Outcome C. Environmentally sound disposal of large stock of PCBs achieved.	**Indicator 8** Innovative pilot project (BAT/BEP) for a first-time destruction process implemented.	No pilot projects implemented	0	One (1) innovative pilot project implemented including validation and information-outreach
Outputs to achieve Outcome C.	**Output C.1**: Innovative pilot project (1) of new processes for PCBs destruction with assessment implemented. **Output C.2**: Fifteen thousand (15,000) tons of PCBs containing materials coming from sensitive sites and industry eliminated.			
Component 3	**Lessons learned identified, monitored and assessed.**			
Outcome D. Lessons learned and knowledge managed.	**Indicator 09** Number of people fully aware on the sound management, elimination and final disposal of PCBs and wastes.	At least 1,480 people of the power sector are aware in the integral management of PCBs under the UNDP/GEF PCBs Project 63774.	10,800 power, industry sectors and sensitive sites (5,400 female and 5,400 male)	36,000 power, industry sectors and sensitive sites (18,000 female and 18,000 male)

	Indicator 10 Percentage of project expenditure spent on the FSP planned activities.	0%	40%	100%
Outputs to achieve Outcome D.	**Output D.1**: Knowledge management system for best practices and communication platform at national level established. **Output D.2**: M&E and adaptive management in response to necessities and results from the Mid-Term Review and final findings with lessons learned applied.			

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

#1:

STAP suggests that the following issues be addressed as the project is further developed:

? In Paragraph 19, it is expected that an agreement will be signed with enforcement authorities to enhance the promotion of related obligations. This is expected to be achieved ?by presentations in all possible public environment and industry events?? It is, however, difficult to understand how "presentations in all possible public environment and industry events? will lead to the signing of an agreement. The series of interventions that are expected to lead to the signing of the agreement needs to be further detailed in the proposal.

? The IEO?s terminal evaluation study of projects under the chemicals and waste focal area revealed that there is little evidence that GEF?s chemicals and waste projects have been successful in putting in place sustainable strategies and financial mechanisms to scale up achieved results or to ensure continued engagement of private sector actors (http://www.gefieo.org/sites/default/files/ieo/evaluations/files/cw-study-2017_0.pdf). In the proposal, the financial mechanism to sustain the project is only mentioned, without elaboration. The information presented in Paragraph 24 to 26 on the intended business model does not adequately present the business model or financial mechanism that will be deployed. With this lack of details, there is a danger of this project replicating the same problem identified by the IEO. STAP recommends that more thought should be given to the business model for financing the activities to achieve GEBs beyond the lifetime of GEF funding. Although not specific to PCB decontamination, ideas on financing models can be gleaned from the Norwegian Institute for Water Research report on ?financing model of contaminated soils? (https://www.iisd.org/sites/default/files/publications/green-finance-soil-remediation-international.pdf).

? Paragraph 30 seems to suggest that the achievement of the promised GEBs from this project is dependent on a budget. It will be useful to clarify the implication of the available budget to achieving the expected GEBs from this project.

? Scaling up and replication is vital to the durability of project outputs. The proposal states that implementing pilot projects and business models will facilitate scaling up. Beyond this, no further information was provided on how this will be achieved. Overall, the section on innovation,

sustainability, and scaling-up do not provide a convincing argument on how the project will achieve these elements of a GEF project. There is a need to provide more clarity on this. STAP recommends that the project proponents refer to relevant publications on scaling-up, such as the nine steps for developing a scaling-up strategy (https://www.who.int/immunization/hpv/deliver/nine_steps_for_developing_a_scalingup_strategy_who_2010.pdf); thinking systematically about scaling up (http://siteresources.worldbank.org/INTARD/Resources/335807-1338987609349/ARD13_DP_Scaling_Up_web.pdf); and scaling up in development cooperation - practical guidelines (https://www.shareweb.ch/site/Learning-and-Networking/sdc_km_tools/Documents/GIZ-Scaling-up-in-development-cooperation.pdf).

? Risk: Each risk needs to be rated as either low, medium or high. More risk factors need to be considered, including environmental, technical, economic, financial, socio-cultural, etc.

? Climate risk: the proposal does not consider the potential risk of climate change on the project's outcomes. How would projected climate change affect the proposed methodology for cleaning and disposal of PCBs? What are the associated risks, and what mitigating factors will be put in place? Detailed analysis of climate risk and management strategy needs to be presented.

