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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-18479)
ON A
GLOBAL ENVIRONMENT FACILITY GRANT
IN THE AMOUNT OF US\$8.64 MILLION
TO THE
REPUBLIC OF THE PHILIPPINES
FOR THE
INTEGRATED PERSISTENT ORGANIC POLLUTANTS (POPs) MANAGEMENT PROJECT (P106885)

January 30, 2019

Environment and Natural Resources Global Practice
East Asia and Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective September 30, 2017)

Currency Unit = Philippine Pesos (PHP)

PHP 1 = US\$0.02

US\$1 = PHP 50.77

ABBREVIATIONS AND ACRONYMS

BAT	Best Available Technology
BEP	Best Environmental Practice
CAS	Country Assistance Strategy
CCO	Chemical Control Order
CPS	Country Partnership Strategy
DENR	Department of Environment and Natural Resources
DOH	Department of Health
DOST	Department of Science and Technology
EMB	Environmental Management Bureau
ESAF	Environmental and Social Assessment Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
FM	Financial Management
ESMP	Environmental and Social Management Plan
GEF	Global Environment Facility
IA	Implementing Agency
IAS	Internal Audit Services
ICR	Implementation Completion and Results Report
INT	Integrity
JSDF	Japan Social Development Fund
LGU	Local Government Unit
M&E	Monitoring and Evaluation
MRF	Materials Recovery Facility
NIP	National Implementation Plan
OCENR	Office of the City Environment and Natural Resources
PAD	Project Appraisal Document
PCB	Polychlorinated biphenyl
PDO	Project Development Objective

PMO	Project Management Office
POP	Persistent Organic Pollutant
RF	Results Framework
SAP	Safeguards Action Plan
SBMA	Subic Bay Metropolitan Authority
SWM	Solid Waste Management
TA	Technical Assistance
TTL	Task Team Leader
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UPOP	Unintentionally Produced Organic Pollutant
WEEE	Waste Electrical and Electronics Equipment

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P106885	Integrated POPs Management
Country	Financing Instrument
Philippines	Investment Project Financing
Original EA Category	Revised EA Category
Full Assessment (A)	Full Assessment (A)

Organizations

Borrower	Implementing Agency
The Republic of the Philippines	Department of Environment and Natural Resources

Project Development Objective (PDO)

Original PDO

The project development objective (PDO) is to assist the Philippines in minimizing the risk of human and environmental exposure to POPs by strengthening the regulatory and monitoring framework and improving capacity for and providing demonstrations of, safe management of PCBs, reduction of releases of unintentionally produced POPs, and reduction of exposure to POPs in contaminated sites.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
TF-95839	8,640,000	8,640,000	6,036,931
Total	8,640,000	8,640,000	6,036,931
Non-World Bank Financing			
Borrower	16,030,000	0	0
Total	16,030,000	0	0
Total Project Cost	24,670,000	8,640,000	6,036,931

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
20-May-2010	24-Jun-2011	01-Oct-2014	30-Jun-2016	30-Sep-2017

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
29-Apr-2011	0	Change in Results Framework Change in Loan Closing Date(s) Reallocation between Disbursement Categories Change in Disbursements Arrangements Change in Procurement Change in Implementation Schedule
30-Jun-2015	3.90	Change in Results Framework Change in Components and Cost Change in Disbursements Arrangements Change in Legal Covenants
30-Jun-2017	5.95	Change in Results Framework Change in Loan Closing Date(s)

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Highly Unsatisfactory	Moderately Unsatisfactory	Modest

**RATINGS OF PROJECT PERFORMANCE IN ISRs**

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	31-Jan-2011	Satisfactory	Satisfactory	.22
02	03-Jun-2011	Moderately Satisfactory	Moderately Unsatisfactory	.22
03	14-Aug-2011	Moderately Satisfactory	Moderately Satisfactory	.22
04	17-Jan-2012	Moderately Satisfactory	Moderately Satisfactory	1.02
05	07-Aug-2012	Moderately Satisfactory	Moderately Satisfactory	1.04
06	01-Jan-2013	Moderately Satisfactory	Moderately Satisfactory	1.25
07	14-Aug-2013	Moderately Satisfactory	Moderately Unsatisfactory	1.72
08	14-Oct-2013	Moderately Satisfactory	Moderately Satisfactory	1.72
09	18-May-2014	Moderately Unsatisfactory	Moderately Unsatisfactory	2.96
10	16-Dec-2014	Moderately Unsatisfactory	Moderately Unsatisfactory	3.72
11	21-Jun-2015	Moderately Unsatisfactory	Moderately Unsatisfactory	4.03
12	04-Oct-2015	Unsatisfactory	Moderately Unsatisfactory	4.48
13	18-Dec-2015	Unsatisfactory	Moderately Unsatisfactory	4.84
14	27-Jun-2016	Unsatisfactory	Moderately Unsatisfactory	5.23
15	15-Mar-2017	Unsatisfactory	Unsatisfactory	5.74
16	23-May-2017	Unsatisfactory	Unsatisfactory	6.09
17	02-Mar-2018	Unsatisfactory	Unsatisfactory	6.35
18	09-Aug-2018	Unsatisfactory	Unsatisfactory	6.26



SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Agriculture, Fishing and Forestry 30

Crops 30

Health 5

Public Administration - Health 5

Water, Sanitation and Waste Management 65

Waste Management 50

Public Administration - Water, Sanitation and Waste Management 15

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

Private Sector Development 100

Jobs 100

Urban and Rural Development 20

Urban Development 20

Urban Infrastructure and Service Delivery 20

Environment and Natural Resource Management 80

Environmental Health and Pollution Management 60

Air quality management 20

Water Pollution 20

Soil Pollution 20

Environmental policies and institutions 20

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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. As a member of the Stockholm Convention, the Philippines is required to undertake a range of activities related to the management, reduction, and control of persistent organic pollutants (POPs)—including certain pesticides, industrial chemicals, and byproducts of industrial processes—and unintentionally produced POPs (UPOPs), mainly from burning of agricultural, household (backyard), and municipal solid waste. Specifically, Convention members are required to undertake the identification and management of POPs-contaminated sites; to dispose of POPs stockpiles; to share information, awareness, and research on POPs; and to undertake monitoring and surveillance to guard against further contamination. POPs are of concern locally, regionally, and globally because they remain intact in the environment for long periods; are prone to long-range transport; may accumulate in fatty tissues, thereby concentrating through the food chain in animals and humans; and can cause severe health impacts, including certain cancers, birth defects, and immune and reproductive system dysfunction.
2. As part of its efforts to implement the Stockholm Convention, the Philippines completed a comprehensive National Implementation Plan (NIP) in 2006. The NIP highlighted limitations on the country's POPs management, including an incomplete legal and policy framework, insufficient numbers of knowledgeable and skilled workers, limited physical infrastructure, and most critically, insufficient financial resources. As part of its enabling activities for the Convention, the Philippines undertook studies to inventory POPs in the country to understand their distribution and use.
3. The Stockholm Convention requires a reduction in releases of UPOPs (mainly dioxins and furans) through implementation of best available technologies (BATs) and best environmental practices (BEPs). The national inventory of dioxins and furan emissions for the Philippines submitted with the 2006 NIP and again the 2011 national report to the Stockholm Convention indicated that the Philippines' current inventory of emission sources had been limited by difficulties in comprehensively identifying sources and by the lack of accurate estimates of emission quantities from known sources found in the Philippines. UPOPs data collected during project preparation using different assumptions than the previous inventories suggested much higher releases from open burning, underlining the importance of establishing more reliable local emission factors and source inventories.
4. Under the Stockholm Convention, production and use of polychlorinated biphenyls (PCBs) are to be phased out and measures taken to reduce human and environmental exposure. The Philippines was never a PCB producer. The primary source of PCBs in the country has been through importation as a component of the oil found in electrical transformers; secondary sources have been PCB oil in capacitors and PCBs used in some industrial applications. An accurate inventory of PCBs and strong capacity by the Environmental Management Bureau (EMB) would be essential to approval of PCB management plans, monitoring and enforcement of their implementation, as well as providing training and technical assistance (TA) to PCB owners.



5. The Stockholm Convention requires disposal of all PCB oils and contaminated equipment by 2025 regardless of the exposure risk related to a specific PCB site or stockpile (and Philippine regulations at the time called for all stored PCBs to be disposed by 2014). The costs of storage and disposal would be borne by the PCB owners, with most of the final disposal expected to be carried out at a Global Environment Facility (GEF)-financed non-combustion PCB destruction facility being built at Bataan under a United Nations Industrial Development Organization (UNIDO) project. This project financed the safe management of PCBs.

6. The Philippines Integrated POPs Management Project was aimed at addressing the original 12 chemicals whose elimination, restriction, and release reduction were covered by the Stockholm Convention (9 more were added to the Convention in 2009). The project was to focus on activities related to strengthening the regulatory framework and capacity regulations on management of POPs-contaminated sites; a system to monitor and raise awareness of the environmental and health impacts of POPs; policies and regulations to reduce dioxin and furan emissions; better PCB management guidelines as well as outreach and TA to PCB owners; reliable inventories of UPOPs, PCBs, and contaminated sites; and programs to develop, demonstrate, and promote the use of BATs/BEPs, particularly in contaminated site management and UPOPs reduction.

Rationale for Bank Involvement

7. As a GEF implementing agency, the World Bank has a responsibility to help its client countries achieve GEF-supported global environmental objectives. With the GEF as the Stockholm Convention's interim financial mechanism, this project was intended to contribute significantly to achieving the objectives of the corresponding GEF operational program for reducing and eliminating releases of POPs (OP14). The project supported Strategic Priority 1: Strengthening Capacity for NIP Implementation through its role in strengthening of the regulatory framework, administrative capacity, and enforcement capacity. It also supported Strategic Priority 2: Partnering in Investments for NIP Implementation through its investments to assist in PCB management, UPOPs release reduction, and reduction in exposure to POPs-contaminated sites.

8. The project was designed to contribute to both national and global environmental objectives. From a global perspective, the elimination and reduction of POPs will reduce their long-range transport through air pollution into the food chains of neighboring countries. Within the Philippines, the project was expected to reduce the health and environmental risks associated with POPs releases and exposure by providing assistance, allowing local governments to reduce air pollution emissions from the open burning of solid wastes at dumpsites and households, and providing improved knowledge of the contribution of these and other burning sources to local air pollution. In addition, the Philippines had no legislative framework and only limited professional capacity for managing cleanup or containment of polluted sites, and this project was expected to help address some of these challenges.

9. The project was aligned with the Country Assistance Strategy (CAS, #47916-PH) for the Philippines for 2010–2012. It specifically supported CAS Objective 4 to reduce vulnerabilities, including sustainably managing the environment and natural resources, as the project was aimed at improving the country's management of air quality and reducing waste and land contamination. The project also supported CAS Objective 3 on public service delivery as it intended to assist national and local government efforts to improve solid waste management (SWM) by helping to close open dumpsites, increase household access

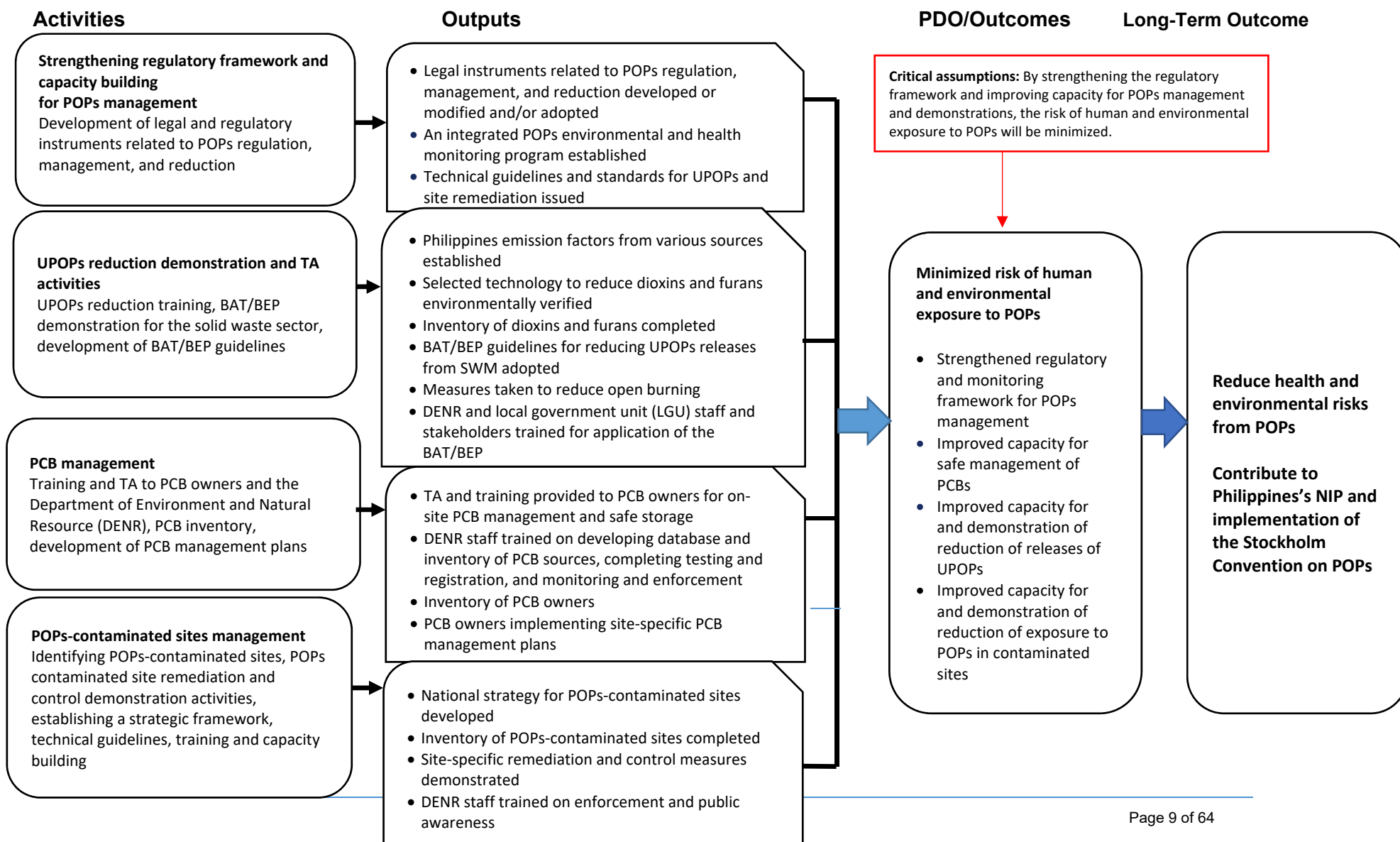


to garbage collection services, and increase collection rates to reduce open burning. The information and guidelines provided under the project on the management of POPs also supported broader mainstreaming of the POPs agenda in the local government, energy, and health sectors with potential replication under the World Bank's programs in these sectors.