Response at the PPG Stage:

Comment related to Paragraph 19: Indeed, this comment has been fully acknowledged in the design of the project. With an outreach communication strategy, the design of this FSP makes a clear differentiation between the framework to continue supporting the power industry to fully accomplish the 2025 and 2028 goals and the barriers faced by another group of stakeholders that still owes large amounts of equipment contaminated with PCB made up by the large Brazilian industry and large sensitive sites, like hospitals, universities and academic centers -integrating the gender aspect-.

Financial mechanism: The PPG team fully recognizes this challenge and appreciates the reference about the Norwegian Institute for Water Research report on ?financing model of contaminated soils?.

Comment related to Paragraph 30 (GEBs): The PPG, with the collaboration of the large associations, has carry out a thorough review of the different scenarios for the GEBs under this project. This scenario is presented in Section II. The FSP aims at reducing 15,000 tons of contaminated equipment (about 15,455 tons of Askarel oil), out of 51,516 tons that still exist in the power industry, in large industrial facilities and in sensitive sites. GEBs tuned calculation will actually be reviewed and reported to the GEF by the Mid-term Review and by the Terminal Evaluation.

Comment related to scaling up and replication: Please, refer to response to Comment 1.3 below.

Risks: Please, refer to response to Comment 5 below.

Climate risks: Please, refer to response to Comment 5 below.

Reference in ProDoc

Comment related to Paragraph 19: Please refer to Activity A.3.iv of the ProDoc.

Financial mechanism: Please refer to Activity A.2.i of the ProDoc.

Comment related to Paragraph 30 (GEBs): Please, refer to Section II of the ProDoc.

Scaling up and replication: Please, refer to response to Comment 1.3 below.

Risks: Please, refer to response to Comment 5 below.

Climate risks: Please, refer to response to Comment 5 below.

#2

Is the problem statement well-defined? Yes. The barriers are described, no threat has been mentioned. Data on PCB has been provided. No data for the other interventions

Response at the PPG Stage:

The PPG has carried out an in-depth elaboration of the baseline conditions including evidence demonstrating the magnitude of the problem, based on a broad participatory approach with representatives of the power industry, large industrial sectors and sensitive sites that still possess significant quantities of PCBs. This context now describes how addressing the Development Challenge (based on a Theory of Change analysis) is consistent with Federal and state environmental strategies as well as with the National Implementation Program (NIP) under the Stockholm Convention.

Reference in ProDoc

Please, refer to Section II of the ProDoc.

#3

Is the baseline identified clearly? Not adequately presented

Response at the PPG Stage:

Section II of the ProDoc now responds to this comment considering the overall and diverse context of this FSP.

The PPG team has prepared a model of the PCB potential volumes that need to be treated and disposed to comply with the Stockholm Convention, based on assumptions for the remaining volumes that still own the power industry, large corporations and sensitive sites. The PPG team has further elaborated the problem by presenting a model of the PCB Elimination Chain in Brazil.

Reference in ProDoc

Please, refer to Section II of the ProDoc.

#4

What is the theory of change? Improved enforcement through institutional strengthening; Implementation several pilot projects; creation of a platform for knowledge sharing and exchange

Yes, however the underlying assumption are not presented

Response at the PPG Stage:

The PPG has allowed developing a Theory of Change that was validated with key stakeholders through a series of technical workshops carry out online due to the pandemic. Section II presents the Problem Tree Analysis Diagram. Section III develops the Theory of Change Diagram which presents the alternative path for the development challenge. Section III also includes the underlying assumptions, as it has been requested during the STAP review.

Reference in ProDoc

Please refer to *the Development Challenge* in Section II and *Theory of Change for this FSP* and *Key Assumptions* in Section III.

#5

Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning?

Innovation aspects need more elaboration. The financing mechanisms is mentioned without elaborating what this would look like

Scaling up is envisaged through replication but how that will be done is not clear

Response at the PPG Stage:

Indeed, these two comments were fully addressed in the ProDoc. From the innovation standpoint, this project ?as compared to other POPs, chemicals and waste management related projects- is based on a market driven approach for elimination such a difficult waste as PCBs as well as on some of the alliances and synergies launched with private business corporations.

Regarding the financial mechanism, an additional innovative aspect of this Component 1 is the launch of a financial scheme targeting large private holdings and sensitive sites that would ensure that this country disposes of the full disposal/treatment cycle for for elimination of total PCB inventory and most of types of PCB wastes. This means that the country will not need additional assistance to comply with its obligations under the Stockholm Convention for PCBs in closed applications, once this FSP is fully executed.