10. The project also aligned with current Country Partnership Strategy (CPS, #78286-PH) for FY 2015-2018. It supported CPS Engagement area 4 to improve natural resources management and sustainable development.



Figure 1. Theory of Change for the Philippines Integrated POPs Management Project





11. The project's theory of change is illustrated in Figure 1. It is characterized by an ambitious plan to strengthen the legal frameworks and institutions, improve capacity of national and local government agencies and private sector stakeholders to carry out actions to reduce emissions from open burning of solid waste by households and at open dumpsites, control and remediate contaminated sites, and build capacity for safe management of PCBs, thereby minimizing risk of human and environmental exposure to POPs. Successful completion of the project activities would reduce risk to human health due to POPs exposure by strengthening the Government's ability to carry out its NIP in the longer term.

12. While some of the activities, components, and outputs related to the three areas of POPs reduction under the project (UPOPs, PCBs, and contaminated sites) were intertwined and sometimes overlapped, there are distinct elements in the results chain for each of the areas. They all have the following in common: (a) information and education campaigns, (b) capacity building, and (c) legal and regulatory strengthening. The demonstration activities were aimed at just two of the three main types of POPs addressed by the project: UPOPs from open burning and POPs-contaminated sites. In these two cases, the contribution to the objective is more indirect and more long term, as there was not intended to be a significant measurable reduction in actual releases or exposure relative to the national scale of the problem.

13. In the case of UPOPs exposure reduction, the focus of the project was primarily on intentional backyard burning by households and inadvertent or spontaneous burning of municipal waste at open dump sites. Reducing the amount of waste and increasing efficiency of waste collection would reduce the potential for UPOPs emissions, but the key factor regardless of amount of waste is the burning process. The releases from such burning immediately enter the environment and cannot typically be controlled or captured.

14. For contaminated sites, the goal was to strengthen the enabling capacity of the country to reduce risks posed by POPs contamination of the environment. The results chain included (a) identifying potential sites, (b) characterizing and assessing the contamination and level of exposure risk, (c) preparing a methodology to prioritize risks posed by the sites, (d) developing strategies/practices to first reduce current exposure in the short term through control measures if appropriate and then reduce longer-term exposure risk by remediating the sites to remove the contamination, and (e) carrying out a small number of demonstration subprojects that would both benefit from and help refine the strategies and practices developed under the project.

Project Development Objectives (PDOs)

15. The PDO is to assist the Philippines in minimizing the risk of human and environmental exposure to POPs by strengthening the regulatory and monitoring framework and improving capacity for and providing demonstrations of, safe management of PCBs, reduction of releases of unintentionally produced POPs, and reduction of exposure to POPs in contaminated sites.

Key Expected Outcomes and Outcome Indicators

16. The PDO contains higher and lower level outcomes. The higher-level outcome ("to assist in minimizing the risk of human and environmental exposure to POPs") could not have been achieved by the project as the project was not directly accountable for its attainment. On the other hand, any of the



remaining lower-level outcomes (stated in the PDO statement as means/inputs “by which” the PDO is to be achieved) should have been considered as attainable development outcomes for the project:

- Strengthened regulatory and monitoring framework for POPs management
- Improved capacity for safe management of PCBs
- Improved capacity for and demonstration of reduction of releases of UPOPs
- Improved capacity for and demonstration of reduction of exposure to POPs in contaminated sites

While the PDO has not been changed throughout the life of the project, this ICR makes a distinction between the single higher-level outcome and the lower-level outcomes in the “by” parts of the PDO and measures the achievement of the higher-level outcome based on the attainment of the lower level outcomes which have been factored into the results chain analysis and used to support the causal relationship between the project’s interventions and the expected outcome. Linkages between each of the four lower-level outcomes and the result indicators are discussed in details in Section II.

17. The key outcome indicators at appraisal were presented as targets of 100 percent for each indicator in the end of project column of the Results Framework (RF) in the Project Appraisal Document (PAD); however, the targets were included in parentheses next to the indicator. The original indicators and quantitative targets were as follows:

- New legal instruments formulated/modified for POPs management that are adopted (Target: 19, including 7 guidelines, 4 standards, 2 executive orders or bills, and 6 local government ordinances)
- Locally based UPOPs emission factors used for inventories (Target: 3)
- Amount of UPOPs reduced (Target: Annual UPOPs emission reduction of 6.5 gtEQ¹ in each of six participating local governments [projected 10-year average] from reduction in backyard and dumpsite burning)
- PCBs subject to environmentally sound management (Target: 2,400 tons PCB oil; 4,480 tons PCB equipment; 32,194 units)
- Adoption of the National Strategy on POPs contaminated sites by DENR (Target: agency issuance of administrative order/memorandum circular or equivalent)

¹ Grams of Toxic Equivalent



Components

18. The project consisted of the following five components (costs below are at appraisal, actual costs are provided in Annex 3):

- **Component 1: Strengthening Regulatory Framework and Capacity Building for POPs Monitoring** (US\$0.79 million; GEF US\$0.58 million; co-financing US\$0.21 million). The objective of this component was to strengthen the regulatory and monitoring capacity for phasing out the use of and reducing exposure to and releases of POPs. The component would (a) assist the DENR in developing and updating supporting policies and regulations for POPs management, (b) assist the Department of Health (DOH) and the DENR in developing and establishing a national exposure monitoring for POPs through surveys of exposure risks and measuring of POPs in targeted populations, and (c) undertake long-term planning for residual POPs management issues.
- **Component 2: Reduction of Releases of Unintentionally Produced Persistent Organic Pollutants** (US\$9.96 million; GEF US\$3.43 million; co-financing US\$6.53 million). The objective of this component was to better understand and demonstrate the reduction of the releases of dioxin and furan emissions. The component would (a) assist the DENR and Department of Science and Technology (DOST) in improving knowledge about dioxin and furan emissions through the determination of emission factors for open burning sources, verifying the ability of specific technologies to reduce emissions, and updating and publicly disseminating the dioxins/furans inventory; (b) assist local governments, through DENR, in demonstrating practices that are able to prevent or suppress fires at disposal sites and reduce barriers to the elimination of backyard garbage burning and to disseminate the results to encourage replication; and (c) assist DOST in disseminating and providing national training to UPOPs generators on guidelines on BAT and BEP for reducing UPOPs releases from open burning.
- **Component 3: Management of Polychlorinated Biphenyls (PCBs)** (US\$9.29 million; GEF US\$2.17 million; co-financing US\$7.12 million). This component would assist the country in minimizing the risk of human and environmental exposure to PCBs by strengthening oversight and by improving the on-site management practices by PCB owners in all sectors that use them. Through training and TA, it will assist (a) the DENR in raising awareness, completing testing and registration, and developing a database and inventory of PCB sources; (b) PCB owners in implementing on-site PCB management including equipment identification, testing, labeling, inventory, and safe storage; and (c) the DENR in monitoring and enforcing.
- **Component 4: Identification and Remediation of POPs Contaminated Sites** (US\$2.87 million; GEF US\$1.62 million; co-financing US\$1.25 million). The objective of this component was to strengthen the enabling capacity of the country to reduce risks posed by POPs contamination of the environment by identifying POPs-contaminated sites; establishing a strategic framework, technical guidelines, and professional capacity to help address them; and building public knowledge and awareness. The component would assist (a) the DENR in undertaking an inventory of POPs-contaminated sites and through a hazard ranking system identifying those that pose a high risk to human health and the environment; (b) the DENR in developing a national strategy for POPs-contaminated site



remediation; (c) landowners in demonstrating the use of risk-based criteria to develop and undertake site remediation and site control; (d) the DENR in developing guidelines and standards for site remediation and control; and (e) the DENR improving its capacity for enforcement and to provide training and improve public awareness of POPs-contaminated site management.

- **Component 5: Project Management** (US\$1.75 million; GEF US\$0.84 million; co-financing US\$0.91 million). This component would finance consultants and incremental operating costs of the Project Management Office (PMO) in the DENR-EMB for its day-to-day project management activities, including project management and coordination; information, education, and communication; monitoring and evaluation (M&E); and financial management (FM) and procurement.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

19. The PDO was not revised, though there was recognition early in implementation that the PDO statement was unduly complex and included a combination of a higher-level outcome and intermediate outcomes, and activities.

Revised PDO Indicators

20. The outcome indicators, as well as many intermediate indicators, were revised in June 2015 (an April 2011 restructuring involved superficial changes in wording and unit of measure that did not affect the substance of the indicators or targets). Two indicators related to UPOPs were dropped and three new UPOPs indicators added, the number of legal instruments was reduced from 19 to 7, and the amounts of PCBs subject to sound management were reduced.

21. The revised outcome indicators are the following:

- New and modified legal instruments for POPs management that are adopted (Target: 7)
- POPs and POPs waste destroyed, disposed of or contained in an environmentally sound manner (Target: 435 tons of PCB oil; 1,140 tons of PCB-containing equipment)
- National Strategy on POPs Contaminated Sites adopted (Target: agency issuance of administrative order/memorandum circular or equivalent)
- Contaminated land managed, or dump sites closed under the project (Target: 6.0 hectares)
- LGUs certified by the EMB as having no operating dumpsite in their jurisdiction (Target: 3)
- LGUs certified by the EMB as having a sanitary landfill operating according to standard operating procedures, including application of daily soil cover (Target: 2)
- Direct project beneficiaries/ Female beneficiaries (Target: 764,761)



Revised Components

22. The main revisions to components (in the June 2015 restructuring) are summarized in this section. The Restructuring Paper specified changes to GEF financing of the components but did not mention any changes to counterpart financing. However, given reductions in project activities and targets, particularly for UPOPs demo activities that included substantial LGU contributions, counterpart financing was expected to be lower as well. The counterpart financing was provided but was not efficiently tracked by the DENR. Details of the revised components amount, and counterpart financing are provided in Annex 3. The changes are as follows:

- **Component 1: Strengthening Regulatory Framework and Capacity Building for POPs Monitoring.** The number of legal instruments to be formulated/modified was reduced from 19 to 7 (many instruments were related to or overlapped with those in the components on UPOPs, PCBs, and contaminated sites). An activity to carry out a market assessment of waste electrical and electronics equipment (WEEE) was added. A new subcomponent (1.4) was also added to provide international training for five EMB staff on laboratory analysis, particularly for POPs added to the Stockholm Convention in 2009 (PFOS, PBDE, and others).
- **Component 2: Reduction of Releases of Unintentionally Produced Persistent Organic Pollutants.** The establishment of local UPOPs emission factors (part of the 19 original legal instruments in Component 1) and use of satellite imagery to monitor dumpsite fires were dropped. Also dropped was preparation of BAT/BEP guidelines to reduce dioxin and furan emissions from solid waste and other sectors due to the reason that the determination of local emission factors proved unfeasible. The number of LGU subprojects was reduced from six to three. Also dropped was the PDO indicator for amount of UPOPs reduction. International study tours and domestic training for EMB and LGU staff on BAT/BEP for SWM were added. Some small-scale investments in a materials recovery facility (MRF) and acquisition of waste collection vehicles were also added.
- **Component 3: Management of PCBs.** The primary change to this component was to scale back the expected outputs and associated indicators so that, instead of managing and disposing of all known PCBs for the 1,000 PCB owners estimated at appraisal, the activities would aim to have approved management plans for at least 300 owners and on-site validation of implementation of the management plans for at least 40 owners. The original concept of validation implied confirmation of disposal since the target for 100 percent validation coincided with the target for 100 percent disposal. In the revised indicators, validation means that the plans are validated through site visits as being under implementation (in January 2015, the EMB had formally suspended the previous deadline [March 2014] for disposal of PCBs).
- **Component 4: Identification and Remediation of POPs Contaminated Sites.** The legal/regulatory output for preparing a methodology/guideline for inventory of contaminated sites was dropped. The number of demonstration sites for site remediation was reduced from two to one. During implementation, a detailed contamination assessment of the two demonstration sites (Subic Bay Freeport and Clark Freeport) that had been identified during project preparation showed that they did not have a sufficient level of



contamination to justify remediation. Assessment of alternative sites resulted in the identification of one site, a 15 m² contaminated area at Philippine Air Force base within the Clark Freeport Zone, as meeting the necessary qualifications for being a remediation demonstration site.

Other Changes

23. **Project restructuring on April 29, 2011:** Closing date extension and additional disbursement category covering activities under Component 4 (Identification and Remediation of POPs Contaminated Sites).

24. **Second restructuring on June 30, 2015:**

- Made more extensive and substantive revisions to the RF and indicator targets, mainly to reflect changes to the components and activities described in the previous section (see annex 1 for details)
- Removed a requirement for semiannual review of the project by the Internal Audit Service (IAS) of the DENR.

25. **Third restructuring, on June 30, 2017:** Closing date was extended. The only changes to the RF at this time was to the end target dates to reflect the new closing date.

26. **Post-closing safeguards monitoring.** After closing, the World Bank team and the DENR adapted the key elements of the restructuring proposal into a stand-alone Safeguards Action Plan (SAP) to complete some safeguards measures and physical and economic displacement measures that remained unfinished at closing. The implementation of the SAP would primarily be the responsibility of the LGUs in coordination with the DENR, with guidance and monitoring by the World Bank by means of four post-closing monitoring missions over 12 months.

Rationale for Changes and Their Implication on the Original Theory of Change

Deliverables of Legal and regulatory documents

27. A total of 12 legal instruments dropped were no longer considered necessary because other guidelines or instruments were available that provided an acceptable alternative, particularly in the case of UPOPs reductions (local emission factors, technology verification). While this affected the theory of change in terms of project activities and outputs and did not allow for the intended improvement in the accuracy of UPOPs inventories, the reduction was less significant in terms of enhancing the legal framework and capacity for UPOPs reduction. For inventories, standard United Nations Environment Programme (UNEP) emission factors were considered acceptable and put in place for future utilization.



28. The instrument for implementing regulations for the planned interagency task force on POPs was dropped. It was agreed that EMB-Chemical Management Section will convene the IATAC² member agencies and pursue the formulation of this legal instrument through a Joint Administrative Order.

29. Dropping the LGU ordinances on UPOPs reduction action plans was justified, claiming they were short term in nature and could be prepared by the LGUs without project support. The three remaining project LGUs had in fact prepared draft UPOPs action plans by the time they were dropped as a project output. Since UPOPs reduction activities were not carried out in other LGUs, the absence of a plan was moot as far as the project's theory of change for those LGUs is concerned.

30. The legal/regulatory output for a methodology or guidelines on an inventory of contaminated sites was to be prepared in tandem with development of the inventory itself but was dropped as an output because the draft guideline consisted only of documentation of the inventory development. The lack of guidelines leaves the methodology and required steps for completion of the inventory uncertain and, in turn, affects subsequent steps in the results chain for assessing potentially contaminated sites, prioritizing sites, and creating an overall strategy and actionable plan for control and remediation of the highest priority sites (since they remain unknown).

Reduction in UPOPs Demonstration Subprojects (LGUs)

31. Reducing the number of participating LGUs in UPOPs reduction would, in principle, not have a critical impact on the theory of change in terms of UPOPs reductions since these were demonstration subprojects that would contribute to regulatory, strategic, and capacity-building objectives rather than yielding substantial UPOPs reductions themselves. However, three demonstration subprojects might have had as much practical demonstration value as six (for both backyard and dump site burning). The dropped LGUs had documented open burning at their dump sites whereas in the three remaining LGUs' dump sites active fire (and their suppression) was not an issue, according to project reporting at the time. While closing of these sites contributes to prevention of possible fires and to other country and LGU objectives related to SWM, without open burning they do not produce UPOPs or provide demonstration of fire suppression techniques. Furthermore, one demonstration could be used as part of the iterative process of applying and testing, evaluating, and in turn informing and refining BAT/BEP guidelines, training, and strategic and investment planning related to open burning from households and dump sites.

Reduction in PCB disposal target/activities

32. The reduction in the target for PCB disposal, along with associated activities for management plan approvals and validations, did not change the theory of change concept itself, but it in effect lowered the intended ambition for the component that was expected to result in a substantial direct reduction in POPs. The original indicator specified a target for "environmentally sound management" of PCBs, but in the context of the inventory, PCB regulations, and expected domestic disposal capacity at the time of appraisal, it could be argued that this was understood to mean disposal (an assessment was planned for mid-2013 to determine whether the March 2014 disposal deadline could be met and to develop a plan for managing any PCBs that were not disposed of by the deadline). It is to be noted, however, that in situ management of PCBs excludes disposal in the context of the project scope. Therefore, sound management

² Interagency Technical Advisory Council



of PCBs was achieved by the enterprises that followed proper storage of PCBs and PCB-containing equipment. The downward revision of the target meant that the original goal was already considered unachievable even as the PCB inventory was increasing substantially. The project supported the transboundary export of PCB waste, complying with the Basel Convention even though financing disposal/destruction of PCBs is not part of the project. If a beneficiary opted for destruction through transboundary disposal/destruction rather than storage, this would be paid for by the PCB owner. This represents adaptive management on the part of the project team in the face of the local disposal facility for PCBs not being operational in time.

Reduction of contaminated site remediation demos

33. Like the reduction in UPOPs demonstrations, the effect on the theory of change is that no iterative process was planned to develop various guidelines, strategies, and training in tandem with remediation activities to test and demonstrate procedures and practices—demonstration being an essential step in the development of the final guidelines. The main reason for the reduction was that on-site inspection and assessment found that the two initial sites identified at appraisal did not, in fact, have significant contamination. This finding is good evidence of the importance of the project's site inventory and assessment activities, the guidelines for which were also dropped as a project output. With only a small number of assessed sites available, a replacement demonstration subproject was selected at another site within the former Clark Air Force Base—in this case in the area that is still within the Philippines Air Force Base (within the Clark Freeport Zone). The site characterization guidelines that were to be applied to the demonstration sites under the project were not issued until June 2017 when the original sites were already dropped, and the replacement site was added, and the remediation guidelines were issued in June 2017 without the benefit of incorporating the demonstration site results. That being so, the technical discussions and consultant outputs of the project, significantly contributed to the formulation of the remediation guidelines of the DENR.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

Rating: Substantial

34. The project objectives were relevant to the objectives of the Country Partnership Strategy (CPS) and POPs reduction is mentioned in the World Bank's 2015–2018 CPS with the Philippines. The CPS specifically mentions continued support to the Philippines in its efforts “to reduce environmental pollution from gaseous, liquid and municipal wastes and persistent organic pollutants” as part of Engagement Area 4 (Resilience to Climate Change, Environment and Disaster Risk Management) and Strategic Outcome 4.2 (Improved natural resource management and sustainable development). Outcome 4.2 also includes improved coverage of SWM systems and collection outside metro Manila, which is a co-benefit of the project's UPOPs reduction strategy for reducing UPOPs from open burning of solid waste.

35. Reduction of risk of exposure to POPs also contributes, in the longer term, to CPS Strategic Outcome 2.2 (Improved Health Outcomes). This outcome focuses on health insurance coverage, health



outcomes, and access to water and sanitation and includes attention to the health impact of environmental pollution and coverage of SWM systems and collection outside metro Manila.

36. The project objectives are also central to the Philippines' commitments under the Stockholm Convention, as detailed in the NIP submitted to the Convention's Conference of Parties in 2015. The NIP includes updates on the status of its ongoing efforts to reduce and eliminate POPs in the areas targeted by the IPOP³s project, among others. The NIP cites the activities carried out under the IPOPs project as a key element of its capacity building, education and promotion, inventory, reporting, demonstration, and strategy development required to achieve its eventual reduction and elimination obligations.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

Outcome: Minimizing the risk of human and environmental exposure to POPs

(Rating: Negligible)

37. The PDO is complex and includes only a single higher-level and longer-term outcome which proved difficult to evaluate as the impacts are beyond the purview of the project. As earlier indicated, this ICR is only able to assess the achievement of this higher-level outcome based on the attainment of the lower level outcomes in the PDO statement. A matrix of the outcome indicators matched with the lower -level outcomes in the "by" parts of the PDO is shown in the table below.

Lower Level Outcomes/ PDO Indicators	Original Target*	Formally Revised Target	Accomplishment	
			End Project	% of Revised Target
Strengthened regulatory and monitoring framework for POPs management				
Number of new legal instruments formulated/modified for POPs management that are adopted	19	7	5	71%
Improved capacity for safe management of PCBs				
POPs and POPs waste destroyed, disposed or contained in environmentally sound manner (Metric Ton)	2,400 (PCB oils) 4,480 (PCB Waste)	435 (PCB oils) 1,140 (PCB Waste)	114.15 (PCB oils) 339.07 (PCB Waste)	26% (PCB oils) 30% (PCB Waste)
Improved capacity for and demonstration of reduction of releases of UPOPs				
LGUs certified by EMB as having no operating dumpsite within their jurisdictions	3	3	1	33%
LGUs certified by EMB as having a sanitary landfill operating according to standard operating procedures, including	2	2	0	0%

³ Integrated Persistent Organic Pollutants Management Project



application of daily soil cover				
Improved capacity for and demonstration of reduction of exposure to POPs in contaminated sites				
Contaminated land managed, or dump sites closed under the project (Hectare)	6	6	2.32	39%
National Strategy on management of POPs contaminated sites adopted	Y	Y	Y	100%

*For indicators that had wordings slightly reworded during the 2011 and 2015 restructurings, original targets reflect what was approved in PAD

Strengthened regulatory and monitoring framework for POPs management

38. At project closing, most of the revised list of outputs (five out of seven) related to a ‘strengthened regulatory and monitoring framework for POPs management’ were delivered as five legal instruments were adopted. However, this only represents 71% achievement of the revised target. While some outputs were delivered related to PCBs and contaminated sites, the outputs with an overarching POPs regulatory purpose were not delivered. At closing, two legal instruments were not yet adopted: (a) legal instrument for interagency cooperation on POPs management, and (b) legal instrument for guidelines on site control of POPs contaminated sites.

Indicators	Original Target	Formally Revised Target	Accomplishment	
			End Project	% of Revised Target
PDO Indicators				
Number of new legal instruments formulated/modified for POPs management that are adopted	19	7	5	71%
Intermediate Results Indicators				
Legal instruments formulated/modified and presented to stakeholders	7	7	6	86%
DENR staff trained on laboratory procedures and equipment operation for POPs analysis	5	5	14	280%

The original output of an amendment of the Chemical Control Order (CCO)⁴ for PCBs was revised to three outputs: clarification of the CCO, guidelines for registration of laboratories to perform analysis of PCBs, and technical guidance document on PCB management. The technical guidance document was an important addition to the regulatory framework.

39. Capacity Building: Improving the capacity of the DENR in carrying out monitoring of POPs compounds was an essential element of this project. Local laboratory capacity to analyze POPs compounds was lacking. The project carried out considerable capacity-building activities and exceeded many of its targets for numbers of persons trained in various aspects of POPs analysis, management, and

⁴ The DENR issues CCOs for substances that are either restricted or banned. CCOs cover the ban, restriction, or regulation of the use, manufacture, import, export, transport, processing, storage, possession, or sale of the chemical substance.



reduction. One area of significant improvement is the capacity of the EMB to conduct analysis of dioxins and furans. The laboratory of the EMB central office has also been upgraded to conduct these highly sensitive analytical procedures. The laboratory has been used as a reference laboratory for dioxin and furan analysis in the Philippines. Actual users of the laboratory are the cement manufacturers engaged in the coprocessing of hazardous waste in cement kilns. Local capacity to carry out dioxin and furan analysis is a significant step in improving the management of these compounds.

40. The clearest improvements were in PCB management, where PCB owners were able to report and register their PCB inventories, as required, and are more capable of properly handling PCB oils and wastes to minimize exposure risk and developing PCB management plans for the interim storage and disposal of their PCB wastes. DENR staff also demonstrated an increased capacity to review, assess, and approve such management plans. The indicator for numbers of management plans approved and implemented was revised to include approval and validation, but not implementation, and the number of plans was reduced during the restructuring. While the number of plans approved was somewhat short of the original target, it substantially exceeded the revised target. With this achievement, monitoring of PCBs has greatly improved.

41. The training and technical guidance delivered under the project strengthened Philippine institutions, and their contribution might have been greater if some elements of the project intended to further inform or strengthen policy, strategy, and training related to POPs had not been dropped or fallen short of targets—particularly the demonstrations in UOPs reduction and contaminated site remediation, inventory and hazard assessment of contaminated sites, and country- or site-specific emission factors and technology verification.

42. Even though it is difficult to clearly assess the extent of increased capacity, adoption of five legal instruments as a start is expected to provide the improved enabling environment in which any increased capacity could be applied on limited areas and could be helpful for future adoption of further related instruments to contribute to a regulatory and monitoring framework for POPs management.

43. Additional results related to strengthening the legal and regulatory framework and improving capacity for management are discussed under the types of POPs areas in the following:

Improved capacity for safe management of PCBs

Indicators	Original Target	Formally Revised Target	Accomplishment	
			End of Project	% of Revised Target
PDO Indicators				
POPs and POPs waste destroyed, disposed or contained in environmentally sound manner (Metric Ton)	2,400 (PCB oils) 4,480 (PCB Waste)	435 (PCB oils) 1,140 (PCB Waste)	114.15 (PCB oils) 339.07 (PCB Waste)	26% (PCB oils) 30% (PCB Waste)



Indicators	Original Target	Formally Revised Target	Accomplishment	
			End of Project	% of Revised Target
Intermediate Results Indicators				
National inventory of PCB owners updated (%)	100	100	100	100%
PCB management plans approved by EMB regional offices	1000	300	866	289%
PCB management plans validated by EMB	1000	40	40	100%
PCB owners and technical staff trained on the environmentally sound management of PCBs and in complying with regulatory requirements	572	572	572	100%

44. The main indicator linked to improving capacity for safe management of PCBs fell short of its target. Only 26% of the PCB stocks in the country were stored or contained in an environmentally sound manner. But there are still some gains that have been achieved in certain areas. This includes inventory of PCB owners, PCB oils, and contaminated equipment updated and expanded as a result of information, education, and communication campaign. To date, 1,088 PCB owners have submitted their PCB inventories, of which 980 have submitted their PCB management plans with 866 approved by EMB regional offices (original target of 1,000 was reduced to 300 with 2015 revision). The information on the amounts of oils and contaminated equipment is now more reliable as well. More than 98 percent of the PCB stockpile estimates (and IPOP targets) from the Philippines's first NIP (with data for 2003) delivered to the Stockholm Convention were considered very unreliable and were based on assumed contamination of known equipment and transformers. The second NIP, with data for 2013, had substantially more information on confirmed PCBs, and the reliability of the PCB inventory and amounts of PCBs continued to escalate sharply as more data were accumulated. Building on the gains achieved because of the project's capacity building, outreach, and training, the inventory continued to expand after project closing (September 30, 2018).