With respect to scaling up, thanks to this FSP, extending the GEF support to the large private sector holdings and sensitive sites is where the potential for scaling up lies at the national level; most of the

power industry has already accomplished their elimination targets; the major hurdle for this stakeholders remains with the final disposal, one of the strategic interventions of this FSP, especially for the power utilities located in distant regions, like the Amazonia. In overall, this FSP will contribute to eliminate 15,000 tons of additional PCB-contaminated materials and wastes eliminated, the remaining through the market conditions enhanced during its implementation, in order to fulfill the goal of eliminating about 51,516 tons by 2028.

Reference in ProDoc

Innovation: please, refer to Section IV, sub-section ?*Innovativeness*?, of the ProDoc. Financial mechanism: please, refer to Section IV, sub-section ?*Expected Results*?, Output A.2, of the ProDoc.Scaling up: please, refer to Section IV, sub-section ?*Potential for scaling up*?, of the ProDoc.

#6

Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers? Yes, however owners of PCB Facilities and the roles are missing

Response at the PPG Stage:

All key relevant stakeholders have been identified during the PPG. Due to the complexities of organizing face-to-face encounters with selected participants and field visits to PCB facilities, the PPG team organized online a series of technical workshops with relevant groups of stakeholders along the PCB Elimination Chain headed by the policy makers of the Ministry of Environment; to present the scope of the project and to engage them for active participation. In addition, Annex 7 presents the Stakeholder Engagement Plan, designed to ensure effective engagement among stakeholders throughout the lifecycle of the project.

Reference in ProDoc

Please, refer to Section IV, *Partnerships*.

Please, refer to Annex 7, *Stakeholder Engagement Plan*.

Please, refer to Annex 12, *Cofinancing Letters from relevant stakeholders.*

#7

Are the identified risks valid and comprehensive? Are the risks specifically for things outside the project?s control?

Need improvement. Please see STAP overall assessment above for further comments

Response at the PPG Stage:

Yes, a very comprehensive and thorough risk analysis were carried out at the PPG stage, considering all the risk categories following the *?UNDP Enterprise Risk Management (ERM) Policy?*, adding three risks that have been identified due to the global coronavirus pandemic.

Reference in ProDoc

Please, refer to the following section:

Section IV, sub-section ?Risks?, of the ProDoc.

Please, refer to the following annexes:

Annex 3: Monitoring Plan

Annex 4 Social and Environmental Screening Procedure

Annex 5: UNDP Risk Log

#8

For climate risk, and climate resilience measures: Not provided. Climate risk and management strategy need to be provided

Response at the PPG Stage:

Indeed, this risk category and management measures have now been included in the risk assessment described in the previous question.

Reference in ProDoc

Please, refer to the following annexes for this comment:

Annex 4 Social and Environmental Screening Procedure

Annex 5: UNDP Risk Log

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: USD200,000			
Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent Todate***	***Amount Committed***

The objective of the GEF PPG is to develop the PIF into a full project: *?Environmentally sound destruction of PCBs in Brazil?*. As described in the PIF, this FSP minimize risk to Persistent Organic Pollutants exposure of human beings and environment in compliance of the Stockholm Convention, in an environmentally sustainable market approach, in Brazil.	USD200,000	USD103,489.58	USD96,510.42
Total	USD200,000	USD103,489.58	USD96,510.42