45. PCB-related project targets were reduced sharply in June 2015 restructuring, including for the amount of POPs disposed, the number of PCB owners' management plans approved by the EMB, and the number of plans validated by the EMB through site visits to confirm that plans were appropriate and under implementation (and in some case to validate the final management/disposal of the PCBs). The original PCB reduction target assumed disposal of all estimated PCBs in the hands of known owners by March 2014, the deadline to end PCB storage under the 2004 CCO for PCBs, which meant disposal of previously stored PCBs and contaminated equipment. This was well ahead of the Stockholm Convention deadline for PCB disposal of 2028 and assumed that a GEF-financed, UNIDO-implemented non-combustion PCB disposal facility on the island of Bataan would be operational and have the capacity to handle most PCBs in the Philippines. PCBs that required treatment not available at the GEF financed, UNIDO implemented non-combustion disposal facility would be shipped to European disposal facilities. It should be noted that the project was not to finance the final disposal/destruction of PCBs. The project financed the safe management of PCBs through on-site storage. There were some beneficiaries who decided not to safely store but rather send out for destruction/disposal at their own expense. Most of the beneficiaries of the



TA were electric cooperatives in the country. At project closing, the disposal facility was operating intermittently and at lower capacity.

46. However, the facility was only intermittently operational and at lower capacity than expected. This was a major factor in the substantial shortfall in actual disposal of PCB oils (114 tons) versus the revised target (435 tons) or the original target (2,400 tons). A major challenge will be that the Bataan facility was designed with an annual capacity of 750 tons, which would have been sufficient to dispose of the PCBs amount estimated at appraisal in less than 10 years but could not process the current inventory even if operating at full capacity. Unless domestic capacity is substantially increased, the vast majority of PCBs would have to be shipped to Europe for disposal. The project did succeed in filling some legal and regulatory gaps in the Philippines PCB management framework and improving the prospects for completing the disposal of PCBs by 2028 (except for the lack of domestic disposal capacity). This included regulatory updates that suspended the March 2014 disposal deadline under the original CCO, which now does not have a fixed national deadline, though the majority of approved PCB management plans set a disposal date of December 31, 2018.

Improved capacity and demonstration of reduction of releases of UPOPs

Indicators	Original Target	Formally Revised Target	Accomplishment	
			End of Project	% of Revised Target
PDO Indicators				
LGUs certified by EMB as having no operating dumpsite within their jurisdictions	3	3	1	33%
LGUs certified by EMB as having a sanitary landfill operating according to standard operating procedures, including application of daily soil cover	2	2	0	0%
Intermediate Results Indicators				
DENR and LGU staff and stakeholders trained in the application of the BAT/BEP to reduce dioxins and furans emitted from solid wastes dumps and from industrial/agricultural sources	298	298	298	100%
Staff from non-project LGUs trained on the health effects of UPOPs and practices to reduced UPOPs from solid waste dumps	640	640	570	89%
National inventory of dioxins and furans updated	Y	Y	Y	100%
Number of LGUs implementing measures to reduce open burning	6	3	1	33%
Collection equipment and vehicles in operation to improve collection efficiency and prevent backyard burning	11	11	9	82%

47. The outcome in reduction of UPOPs was minimal. The number of LGU demonstration subprojects aimed at closing open dump sites and directing municipal solid waste to sanitary landfills was reduced from six to three, and only one demonstration was completed (Legazpi site), which was capped,



preventing future fires and the emission of UPOPs. No new fires have been reported at the other two sites, Butuan and Cabanatuan, despite no project activities having been carried out there. Local regulations have required LGUs to properly close open dumpsites. This is due to renewed commitment to enforcement of existing laws and regulation on the part of the Government and specific lawmakers, and also to renewed awareness raising from the IPOP project.

48. The only successful demonstration subproject in Legazpi, the IPOP project was building on efforts already made under a previous project carried out by the Spanish Agency for International Development Cooperation (AECID). Unfortunately, this sub-project could not be counted as an LGU having a sanitary landfill operating according to standard operating procedures, because it was verified that it was not applying daily soil cover. Some aspects of the Legazpi municipal solid waste strategy, sanitary landfill planning, and the municipal household trash collection system were implemented or enhanced by the AECID project. Completion of the solid waste management strategy is attributed to the follow-on IPOP project.

49. The project delivered substantial training to DENR and LGU staff (including non-project LGUs) and other stakeholders on application of BATs/BEPs (based on existing Stockholm Convention guidelines and/or DENR guidelines) for reduction of open burning from various sources and for dump sites. Around 700 individuals participated in these trainings. This is expected to improve their knowledge and capacity to address open burning in future, thereby reducing emission of UPOPs compounds.

Improved capacity for and demonstration of reduction of exposure to POPs in contaminated sites

Indicators	Original Target	Formally Revised Target	Accomplishment	
			End of Project	% of Revised Target
PDO Indicators				
Contaminated land managed or dump sites closed under the project (Hectare)	6	6	2.32	39%
National Strategy on management of POPs contaminated sites adopted	Y	Y	Y	100%
Intermediate Results Indicators				
DENR staff trained in enforcing the regulatory requirements on managing PCBs	60	60	108	180%
National inventory of contaminated sites completed	Y	Y	N	0%
DENR and other relevant agency staff trained on site characterization, site remediation, and site control techniques and in enforcing regulatory requirements to manage contaminated sites	230	230	246	107%
Owners of contaminated sites, consulting groups, industries and other stakeholders trained on site characterization, site remediation, site control, and regulatory requirements	150	150	176	117%
National strategy on management of POPs contaminated sites	Y	Y	Y	100%



Indicators	Original Target	Formally Revised Target	Accomplishment	
			End of Project	% of Revised Target
developed				
Contaminated site management demonstration completed	2	1	0	0%

50. The first outcome indicator on Contaminated land managed or dump sites closed under the project, achieved 39% of its target. The second indicator on adopting a National Strategy on management of POPs contaminated sites was fully achieved. On the outputs and intermediate indicators, the national inventory of contaminated sites was partially completed with a list of potentially POPs-contaminated sites completed in April 2013. This is considered to represent 50 percent of the effort necessary to prepare a national inventory. However, no further action on this inventory was planned under the project. Some of the ways to improve capacity for management of contaminated sites was envisaged to be through an inventory and hazard assessment of contaminated sites, training, and development of guidelines and site remediation.

51. Guidelines were completed for characterization and remediation, a guideline for control of sites is being finalized. However, the inventory, site demonstrations, and hazard ranking system that were to be key elements and inputs were not completed. Training for DENR staff, site owners, and other stakeholders exceeded targets, and the training is expected to benefit staff in their works on the sites in the long term.

52. The site remediation target was reduced from two to one, and no remediation demonstration was carried out, in part because the location of the site within the Philippines Clark Air Force Base made access to be highly sensitive for the consulting firm contracted to carry out the remediation. The original target for site control demonstrations was not reduced from the original target of two, but the control site demos were not carried out or even formally started under the project, in part because of problems in preparing acceptable environmental management plans, and this indicator was dropped in the 2015 restructuring.

Justification of Overall Efficacy Rating

Overall efficacy rating: Negligible

53. If judged solely by reduction of exposure risk to POPs (the literal reading of the PDO statement), efficacy would be negligible since the PDO inappropriately set out a longer-term objective for a project that was in fact principally aimed at strengthening the country's capacity and legal/regulatory framework for longer-term POPs reduction and elimination goals. Overall assessment of the subsidiary parts of the PDO which are outcome levels on their own also indicate minimal achievement. The only part of the project that targeted significant reductions in POPs risk or exposure as a direct output was for PCBs, which achieved about 26 percent of the revised target. In other POPs sectors, the very limited reductions targeted were to provide demonstration experiences to test, improve, and promote BATs/BEPs and support the implementation of longer-term reduction strategies.



54. In terms of strengthening capacity and the regulatory and monitoring environment for reducing POPs exposure and demonstrating techniques and practices for doing so, the results were mixed. There were relatively better results for the project's PCB-related activities than for UPOPs and contaminated sites, with several guidelines or procedures issued (particularly the Technical Guidance Document on PCB Management), the inventory updated and expanded, management plans prepared, and capacity increased as evidenced by the management plans themselves.

55. Achievement of outcomes related to contaminated sites included new guidelines on site characterization and remediation and advanced draft guidelines on site control. The project also helped produce a National Strategy for the Management of POPs Contaminated Sites which, to some extent, covered gaps left by the absence of planned guidelines for inventory of contaminated sites and lack of actual site demonstrations. The inability to compile an inventory that consisted of more than potentially contaminated sites is a major constraint on the Philippines' ability in the short and medium term to assess, prioritize, control, and remediate contaminated sites. Several goals of the strategy (issued in February of 2016), particularly in the short term (five years) and medium term (ten years), cover achievements that fell within the framework of the IPOPs project, such as improvements to implementation and governance systems and interagency management system and identification of contaminated sites and responsible owners.

56. UPOPs reduction was the area with the weakest outcomes. The legal and regulatory instruments related to UPOPs were formally dropped as activities and targets, BAT/BEP guidelines, and LGU UPOPs action plans were not developed. Only one demonstration subproject was completed, and reduction of UPOPs was not measured.

57. The area in which the implementation of activities was the greatest was in the various training subcomponents aimed at both national and local government staff, PCB and site owners, and other stakeholders. Increased capacity was an intermediate outcome of the project but, in turn, was also an outcome required to achieve other project outputs and outcomes. Levels of training (numbers of training recipients) on a range of policy, procedure, regulatory, and technical aspects of POPs reduction were substantially in line with original plans and in a number of cases exceeded targets. The most noteworthy example of where capacity was increased was in the ability of PCB owners to register and create management plans for their PCB stockpiles and the ability of DENR staff to evaluate and approve the plans.

C. EFFICIENCY

Assessment of Efficiency and Rating

Rating: Negligible

58. At appraisal, the project recognized that because there is a lack of quantified information on the local and global impacts and costs and benefits of POPs reduction, particularly from a source which itself is not well measured or documented, cost-benefit analysis was not applicable to the project. The PAD also recognized the lack of precision in the health benefits and a cost-effectiveness approach was adopted for the project. The project was expected to maximize the cost-effectiveness of decision making by reducing uncertainties related to the sources, technologies, and exposure. Additionally, the interventions chosen under the project were to be least-cost options for reducing exposure or have substantial co-benefits making them economically cost negative.



59. These assumptions at appraisal could not be validated and evidence to support the least-cost option could not be provided at closure due to the absence of detailed data on the costs of the interventions, including cost of site remediation, cost of the inventory, costs and the associated risk reductions of technology choices, regulatory and liability regimes, and capacity building. Also, some of the activities that were expected to contribute to benefits from least-cost options did not materialize. Due to comparability issues and lack of detailed unit cost information for many outputs, a least-cost analysis would be of limited value (particularly since the goal was the least cost of exposure reduction, for which no exposure data are available).

60. Reduction of risk of exposure to POPs also contributes, albeit indirectly and in the longer term, to improved health outcomes. Attention to the health impact of environmental pollution and coverage of SWM systems and collection outside metro Manila does contribute in an incremental way to both Philippine and global POPs impacts. However, the project contribution to global environmental and health benefits over the long term could not be quantified in the absence of quantitative data.

61. Implementation efficiency was also negligible as the project was challenged with delays and some project outputs were either dropped or not completed.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Rating: Highly Unsatisfactory

62. While the final ISR at project closing reflects an outcome rating of Unsatisfactory (U), subsequent assessment at the ICR stage indicate an overall outcome rating of Highly Unsatisfactory based on substantial rating for relevance, negligible rating for efficacy, and negligible rating for efficiency. The relevance of the PDOs was substantial as they are still central to the Philippines' commitments under the Stockholm Convention and the 2015–2018 CPS agreed between the Philippines and the World Bank. Achievement of the objective (efficacy) was negligible in part because the objective as defined would more appropriately be framed as a longer-term objective and could not be directly achieved by the project even if implementation was successful. In addition, while some valuable results and intermediate outcomes were achieved (training, improved capacity, and some legal/regulatory outputs), many of the intermediate steps in the theory of change intended to strengthen the value of those outputs (emission factors, technology verification, demonstration activities, BAT/BEP development, hazard ranking systems, and so on) were not implemented. Efficiency is negligible as the project did not deliver the data, inventories, demonstrations, and analysis on which the original concept of improved efficiency of decision making was based.

63. A split assessment due to the substantial reduction of some outcome targets in the June 2015 restructuring would still result in an overall outcome of Highly Unsatisfactory. Even if the assessment against the revised targets were Unsatisfactory rather than Highly Unsatisfactory, the percentage of disbursements against the PDO targets before restructuring was almost 65 percent, weighting the results in the Highly Unsatisfactory range overall.



E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

64. The project did not have explicit gender-targeted activities or targets. Some POPs have gender-specific health effects for men and women and level of exposure risk can vary by gender, particularly due to different occupational exposure scenarios. However, because the health risks posed by POPs affect both men and women and due to the lack of precise data on specific health impacts and the global as well as local nature of POPs impacts, project objectives, outputs, activities, and targets are not gender specific.

65. Some of the training and awareness raising aimed at LGUs, government staff, and PCB owners included information on health risks that covered some of the gender-specific impacts, but the case for reduction and safe management was not gender dependent or gender driven.

Institutional Strengthening

66. Institutional strengthening was an integral part of the project design and objectives, as captured in the capacity building and regulatory framework dimensions of the PDO. The project carried out considerable capacity-building activities and exceeded many of its targets for numbers of persons trained in various aspects of POPs analysis, management, and reduction. See section B (Efficacy) and annex 1.

Mobilizing Private Sector Financing

67. The main mobilization of private sector financing was to be in the contribution of PCB owners to the activities in Component 3, with US\$6.85 million expected in actual expenditures and in-kind contribution to the process of registering, identifying, testing, inventory update, preparation of management plans, on-site storage, transport, and disposal of PCBs. The greatest expenses would be related to final destruction or disposal (financing disposal/destruction of PCB is not part of the project). This was equivalent to US\$996 per ton of waste disposed (both oils and equipment) and assumed availability of a domestic disposal facility to handle most of the PCBs. Although the PCB owners did not directly report their contributions, the EMB estimated PCB owners expense at US\$6,000 per ton and their total contribution at about US\$1.2 million. This is considerably less than anticipated, mainly due to the lower volumes disposed of than planned at appraisal. At the same time, this is a much higher cost per ton, which is mainly due to the domestic facility not being operational or only partially operational for most of the implementation period, thereby requiring export to European countries for disposal (transboundary disposal).

Poverty Reduction and Shared Prosperity

68. The project did not have specific poverty reduction objectives, activities, or indicators. But the focus on the control of contamination and the reduced exposure to POPs directly through the closure of open dumpsites and indirectly through new regulations have a significant impact on the poor and vulnerable communities close to potential sites and sources of exposure.

Other Unintended Outcomes and Impacts

69. There were no other significant unintended outcomes or impacts.



III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

70. **Overambitious project design, including M&E and RF.** At the outset, the project design was overly ambitious and was designed to cover many areas of compliance to the Stockholm Convention. Almost all POPs projects in preparation or implementation by the World Bank and other agencies at the time of appraisal were targeted at more narrowly defined POPs management areas (or in some cases basic capacity or NIP preparation). The IPOPs project opted for an integrated approach that pursued a range of inventory, capacity, regulatory, strategy, and demonstration activities and related outcomes in three areas of POPs concern that were at different stages of progress, with distinct pathways toward achievement of national and Stockholm objectives, and with different stakeholder groups and engagement needs. This 'more comprehensive than integrated' approach led to challenges and constraints that eventually delayed project implementation. The PDO statement reflected a higher-level objective which could not be achieved through the activities undertaken by the project but could only be done over the long-term with a mix of possible support and interventions.

B. KEY FACTORS DURING IMPLEMENTATION

71. **Weak Capacity of Implementing Agency and Local Government Units.** An overriding factor which contributed to implementation constraints was the weak capacity of the implementing agency. This manifested itself specifically in procurement problems with many contracts due to lack of adequate procurement capacity which led to delays in implementation and further constrained the timely delivery of the project activities and outputs. To mitigate this, the World Bank team closely supervised the procurement process and the procurement staff of the PMO. Outside of the regular missions, the procurement staff would meet with the PMO to clarify issues and guide the PMO. For contracts that had been procured, the World Bank team conducted contract management meetings to assist the PMO.

72. Inadequate capacity of identified LGUs led to challenges in producing documents of adequate technical quality such as feasibility studies, environmental and social assessments, among others, despite contracting the services of consultants. As a result, LGUs originally identified did not qualify as recipients of the sub-grants leading to lesser number of recipient LGUs supported by the project.

73. The project was also the subject of an INT investigation which slowed down procurement and led to delays in implementation. The necessary confidentiality of the INT investigation hampered communication between the Bank and the government which led to implementation constraints. While there were other reasons for slow implementation, this contributed to the delays that ultimately led to some activities to be dropped from the project after it became apparent that they could no longer be completed by the planned closing date.



IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

74. The Results framework (RF) was not properly designed. There were no direct linkages between the outcome indicators and the higher-level outcome in the PDO and in some instances outcomes in the PDO were not measured at all. The theory of change of the project made the connections between better information, regulatory framework, capacity, technology assessment and demonstration, release reduction, management of stockpiles and contamination, and the ultimate objective of exposure reduction. The RF did not include a direct indicator for human or environmental exposure (or exposure risk) against which the goal of minimizing such exposure could be measured. The targets for UPOPs reduction and contaminated site remediation involved only small amounts of reduction on a demonstration basis in furtherance of the regulatory and capacity dimensions critical to longer-term exposure reduction. However, the RF included targets that would help understand and assess in future the degree of human exposure by creating better inventories of POPs and the hazards they pose and establishing a POPs environmental and health monitoring program to better understand exposure pathways and overall exposure to POPs in the Philippines and among specific populations.

75. One of the weaknesses in the RF was that capacity-related indicators were only at the intermediate level and were focused on the number of people undertaking training activities. While appropriate at the intermediate level, such activity and output indicators do not necessarily measure capacity, a common challenge for projects with capacity-building objectives. To some extent, the efficacy analysis captures these capacity outcomes, as in cases where training, TA, and education campaigns are designed to enable implementation or achievement of other activities and targets.

76. The quantitative indicator for reduction in UPOPs releases was based on specific emission factors, typical amounts of burning from various sources in the participating demo LGUs and planned burning reductions that would lead to achievement of the target. These assumptions involved significantly greater amounts of UPOPs than were reported in either the 2006 or 2014 NIPs. There were not adequate or implementable methodologies for measuring reduction in backyard burning, which constituted 60 percent of the reduction target. This indicator was dropped in 2015, due to these shortcomings and challenges. It was also because this target was based on activities primarily intended for demonstration purposes rather than achievement of significant reductions relative to the national UPOPs inventory. The targets of the indicator on PCBs subject to environmentally sound management were overambitious and subject to financing outside of the project and other factors beyond the control of the project, including the PCB owners disposing of PCBs and the Bataan facility being operational and above design capacity.

77. A main weakness of the M&E system of the project was the lack of an efficient tracking of counterpart funds utilized in the project. The Bank team and the PMO had a difficult task of accounting for the counterpart funds from the project partners. These partners include the LGUs, electric cooperatives and the private entities under Component 4.



M&E Implementation

78. Monitoring and reporting of indicators and progress toward targets was good, and the RF allowed for assessment of progress, identification of problems, and their implications to the theory of change. The restructuring in June 2015 revised the RF by dropping, adding, and revising indicators as well as reducing some targets, as detailed in other sections of the ICR. These revisions did not affect M&E performance but, in some cases, weakened the underlying results chain by removing activities and outputs integral to its information-related elements.

M&E Utilization

79. Monitoring of project indicators and progress helped identify areas where difficulties in carrying out activities or delivering outputs (or procuring consultancies for their delivery) required resetting targets and modifying activities or approaches. In several cases, targets were lowered to be more realistic and additional attention was devoted to underlying obstacles, such as capacity constraints in the PMO (for example, in World Bank procurement requirements) or training and outreach needs among stakeholders (LGU and PCB owners). Another example was the slow pace of PCB management plan preparation, which helped identify the underlying causes and highlight the importance and increase the intensity of efforts to issue the clarification of the CCO for PCBs and the related technical guidance document for PCB management.

80. One of most important examples of M&E utilization was the Government's reassessment and modification of its PCB disposal strategy considering the dramatically higher PCB amounts reflected in the updated PCB inventory under the project. This improved information about the scale and nature of PCB stockpiles and contaminated equipment contributed to a reevaluation of the deadlines for PCB disposal, which were suspended as part of the CCO clarification, as well as adoption of a more enabling approach toward issuance of PCB transport and export permits given that the amounts involved dramatically exceeded the capacity of the existing domestic disposal facility (it is not operating at full capacity).

Justification of Overall Rating of Quality of M&E

Rating: Modest

81. Although performance in M&E implementation and reporting and utilization of M&E were good, the overall rating of Modest reflects the overarching issue of aligning the indicators and RF with the stated objective of minimizing exposure to POPs. This was not directly measured and not an achievable or attributable outcome in any case. This could have been resolved to a considerable extent by formally revising the PDO and making additional modifications to the RF. In addition, some of the project activities and outputs that were dropped weakened links within the theory of change relative to the PDO.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

Environmental Safeguards

82. This project is an environmental improvement project and was anticipated to have mostly positive environmental and health impacts. Important measures considered to avoid and minimize adverse



impacts include environmental management in relation to the dump site interventions, safe environmental management of PCBs, and safe cleanup and management of POPs-contaminated sites chosen for demonstration. None of the sites are in known historical or important cultural areas; however, the project included procedures for treatment of chance finds based on the World Bank's policy and local laws. The EMB reviewed and cleared all environmental and social safeguards documents in accordance with the environmental framework and was responsible for monitoring as outlined in each of the plans.

83. **Environmental Assessment Policy (OP 4.01).** The project was assessed as a category A project, for environmental assessment. The main instrument for this project was the Environmental and Social Assessment Framework (ESAF). The ESAF prescribed a category A rating and required a full Environmental and Social Impact Assessment (ESIA). This instrument was clear in its guidance on how to screen and implement safeguards requirements. One limitation of the ESAF was that it was too prescriptive in its guidance and did not allow for assessment of risks during the implementation. This is the case for the remediation pilot activities. The actual remediation activity was dealing with a much smaller scale (less than 30 m²) of contaminated land in a very contained area. The other provisions of the ESAF were clear and implementable. At the close of the project, a supplementary SAP had to be drafted and agreed with the Government to cover the residual risks coming from the uncompleted activities. Environmental Assessment Policy (OP 4.01) was rated Moderately Unsatisfactory in the last ISR. Implementation status of social and environmental safeguards are shown in annex 7.

Social Safeguards

84. At appraisal, World Bank's Indigenous Peoples (OP 4.10) and Involuntary Resettlement (OP 4.12) Policies were triggered. The Environmental and Social Management Framework (ESMF) included an Indigenous Peoples Framework as one of the subproject sites was thought to be subject to an ancestral domain claim under the Philippines' Indigenous Peoples Rights Act. The ESMF also included a Land Acquisition and Resettlement Policy Framework to deal with cases of involuntary resettlement due to temporary or permanent land acquisition or restricted access in relation to the land that would be subject to site remediation and controls. It also included a Social Development Framework for Waste Pickers intended to address potential losses of livelihoods of waste pickers.

85. During project implementation, none of the subprojects triggered the Indigenous Peoples Policy as screening did not reveal the presence of indigenous peoples in any of the subproject areas. There are no Aetas (indigenous people within the Zambales area) in the contaminated site in Subic and the land is not an ancestral domain.

86. Under Component 2 of the project, closure of open dump sites affected the livelihood of wastepickers and families living within the danger area of the dumpsite in Butuan and required relocation. In Cabanatuan, livelihoods of the wastepickers were affected. No resettlement was necessary in Cabanatuan. These two LGUs did not receive grant financing from the project. Nevertheless, the Bank team encouraged the two LGUs to properly manage the impacts of properly closing their respective open dumpsites. Progress in relocating the affected Informal Settler Families (ISFs) and providing measures to augment the incomes of affected waste pickers in Butuan and Cabanatuan was slow. However, with the LGUs having dedicated units and staff looking after the welfare of the affected persons and with the EMB also providing assistance, both Butuan and Cabanatuan are on the path of compliance, and it is just a matter of time before resettlement and livelihood interventions will be carried out. The LGU of Butuan



has sufficient lots for all the affected persons in a relocation site close to their original abodes. In the fourth monitoring mission of the team, after project closure, substantial progress had been made by the Butuan LGU in resettlement of the ISFs. Continuous monitoring by the EMB regional office was also noted.

87. Compliance with the agreed procedures and instruments was generally satisfactory. During project implementation, the PMO understood and followed the agreed safeguards instrument, the ESMF. Project partners such as LGUs and other participating agencies, attended safeguards training activities at the UP-Learning Center. The abrupt closure of the project left some unfinished safeguards work in activities of Components 2 and 4. Involuntary Resettlement (OP 4.12) was rated Moderately Unsatisfactory in the last ISR. The need for remedial measures in the form of a Safeguards Action Plan was made necessary by the abrupt closure of the project.

Financial Management

88. The FM system of the project was for the most part in the implementation period rated Moderately Unsatisfactory. The rating was due to the moderate shortcomings noted during the project life such as delayed submission of interim financial reports and audited financial statements to the World Bank as required under the Grant Agreement. The project was not able to comply with the submission of the internal audit report by the DENR-IAS, which is also one of the financial covenants. No internal audit reviews were conducted due to the limited physical and financial progress and limited capacity of IAS. The IAS review requirement was eventually removed from the Grant Agreement during project restructuring in June 2015. The internal audit requirement remains part of the overall internal control using existing country systems and subject to the IAS professional judgement and discretion in terms of audit scope and in line with the annual audit plan of the DENR.

89. FM project implementation support missions have found that the project was generally able to maintain adequate FM systems. The project encountered FM issues at the beginning of project implementation but subsequently improved when an FM specialist was hired for the project and the Operations Manual was completed.

90. There have also been several ineligible expenditures noted during regular project supervision that have been eventually resolved through refund. The nature of the said ineligible expenses include excess travel allowance, purchases of equipment outside the Procurement Plan, and goods procured and charged to training but considered ineligible.

C. BANK PERFORMANCE

Rating: Moderately Unsatisfactory

Quality at Entry

91. The World Bank identified an area of support that was and remains relevant to the Philippines' environment, public health, and the global commons (Stockholm Convention on POPs). Project activities targeted high priority areas identified in the NIP, including strengthened regulatory and monitoring framework for POPs management, improved capacity for safe management of PCB, improved capacity for and demonstration of reduction of releases of UPOPs, and improved capacity for and demonstration of reduction of exposure to POPs in contaminated sites.



92. Project design was overambitious and poorly done. It was too complex and overambitious given the weak capacity of the implementing agency (IA) and its less efficient procedures. An institutional assessment and review of the World Bank's previous experience with the IA should have shown this limitation. Further, there were several important weaknesses, including pitching the PDO at too high level, shortcomings of the RF as well as the M&E systems. A second weakness was that waste picker livelihood issues were 'delegated' to a parallel activity funded through the Japan Social Development Fund (JSDF) which also experienced implementation delays and challenges leading to most of its project activities not implemented. This TA grant was designed to train several thousand waste pickers in some of the project LGUs and several non-project LGUs. A more thorough planning effort in this regard would have been required. As mentioned earlier, there were shortcomings in project M&E and in the assessment of risks that affected implementation.

Quality of Supervision

93. The World Bank supervised project implementation through missions, video conferences, and fiduciary review and maintained a constructive dialogue between the World Bank and counterparts including the IA, project consultants, and local-level administrators during the project. Issues raised were, to the extent possible, addressed on time and were reported in official documents and followed up. The project was restructured to adjust to the unpredictable circumstances by cancelling several activities that were considered not feasible and reducing the number of LGUs implementing waste management activities. The project implementation was supervised by the full team including procurement, FM, environment, and social safeguards staff.