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

See annex 1 of PRODOC

ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	Component 2		Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency)[1]
		Sub-component A	Sub-component B	Sub-component C					
Equipment	Standard office equipment				-		7,500	7,500	UNDP
Equipment	Standard ITe quipment				-		12,500	12,500	UNDP
Sub contract to executing partner	UNDP Support Services				-		193,006	193,006	UNDP
Contractual services-Individual	One local individual (Project Manager) engaged for the coordination, implementation, oversight and follow up of Outcomes s A1), A2) and A3) at USD$ 45,000 /year	270,000			270,000			270,000	UNDP
Contractual services-Individual	One local individual (Technical Advisor on PCB management) engaged for the coordination, implementation, oversight and follow up of the six (6) pilot projects at USD$40, 000 / year -contracted through Subcomponents B and C		175,000		175,000			175,000	UNDP
Contractual services-Individual	One local individual (Technical Advisor on PCB management) engaged for the coordination, implementation, oversight and follow up of the six (6) pilot projects at USD$40, 000 / year -contracted through Subcomponents B and C			45,000	45,000			45,000	UNDP
Contractual services-Individual	One local individual (Project Monitoring & Evaluation and Communications Officer) engaged for the coordination, implementation, oversight and follow up of the Gender Action Plan, Social and Environmental Risks Management and the Stakeholder Engagement Plan follow up as well as Mandatory reports production at USD$40,000 /year				-	220,000		220,000	UNDP
Contractual services-Individual	One local individual (Project Administrative Assistant) at USD$15,000 for 5. 5 years (begin in July 2021)				-		82,994	82,994	UNDP
Contractual services-Company	Contractual services to support the development of a Quality Management system for Output A3)	117,000			117,000			117,000	UNDP
Contractual services-Company	Contractual services for output B1) 3 Pilot projects on de contamination (retrofilling) at $960,000 (Habilitation incl. machinery and equipment at $ 160,000, Retrofilling services at $400,000 and Destruction services at $400,000). Contractual services for output B2) 2 Pilot projects on Elimination at $360,000 (Oil removal and scrap decontamination services at $220,000 and Oil Destruction services at $140,000).		1,320,000		1,320,000			1,320,000	UNDP
Contractual services-Company	Contractual services for Output C1) at $530,000 for a Pilot on new destruction processes and USD$5,200,000 for output C2): elimination of 15 ton PCB			5,730,000	5,730,000			5,730,000	UNDP
International Consultants	International consultants engaged to support coordination of outputs: A1) and A2)	60,000			60,000			60,000	UNDP
International Consultants	International consultants engaged for the development of pilots from outputs B1) and B2)		70,000		70,000			70,000	UNDP
International Consultants	International consultants engaged for the development of pilot from output C1)			70,000	70,000			70,000	UNDP
Local Consultants	Two local individuals engaged for inspection activities for output A3) at $20,700 /yr (years 2-6). 1 consultant for the development of a National Management and Disposal Program at $48,000 for output A1. 1 consultant for the development of a Financial scheme for elimination of total national PCBs inventory at $48,000 for output A2.	303,000			303,000			303,000	UNDP
Local Consultants	One local individual (Technical Advisor on PCB Disposal) at $25,000 /yr engaged for the coordination, implementation, oversight and follow up of output B3)		150,000		150,000			150,000	UNDP
Training, Workshops, Meetings	Inspectors' training for output A3) and Awareness raising for outputs A1) and A2)	160,000			160,000			160,000	UNDP
Training, Workshops, Meetings	Training and technical assistance to large maintenance workshops for output B1) at $40,000, Training and technical assistance to scrap processing companies for output B2) at $40,000 and other training activities for Component 2.		72,500		72,500			72,500	UNDP
Training, Workshops, Meetings	General training activities for Outcome C.			72,500	72,500			72,500	UNDP
Training, Workshops, Meetings	Training workshops, seminars and meetings for inception workshop, annual presentations with steering committee and follow up with Stakeholders (as per Stakeholder Engagement Plan)				-	53,000		53,000	UNDP
Training, Workshops, Meetings	Training workshops, seminars and meetings to strengthen project management capabilities				-		11,000	11,000	UNDP
Travel	Travel to support national knowledge and developments of Component 1 including Inspections for Component A3)	30,000			30,000			30,000	UNDP
Travel	Travel for implementation and oversight of the 5 Pilot Projects (Outputs B1 and B2)		65,000		65,000			65,000	UNDP
Travel	Travel for implementation and oversight of the C1 Pilot Project			65,000	65,000			65,000	UNDP
Other Operating Costs	Printing and Production Costs for Outputs A1), A2 and A3)	60,000			60,000			60,000	UNDP
Other Operating Costs	Printing and Production Costs for Outcome B		32,500		32,500			32,500	UNDP
Other Operating Costs	Printing and Production Costs for Outcome c			32,500	32,500			32,500	UNDP
Other Operating Costs	Printing and audio-visual costs for lessons learned dissemination & south-south Cooperation				-	27,000		27,000	UNDP
Office Supplies	Basic office supplies for duration of project period				-		9,000	9,000	UNDP
Other Operating Costs	Office Space Rent for 5.5 years as project is scheduled to start in July				-		110,000	110,000	UNDP
Other Operating Costs	Mandatory Audit Services (USD$2 ,000 per year for 5 years)				-		10,000	10,000	UNDP
Other Operating Costs	Standard project communications strategy				-		9,000	9,000	UNDP
Other Operating Costs	Miscellaneous Expenses				-		15,000	15,000	UNDP
Grand Total		1,000,000	1,885,000	6,015,000	8,900,000	300,000	460,000	9,660,000	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).