The first two restructurings carried out for the project missed the opportunity to address the main deficiencies of the project including revising the PDO and setting it at a level that could be achieved within the project. Instead, changes introduced were mainly on adding and removing certain activities and results indicators which had little effect on improving the likelihood of achieving project outcomes.

94. Budget allocated for project supervision was inadequate compared to the amount of work needed to supervise a project with relatively complex and overambitious project design. Standard GEF budget allocation proved to be insufficient for the proper supervision of the project in light of the significant safeguards requirements, the broad scope of activities, difficult and demanding consultant selection processes, and the weak capacity of the IA. Although additional Bank budget was provided to the team, this was still not enough to cover the amount of supervision work needed by the project.

95. Following the INT investigation, the Bank embarked on an extensive supervision of the project and worked with the IA in the drafting of the agreed Safeguards Action Plan (Plan) which sets out the requirements for compliance of unfinished IPOP subprojects with the environmental and social safeguards policies of the World Bank after Project closure. The Bank continued to field monitoring missions even after project closing to monitor and provide advice to the IA and other concerned entities in the proper implementation of the activities included in the SAP. Several measures to mitigate fiduciary risks was also put in place which includes internal controls for procurement and financial management.



Justification of Overall Rating of Bank Performance

96. World Bank support to the Government of the Philippines in preparing and implementing the project is rated Moderately Unsatisfactory largely due to the quality at entry shortcomings that affected implementation. The World Bank worked to advance important restructuring proposals even though not all of these efforts led to fruition, in particular the extensive work on a possible project extension and restructuring in 2017 intended to facilitate implementation of an SAP. It was aimed mainly at addressing impacts on economically and physically displaced households (these were addressed through close post-closing monitoring, guidance, and advice during the 12 months after closing) as well as enhancing some other project outcomes. While the World Bank was relatively responsive to some issues and adapted to unpredictable circumstances, there were also junctures at which more proactive measures could have been taken to mitigate implementation challenges.

D. RISK TO DEVELOPMENT OUTCOME

97. Although the project did not achieve its objective of minimizing exposure to POPs in a measurable way, it did make progress in several areas that will strengthen the Philippines' ability to do so in the future. In many cases, setting ambitious goals and falling short of them helped identify challenges and recalibrate expectations, strategies, and time frames for making meaningful reductions in POPs and exposure to POPs. The main risks to continued progress are government commitment to carrying out its POPs strategies and enforcing laws and regulations and availability of public, local government, and private sector financing for their implementation.

98. In UPOPs, information on sources, exposure, and reduction methods is still rough estimates and based on UNEP emission factors rather than local emission factors. Renewed government commitment to enforcement of existing SWM laws and regulations, particularly regarding closing open dump sites, could achieve substantial UPOPs reductions even if the amounts are not rigorously measured. For both dump site burning and backyard burning, the main costs are borne by the local governments responsible for SWM services. The ability of the three-former project LGUs to carry out their dump site closure suggests that political will and enforcement rather than lack of resources is the principal determinant. And in the case of household burning, improvement in collection rates and enforcement of open burning bans show incremental progress in addressing the underlying sources and causes of UPOPs. Notwithstanding the lack of planned demonstrations, the policies and approaches required to reduce these sources of POPs are reasonably well known.

99. In PCB management, the updating and expanding the national inventory, with far larger than expected amounts of PCBs and of contaminated oil and equipment that were registered, redefined the scale of the problem and led to more realistic government targets for final disposal deadlines. It also resulted in a more liberal posture toward facilitating export permits so that the PCBs can be disposed of at overseas facilities, due to lack of domestic capacity to handle such large volumes. The capacity of PCB owners to develop and carry out management plans and of EMB staff to review, approve, validate, and monitor implementation of the plans puts the Philippines on a more solid footing in terms of meeting or at least making substantial progress toward the Stockholm Convention's 2028 target date for final disposal. PCB owners are responsible for the direct costs of storage and disposal, owners seem inclined



to dispose of their PCBs rather than storing them in an environmentally sound manner indefinitely, and most management plans aim for disposal well ahead of Stockholm time frames.

100. Although the planned inventory and assessment of contaminated sites was not achieved, inventory of potentially contaminated sites was compiled. The National Strategy for Management of POPs Contaminated Sites now lays out a plan with short-, medium-, and long-term activities and targets for doing the remaining steps. These steps include the following: to establish a complete and functional inventory, confirm the sites, and move toward site inspections, characterization, exposure and risk assessment, and priority setting for control and remediation. Guidelines for site characterization and remediation were completed under the project and guidelines for site control are under development. Actual site characterization and risk assessment will be technically challenging and time-consuming, and remediation is likely to be costly. The lack of completed remediation demonstrations under the project will likely be less of a risk to future contaminated site management than the technical and financial aspects. Although not completed before project closing, the site owners for the two planned site control demos did make progress in developing and implementing site control plans after project closing with technical guidance and advisory support from the EMB and the World Bank.

IV. LESSONS AND RECOMMENDATIONS

101. **Defining clear, relevant, realistic legal and regulatory goals is key.** Adopting regulatory instruments should be critical for the achievement of project outcomes and achievable in the project life. Having more realistic expectations of what could be achieved in developing new policies, regulations, and laws is important. The targets of some of the regulatory instruments were too ambitious for the project considering the lengthy and challenging process. The target for proposed legal and regulatory documents was reduced from 19 to 7 in part because their definition, purpose, and relation to the theory of change were not clearly defined nor was their achievement realistic. The legal output for an executive order for the interagency task force on POPs management (and a separate output for the executive order's implementation regulations) required prior interagency coordination and involved a lengthy and challenging approval and issuance process with final approval by the Office of the Philippine President. This turned out to be unachievable within the project life. Some outputs related to UOPs and other activities including local emission factors, environmental technology verification, and the LGUs' UOPs action plans were either dropped or not completed because they were not considered critical to the project objectives or could not be completed in the project lifetime.

102. **It is important to have realistic targets by giving due consideration to client technical and financial capacity to achieve intended objectives.** Some technical and procedural guidance documents as well as the contaminated sites strategy were intended to incorporate data, information, and lessons from instruments or demonstration activities that were not completed. This raised the question of how critical those inputs were to other outputs and the project objectives and to what extent their absence affected the value of downstream guidance documents.

103. **A narrower focus on POPS areas targeted, rather than a comprehensive approach may be a better technical solution in some cases.** Though an integrated approach may seem ideal in some cases, the number of POPs areas targeted must be commensurate with client capacity to implement. The project incorporated three distinct POPs areas into a single project (along with some smaller additional add-ons, such as the WEEE study and PFOS/PBDE training). This created numerous implementing agencies and



complex outreach and coordination activities. In each area, there are distinct paths toward achievement of the objectives with distinct needs that often did not involve natural synergies or efficiency gains in implementation. Some successful POPs projects in other countries focused on a single area (contaminated sites, PCBs, PFOS, and so on) or multiple areas where the distribution of substances or number of owners was not as dispersed, or there was a substantial direct government involvement (UPOPs from hospital waste and PCBs owned by government utilities in Tunisia) that allowed greater control of activities and outputs and more reliable and achievable targets.

104. **Compliance with sector regulations could yield more benefits.** In the case of the UPOPs component, the project design posited that fire suppression and prevention for UPOPs purposes provided co-benefits for SWM. However, a good argument could be made for the opposite assumption that sound SWM (including compliance with Philippine regulations for operation and closing of dump sites under Republic Act 9003 of 2001) already provides UPOPs co-benefits. While fire suppression in active dumpsites is a more direct UPOPs-related activity in terms of fire prevention, the three LGUs that left the project did later close and cap their dumpsites in response to pressure to comply with SWM regulations, effectively achieving a UPOPs co-benefit in the process. Reduction of UPOPs in backyard burning was a stronger direct UPOPs link. At appraisal, it was assumed that 40 percent of the reduction in the demo would be achieved through 100 percent reduction in dumpsite burning and 60 percent of the target would be achieved through a 25 percent reduction in backyard burning. With the reduction from dumpsite closure a likely result of compliance with SWM regulations, a case could be made for a more focused project effort, including monitoring, on backyard burning where reductions are potentially greater, more difficult to achieve, and require multiple solutions (both more collection and less burning of uncollected trash).

105. **Tracking of Counterpart Funds as part of M&E system.** One weakness of the M&E system was the absence of a monitoring system to track the amount of counterpart funds invested in the project. A regular accounting of counterpart funds would have been useful during the evaluation stage of the project. Component 3 involved the investment by the participating electric cooperatives and private firms in the safe storage of PCBs. This activity involved numerous entities. A full accounting of the cost of the project, grant funds and counterpart funds, is critical in assessing the efficiency of the project.

106. **Integration of safeguard actions into the project, supported by project funds, is important.** The project was guided by the ESAF that was done during project preparation. The ESAF defined and prescribed safeguards actions and assessments to be carried out for each activity of the project. Waste picker livelihood issues were not integrated into the project properly as this was delegated to a parallel TA grant (JSDF). This was however remedied toward the last year of the project and the PMO and LGUs completed Social Development Plans for the affected persons. Other safeguards instruments such as ESMPs and ESIAs were carried out for most of the activities in compliance with the ESAF. Residual safeguards risk due to unfinished activities after project closing were covered by an SAP. Most of the activities in this plan have been completed as of December 2018.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Minimize the risk of human and environmental exposure to persistent organic pollutants

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of new legal instruments formulated/modified for POPs management that are adopted.	Number	0.00 20-May-2010	19.00 30-Jun-2016	7.00 30-Sep-2017	5.00 30-Sep-2017

Comments (achievements against targets): Five legal instruments adopted: (i) EMB MC No. 2014-007: Guidelines for the Registration of Laboratories to Perform Analysis of PCBs - issued on Aug 8, 2014 (ii) EMB MC No. 2015-004: Clarifications on the Chemical Control Order (CCO) for PCBs - issued on January 30, 2015 (iii) EMB MC No. 2015-007: Technical Guidance Document on PCB Management - issued on May 9, 2015 (iv) EMB MC No. 2017-003: Guidelines for Site Characterization - issued on June 30, 2017 (v) EMB MC No. 2017-004: Guidelines for Site Remediation - June 30, 2017. Two legal instruments not yet adopted at project closing: (vi) Legal instrument for inter-agency cooperation on POPs management - It was agreed with EMB -Chemical Management Section, acting as the IATAC Secretariat, will convene the IATAC member agencies and pursue the formulation of this legal instrument through a Joint Administrative Order. (vii) Legal instrument for guidelines on site control of POPs contaminated sites - Final guidelines submitted by May 31, 2017 but required revision based on findings of



environmental and social impact assessment on the two demonstration sites. Since project is not extended past Sep 30, 2017, the latest revised guidelines will be cleared by EMB Hazardous Waste Management Section for subsequent endorsement to the EMB.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Contaminated land managed or dump sites closed under the project	Hectare(Ha)	0.00 10-May-2010	6.00 30-Jun-2016	6.00 30-Sep-2017	2.32 30-Sep-2017

Comments (achievements against targets): Based on the EMB Region 5 report, closure works of Banquerohan open dumpsite in Legazpi City is 100% complete as of December 9, 2016. Final inspection conducted on December 15, 2016 reported findings on soil stabilization and vegetation which were scoured due to torrential rains in the area. Contractor was instructed to provide remedial works to address these issues. Status report from EMB Region 5 showed that during their December 22, 2016 inspection, the contractor was able to comply with the directive. Demonstration of site remediation at an open ground within PAF, Clark, Pampanga (39 square meters)- preparations for demonstration activity underway as of Nov 2017. As of December, 2018, the remediation activity has not yet been started. Due to the long delay in the implementation of the remediation contract, the contractor had repositioned the necessary equipment to other job sites.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
LGUs certified by EMB as having no operating dumpsite within their jurisdictions.	Number	0.00 20-May-2010	3.00 30-Jun-2016	3.00 30-Sep-2017	1.00 30-Sep-2017

Comments (achievements against targets): EMB Region 5 issued certification, through a letter dated January 16, 2017 and received on February 7, 2017, that the Legazpi City LGU has properly closed Banquerohan open dumpsite and that no new dumpsite is being operated.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
LGUs certified by EMB as having a sanitary landfill operating according to standard operating procedures, including application of daily soil cover.	Number	0.00 20-May-2010	2.00 30-Jun-2016	2.00 30-Sep-2017	0.00 30-Sep-2017

Comments (achievements against targets): The Legazpi sanitary landfill is now in operation.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
POPs and POPs waste destroyed,disposed or contained in environmentally sound manner	Metric ton	0.00 20-May-2010	2,400 (PCB oils) 4,480 (PCB Waste) 30-Jun-2016	435.00 (PCB oils) 1,140 (PCB Waste) 30-Sep-2017	114.15 (PCB oils) 339.07 (PCB Waste) 30-Sep-2017

Comments (achievements against targets): 114.15 MT of PCB oils and 339.07 MT of PCB wastes were managed in an environmentally sound manner through in-situ storage and by properly marking equipment which are still operating, identified as containing PCBs. Some firms opted to export to their PCB stockpile to France and Sweden where they were destroyed using technologies accepted by the Stockholm Convention. The target of 435 MT is just for PCB oils, while there is a supplemental target of 1,140 MT for PCB waste.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
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Direct project beneficiaries	Number	0.00	764671.00	764671.00	196639.00
		20-May-2010	30-Jun-2016	30-Sep-2017	30-Sep-2017
Female beneficiaries	Percentage	0.00	50.00	48.00	48.00
		20-May-2010	30-Jun-2016	30-Sep-2017	30-Sep-2017
Comments (achievements against targets): Includes 196,639 residents of Legazpi (2015 census) that benefited directly and indirectly from the closure of the Banquerohan open dumpsite and operation of the Banquerohan sanitary landfill, and 85 DENR and EMB officials and staff working the project who benefited from capacity building and institutional support.					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
National strategy on management of POPs contaminated sites adopted	Yes/No	N 20-May-2010	Y 30-Jun-2016	Y 30-Sep-2017	Y 30-Sep-2017
Comments (achievements against targets): EMB issued a memorandum, dated February 9, 2016, to all regional offices for the adoption of the strategy and its use as a reference document in addressing issues and concerns related to management of POPs contaminated sites. Said strategy is available for download at EMB - Chemical Management Section website.					

A.2 Intermediate Results Indicators

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

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
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Legal instruments formulated/modified and presented to stakeholders	Number	0.00 20-May-2010	7.00 30-Jun-2016	7.00 30-Sep-2017	6.00 30-Sep-2017
<p>Comments (achievements against targets): Six legal instruments had been formulated and presented to stakeholders (see related PDO indicator above): (i) EMB MC No. 2014-007: Guidelines for the Registration of Laboratories to Perform Analysis of PCBs - stakeholders' consultation held on January 27, 2014 (ii) EMB MC No. 2015-004: Clarifications on the Chemical Control Order (CCO) for PCBs - stakeholders' consultation held on December 17, 2014 (iii) EMB MC No. 2015-007: Technical Guidance Document on PCB Management - stakeholders' consultation held on March 26, 2015 (iv) DENR Memo for Activation of IATAC for NIP on POPs - stakeholders' consultation held on July 7, 2016 (v) EMB MC No. 2017-003: Guidelines for Site Characterization - stakeholders' consultation held in October - December 2016 (vi) EMB MC No. 2017-004: Guidelines for Site Remediation - stakeholders' consultation held in October - December 2016. One legal instrument currently being reviewed and deliberated (see related PDO indicator above for status): (vii) legal instrument for guidelines on site control of POPs contaminated sites</p>					
Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
National health monitoring program for POPs exposure established.	Yes/No	N 20-May-2010	Y 30-Jun-2016	Y 30-Sep-2017	N 30-Sep-2017
<p>Comments (achievements against targets): After 2 failed biddings for the selection of a firm, it was agreed during the 7th Mission in July 2015 to cancel this activity.</p>					
Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
DENR staff trained on laboratory procedures and equipment operation for	Number	0.00 20-Jun-2010	5.00 30-Jun-2016	5.00 30-Sep-2017	14.00 30-Sep-2017



POPs analysis

Comments (achievements against targets): Completed activities:

- 2017 - 4 EMB staff attended training on dioxin & furan air sampling and modeling in Raleigh, North Carolina, USA in January 2017 (1st batch)
- 2017 - 4 EMB staff attended training on dioxin & furan air sampling and modeling in Raleigh, North Carolina, USA in February 2017 (2nd batch)
- 2017 - 3 EMB staff attended training on laboratory analysis of dioxins & furans in Sydney, Australia in February 2017 (1st batch)
- 2017 - 3 EMB staff to attend training on laboratory analysis of dioxins & furans in Sydney, Australia on March 20 – April 12, 2017 (2nd batch)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Market assessment study on waste electrical electronic equipment conducted	Yes/No	N 20-May-2010	Y 30-Jun-2016	Y 30-Sep-2017	N 30-Sep-2017

Comments (achievements against targets): Due to time constraints in implementation, this activity was dropped as agreed during the 8th mission in October 2016.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
DENR and LGU staff and stakeholders trained in the application of the BAT/BEP to reduce dioxins and furans emitted from solid wastes	Number	0.00 20-May-2010	298.00 30-Jun-2016	298.00 30-Sep-2017	298.00 30-Sep-2017



dumps and from
industrial/agricultural sources

Comments (achievements against targets): Completed activities:

- 2013 - 41 EMB & LGU staff trained in March 2013 + 34 EMB & LGU staff trained in July 2013.
- 2015 - 118 stakeholders trained in January 2015 +14 DENR-EMB & LGU staff attended international training in Cagliari, Italy in October 2015.
- 2017 - 8 EMB & LGU staff attended training on SWM in Kitakyushu, Japan in January 2017
- 2 participants attend the 3rd Symposium of International Waste Working Group Asian Regional Branch (IWWGARB) in Seoul, Republic of Korea in April 12-14, 2017
- 81 participants from DENR-EMB and BFP attended the Training on Solid Waste Management and Technology: BAT/BEP to Reduce the Emissions of Dioxins and Furans conducted by UP National Engineering Center from March to June 2017 in 10 batches.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Staff from non-project LGUs trained on the health effects of UPOPs and practices to reduce UPOPs from solid waste dumps	Number	0.00 20-May-2010	640.00 30-Jun-2016	640.00 30-Sep-2017	570.00 30-Sep-2017

Comments (achievements against targets): Due to the cancellation of the activity on development of National Health Monitoring Program, the topic on health effects of UPOPS is not included in this indicator. However, the BAT/BEP practices to reduce UPOPs from solid wastes dumps were completed, including the topic on fire suppression techniques in waste dumps. Officials from non-project LGUs attended the Training on Solid Waste Management and Technology: BAT/BEP to Reduce the Emissions of Dioxins and Furans conducted by UP National Engineering Center from March to May 2017 in 10 batches. Officials from non-project LGUs to attend the Training on Solid Waste Management and Technology: BAT/BEP to Reduce the Emissions of Dioxins and Furans conducted by UP National Engineering Center from March to May 2017



in 10 batches.

Component: 2. Reduction of Releases of Unintentionally Produced Persistent Organic Pollutants

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
National inventory of dioxins and furans updated	Yes/No	N 20-Jun-2010	Y 30-Jun-2016	Y 30-Sep-2017	Y 30-Sep-2017

Comments (achievements against targets): Updating of the national inventory of dioxins and furans (3rd update) completed in June 2013.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of LGUs implementing measures to reduce open burning	Number	0.00 20-May-2010	6.00 30-Jun-2016	3.00 30-Sep-2017	1.00 30-Sep-2017

Comments (achievements against targets): Legazpi City LGU currently implementing their UOPs Action Plan for both disposal and collection windows, including ESMP. The UOPs action plan has reduction of open burning in the dumpsite and in the community as targets.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Collection equipment and vehicles in operation to improve collection efficiency and prevent backyard burning	Number	0.00 20-May-2010	11.00 30-Jun-2016	11.00 30-Sep-2017	9.00 30-Sep-2017



Comments (achievements against targets): Note: In the restructuring paper adding this indicator to the results framework, the target was incorrectly entered as 41. The correct target is 11. (i) 1-unit garbage truck was delivered to Legazpi on February 24, 2016 and now operational. The other collection equipment consisted of small motorcycle driven vehicles with side-cars. These were used for areas of the city with narrow streets/alleys.

Component: 3. Management of Polychlorinated Biphenyls (PCBs)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
National inventory of PCB owners updated	Percentage	0.00	100.00	100.00	100.00
		20-May-2010	30-Jun-2016	30-Sep-2017	30-Sep-2017

Comments (achievements against targets): The target of 100% was based on the expected population of 800 PCB owners when the target was set in 2014. To date, 1,088 PCB owners have submitted their PCB inventories.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
PCB management plans approved by EMB regional offices	Number	0.00	1000.00	300.00	866.00
		20-May-2010	30-Jun-2016	30-Sep-2017	30-Sep-2017

Comments (achievements against targets): Of the 1,088 PCB owners who have submitted their PCB inventories, 980 have submitted their PCB



management plans with 866 approved by EMB regional offices. This indicator only counts the PCB owners whose PCB management plans have been approved. Note: the PCB owners go thru the following process 1) Inventory of PCB oils and PCB containing equipment is submitted, 2) PCB management plans for safe storage is submitted, 3) PCB management plants are approved by EMB regional office staff.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
PCB management plans validated by EMB regional offices	Number	0.00	1000.00	40.00	40.00
		20-May-2010	30-Jun-2016	30-Sep-2017	30-Sep-2017

Comments (achievements against targets): Validation visits for 40 establishments were conducted by EMB regional offices with assistance by consulting firm during May-July 2016. Most EMB Regional Offices had submitted their monitoring reports in June 2017, but some data regarding the proper containment of the PCB oils and wastes was still being verified at project closing. Validation is ongoing on the side of the DENR and has been mainstreamed in its regular functions. Further validation visits to be determined upon submission by EMB regional offices of reports of their inspections being conducted from October 1, 2016 to June 30, 2017. Validation is ongoing on the side of the DENR and has been mainstreamed in its regular functions.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
DENR staff trained in enforcing the regulatory requirements on managing PCBs	Number	0.00	60.00	60.00	108.00
		20-May-2010	30-Jun-2016	30-Sep-2017	30-Sep-2017

Comments (achievements against targets):

- 2014 - 40 EMB staff trained by Package 4 firm in September 2014.
- 2015 - 5 EMB staff attended international training in Hanoi, Vietnam in May 2015 +



- 2015 - 10 DENR-EMB staff attended international training in Turin, Italy in November 2015 (1st batch)
- 2016 – 43 EMB staff trained by Package 4 firm in May-July 2016
- 2016 - 10 DENR-EMB staff attended international training in Turin, Italy in November 2016 (2nd batch).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
PCB owners and technical staff trained on the environmentally sound management of PCBs and in complying with regulatory requirements	Number	0.00 20-May-2010	572.00 30-Jun-2016	572.00 30-Sep-2017	572.00 30-Sep-2017

Comments (achievements against targets):

- 572 participants working in establishments with PCBs or PCB-contaminated equipment (PCB owners) were capacitated in 16 runs of training conducted nationwide by consultant firm in June-November 2013.

Component: 4. Identification and Remediation of POPs Contaminated Sites

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
National inventory of contaminated sites completed	Yes/No	N 20-May-2010	Y 30-Jun-2016	Y 30-Sep-2017	N 30-Sep-2017

Comments (achievements against targets): Partially completed: A list of potentially POPs-contaminated sites was completed in April 2013. This output is considered to represent 50% of the effort necessary to prepare a national inventory of contaminated sites. However, no further action on this was carried out under the project.



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
DENR and other relevant agency staff trained on site characterization, site remediation, and site control techniques and in enforcing regulatory requirements to manage contaminated sites	Number	0.00 20-May-2010	230.00 30-Jun-2016	230.00 30-Sep-2017	246.00 30-Sep-2017

Comments (achievements against targets): Done:

- 2012 - 5 DENR-EMB staff attended international training in Toronto, Canada in June 2012 (1st batch).
- 2013 - 21 EMB and other agencies staff trained by Package 6 firm in February 2013 + 5 EMB staff attended international training in Toronto, Canada in June 2013 (2nd batch).
- 2014 - 27 EMB and other agencies staff trained by consultant firm in April 2014 + 32 EMB staff trained by consultant firm in May 2014.
- 2015 - 8 EMB staff attended international training in Toronto, Canada in June 2015 (3rd batch) + 40 EMB and other agencies trained by consultant firm in June 2015 + 55 EMB staff trained by Package 6 firm in October-December 2015.
- 2017 – 70 participants from DENR-EMB and other agencies to attend training on site control measures to be conducted by ERGONS.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Owners of contaminated sites, consulting groups, industries and other stakeholders trained on site characterization, site remediation, site control, and	Number	0.00 20-May-2010	150.00 30-Jun-2016	150.00 30-Sep-2017	176.00 30-Sep-2017



regulatory requirements

Comments (achievements against targets): Done:

2015 - 73 stakeholders trained by consultant firm in June-August 2015 + 54 stakeholders trained by consultant firm in October-December 2015.

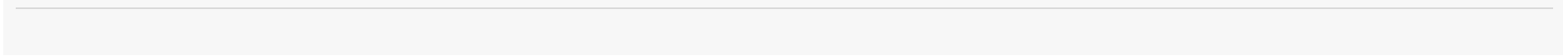
2017 – 49 stakeholders attended training on site control measures conducted by ERGONS Project Marketing Consultants in April 2017. (i)
2017 – 50 stakeholders to attend training on site control measures to be conducted by ERGONS Project Marketing Consultants on 2Q 2017.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
National strategy on management of POPs contaminated sites developed	Yes/No	N 20-May-2010	Y 30-Jun-2016	Y 30-Sep-2017	Y 30-Sep-2017

Comments (achievements against targets): EMB issued a memorandum, dated February 9, 2016, to all regional offices for the adoption of the strategy and its use as a reference document in addressing issues and concerns related to management of POPs contaminated sites. Said strategy is available for download at EMB - Chemical Management Section website.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Contaminated site management demonstration	Number	0.00 20-May-2010	2.00 30-Jun-2016	1.00 30-Sep-2017	0.00 30-Sep-2017

Comments (achievements against targets): Demonstration of site remediation at an open ground within PAF, Clark, Pampanga (see related PDO indicator above for status). As of December 2018, the demonstration activity has yet to be completed.





B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Minimizing the risk of human and environmental exposure to POPs	
Outcome Indicators	<ol style="list-style-type: none"> 1. Number of new legal instruments formulated/modified for POPs management that are adopted 2. Contaminated land managed, or dump sites closed under the project 3. LGUs certified by the EMB as having no operating dumpsite within their jurisdictions 4. LGUs certified by the EMB as having a sanitary landfill operating according to standard operating procedures, including application of daily soil cover 5. POPs and POPs waste destroyed, disposed, or contained in environmentally sound manner 6. Direct project beneficiaries 7. National strategy on management of POPs contaminated sites adopted
Intermediate Results Indicators	<ol style="list-style-type: none"> 1. Legal instruments formulated/modified and presented to stakeholders 2. National health monitoring program for POPs exposure established 3. DENR staff trained on laboratory procedures and equipment operation for POPs analysis 4. National inventory of dioxins and furans updated 5. Number of LGUs implementing measures to reduce open burning 6. Collection equipment and vehicles in operation to improve collection efficiency and prevent backyard burning 7. Market assessment study on WEEQ conducted 8. DENR and LGU staff and stakeholders trained in the application of the BATs/BEPs to reduce dioxins and furans emitted from solid wastes dumps and from industrial/agricultural sources 9. Staff from non-project LGUs trained on the health effects of UOPs and practices to reduce UOPs from solid waste dumps 10. National inventory of PCB owners updated 11. PCB management plans approved by EMB regional offices 12. PCB management plans validated by EMB regional offices 13. DENR staff trained in enforcing the regulatory requirements on managing PCBs (number, custom) 14. PCB owners and technical staff trained on the environmentally sound management of PCBs and in complying with regulatory requirements 15. National inventory of contaminated sites completed 16. Contaminated site management demonstration completed 17. DENR and other relevant agency staff trained on site characterization, site remediation, and site control techniques and in enforcing regulatory requirements to manage contaminated sites



	<p>18. Owners of contaminated sites, consulting groups, industries, and other stakeholders trained on site characterization, site remediation, site control, and regulatory requirements</p> <p>19. National strategy on management of POPs contaminated sites developed</p>
<p>Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)</p>	<p>Component 1 (Legal and Regulatory Framework)</p> <p>1. Five new or updated legal instruments for POPs management were adopted (guidelines for registration of laboratories to perform analysis of PCBs, clarification of CCO for PCBs, technical guidance document on PCB management, guidelines for site characterization of contaminated sites, guidelines for site remediation).</p> <p>Component 2 (Reduction of UPOPs)</p> <p>2. One open dump site was closed with an area of 2.32 ha (Banquerohan in Legazpi City)</p> <p>3. One local government (Legazpi) was certified as having no open dump site operating within its jurisdiction</p> <p>Component 3 (Management of PCBs)</p> <p>4. 114.5 tons of PCB oils and contaminated oil and 339 tons of PCB wastes were managed in an environmentally sound manner.</p> <p>5. 1,088 PCB owners submitted their PCB inventories, and 980 of them have submitted their PCB management plans and of which 866 were approved by EMB regional offices.</p> <p>2. 108 DENR staff were trained in enforcing the regulatory requirements on managing PCBs.</p> <p>3. 572 PCB owners and technical staff were trained on environmentally sound management of PCBs.</p> <p>Component 4 (Identification and Remediation of POPs Contaminated Sites)</p> <p>1. National Strategy for the Management of POPs Contaminated Sites developed and adopted.</p> <p>2. Preliminary inventory of potential contaminated sites created</p> <p>3. 246 DENR and other relevant agency staff and 176 owners of contaminated sites, consulting groups, industries, and other stakeholders were trained on site characterization, site remediation, and site control, and regulatory requirements.</p>



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Preparation

Name	Title	Role	Unit
Preselyn Abella	Financial Management Specialist	FM	EAPFM
Peter Adriaens	Consultant	Component 4 technical advice	
Christopher Ancheta	Sanitary Engineer	Lead for comp 2	EASPS
Helen Chan	Senior Operations Officer	TTL (pre-Project Concept Note)	retired
Michelle Dee	Temporary	Operations support	EASER
Demilour Reyes Ignacio	Program Assistant	Operations support	EACPF
R. Cynthia Dharmajaya	Program Assistant	Operations support	EASER
Simon Peter Gregorio	Consultant	Social safeguards	
Minneh Kane	Lead Council	Project lawyer	LEGES
Mukami Kariuki	Sector Leader	Urban sector advice	EASPS
Bernardita Ledesma	Operations Analyst	Project costing	EASER
Steven Maber	Senior Environmental Specialist	EAP POPs Coordinator	EASER
Ngozi Malife	Program Assistant	Operations support	EASER
John Morton	Environmental Specialist	TTL	EASER
Teri Nachazel	Program Assistant	Operations support	MNCA4
Gerardo Parco	Operations Officer	Co-TTL and lead for comp 1 and 4	EASPS
R. Erik Pedersen	Consultant	Technical advice	
Tomas Sta Maria	Financial Management Specialist	Financial Management	EASCO
Noel Sta Ines	Senior Procurement Specialist	Procurement	EAPPR
Maria. Consuelo Sy	Team Assistant	Operations support	EASPS
Sukanya Venkataraman	Program Assistant	Operations support	HDNDE
Maya Villaluz	Senior Operations Officer	Environmental safeguards and technical and institutional advice	EASPS
Qing Wang	Environmental Specialist	Lead for comp 3 and overall coordination	EASER

Name	Role
Supervision/ICR	
Gerardo Pio Francisco Parco	TTL
Rene SD. Manuel	Procurement Specialist
Aisha Lanette N. De Guzman	Financial Management Specialist
Peter M. Brandriss	Team Member



Name	Role
Maya Gabriela Q. Villaluz	Environmental Safeguards Specialist
Christopher Casuga Ancheta	Team Member
Katelijan Van den Berg	Team Member
Ngozi Blessing Obi Malife	Team Member
Marichu Del Mar Roque	Team Member
Maria Liennefer Rey Penaroyo	Team Member
Veronica Gordo De Leon	Team Member
Geraldine Visitacion Bacani	Team Member
Marivi Amor Jucotan Ladia	Social Safeguards Specialist
Regina Calzado	Team Member

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY08	13.394	62,767.88
FY09	35.245	143,802.07
FY10	37.134	386,981.83
FY11	.437	43,016.73
FY12	0	31.63
Total	86.21	636,600.14
Supervision/ICR		
FY10	1.500	4,986.00
FY11	18.325	84,044.03
FY12	13.190	64,772.52
FY13	15.287	62,110.81
FY14	19.025	86,197.28



FY15	27.349	96,260.79
FY16	23.733	76,243.51
FY17	38.767	138,565.12
FY18	20.498	109,760.78
FY19	10.339	42,449.46
Total	188.01	765,390.30



ANNEX 3. PROJECT COST BY COMPONENT

Financing Plan at Project Appraisal

Component	GEF(US\$M)		GOP Counterpart Funding		TOTAL
	US\$(M)	%	US\$(M)	%	
COMPONENT 1 : Strengthening the Regulatory Framework	0.58	6.7	0.21	1.3	0.79
COMPONENT 2: Reduction of Releases of Unintentional Persistent Organic Pollutants (POPs)	3.43	39.7	6.53	40.8	9.96
COMPONENT 3: Environmentally Sound Management of Polychlorinated Biphenyls (PCBs)	2.17	25.1	7.12	44.4	9.29
COMPONENT 4: Identification and Remediation of Persistent Organic Pollutants (POPs) Contaminated Sites	1.62	18.8	1.25	7.8	2.87
COMPONENT 5: Project Management Support	0.84	9.7	0.91	5.7	1.75
	8.64	35%	16.03	65%	24.67

Actual Amount disbursed from the GEF Grant by Component (Source: EMB Finance)

	Philippine Peso ₱	US Dollar \$	% of GEF Financing
Component 1	12,327,398.90	250,038.89	2.89%
Component 2	70,833,988.01	1,528,238.86	17.69%
Component 3	91,692,428.39	2,043,676.30	23.65%
Component 4	67,476,157.07	1,489,165.89	17.24%
Component 5	32,848,191.51	734,126.75	8.50%
Total	275,178,163.88	6,045,246.69	69.87%

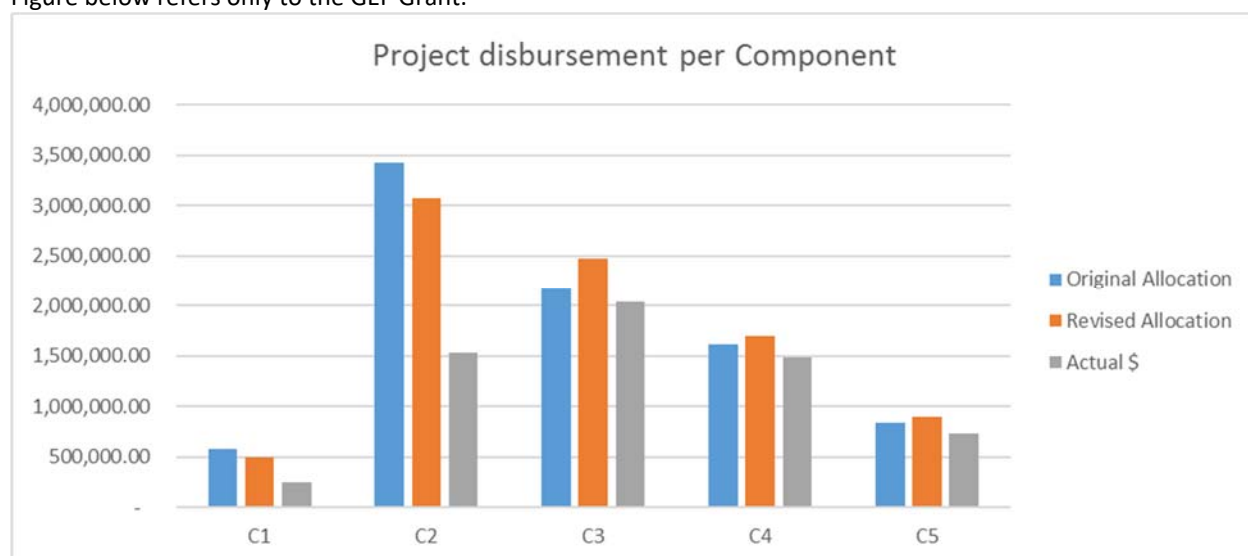


Components	Amount of GEF Funds at Approval (US\$, millions)	Total Amount at Approval GEF +Cofinancing (US\$, millions)	GEF Grant Disbursed Actual (US\$, millions)	Actual Counterpart Funds (US\$, millions)
Strengthening Regulatory Framework and Capacity Building for POPs Monitoring	0.58	0.79	0.25	0.520
Reduction of Releases of Unintentionally Produced Persistent Organic Pollutants	3.43	9.96	1.53	1.074
Management of Polychlorinated Biphenyls (PCBs)	2.17	9.29	2.04	1.704
Identification and Remediation of POPs Contaminated Sites	1.62	2.87	1.49	0.549
Project Management	0.84	1.75	0.73	0.500
Total	8.64	24.67	6.045	4.347

Note: Estimates of counterpart funding figures were provided by the EMB PMO. Funding from enterprises (electric cooperatives, electric utilities), LGUs, and national agencies was provided to the project but not precisely tracked under the project during implementation.

Counterpart funds in the datasheet is system generated. Actual disbursed funds could not be edited due to system limitations.

Figure below refers only to the GEF Grant.





ANNEX 4. EFFICIENCY ANALYSIS

1. At appraisal, the project recognized that due to lack of quantified information on the local and global impacts and costs of POPs and benefits of POPs reduction, particularly from a particular source, which itself is not well measured or documented, cost-benefit analysis was not applicable to the project.
2. Instead, the project used (a) a cost-effectiveness approach based on improvements to decision making about POPs reduction due to reduced uncertainty resulting from better knowledge about sources and technologies for POPs reduction in the Philippines and (b) least-cost options for reducing exposure based, similarly, on better information developed under the project about the sources, associated risks, and approaches for reducing POPs, as well as the fact that many interventions would have co-benefits not related to POPs. The distinction between cost-effectiveness and least-cost analysis was blurred in the sense that they both were based on better understanding of the same source, risk, and reduction knowledge to be improved under the project, except that cost-effectiveness applied to making decisions and least cost applied to the actual interventions based on those decisions.
3. The intention at appraisal was also to develop a quantified analysis of the economics of risk reduction and different interventions based on detailed exposure and risk information gained under the project, particularly for contaminated sites.
4. However, many of the activities and outputs that were to provide the information for this quantified economic analysis, as well as for cost-effectiveness and least-cost goals, were not carried out (local UOPs emission factors, integrated POPs environmental and health monitoring program, completion of inventories that included site inspections and risk prioritization, and demonstration activities).
5. While the analysis, information, and strategies developed by the project will contribute to the future cost-effectiveness and efficiency of POPs reduction, including decision making, defining priorities, developing specific programs, and their implementation, the contributions during the project were limited.
6. Notwithstanding these shortcomings, the current progress toward POPs reduction in the Philippines is such that even if economic and financial efficiency is not maximized due to lack of detailed or locally specific data and risk assessment, it is unlikely that any POPs reduction undertaken would not be justifiable.
7. Closure of burning dumpsites and reduction of household burning is a priority regardless of whether local emission factors were developed to find somewhat more or less emission reduction than calculated by UNDEP emission factors. Though it could be asked whether operational closure of a dump site (no new waste dumped) without environmental closure (capping, stabilization, and methane capture or flaring) would achieve most of the burning and emission reduction with less cost, the benefits of environmental closure would not be limited to UOPs reduction.
8. In the case of contaminated sites, while there still are only a small number of sites that have had detailed environmental site assessments, the value of the approach is at least apparent as two of the preliminary sites identified for remediation under the project were found to not require remediation,



even without a comprehensive national inventory on which to base risk hazard priorities. As the assessment work on potentially contaminated sites is completed, the hazard risk system developed by the project will be a valuable tool to prioritize hazards, inform decision making, and plan control and remediation plans, schedules, and financing options.

9. The inability of the project to deliver a number of proposed outputs, reduction in some key targets, and shortcomings in achievement of targets, are additional factors that likely reduced efficiency. Although original versus actual project costs would not be a factor directly in the types of economic analysis mentioned earlier, the reduction in outputs and shortfalls relative to targets, while difficult to represent in a single number, were greater than the 30 percent of GEF financing that was not disbursed. There are rough estimates but no exact account of co-financing by LGUs and private companies provided by the client at ICR time, most of which would have been in-kind (or at least not recorded as specific budget line items). These contributions would naturally have been substantially lower than at appraisal due to the reduced activities and lower outputs, but given the other factors mentioned earlier, having such data and being able to compare them to outputs and outcomes would not meaningfully change the efficiency analysis.



ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

1. From Mr. Rolando Carbon, FASPS.

Our apology for the late reply on your request for comments on the draft WB ICR of IPOPs

First all we are very much thankful for sharing the said ICR and the opportunity to comment/or make clarification.

In General, we have no comment on the findings and rating of the Project performance as we are all aware that it did not substantially achieve/deliver the expected outputs, more so the project development object (PDO) or expected outcomes.

However, we would like make some clarification on items in the draft ICR that WB may consider in the finalization of the Report

1. On paragraph 81, item (i) factors subject to government and/or implementing entities during Implementation under the Key Factors, particularly which state **"Weak procurement capacity / procurement problems with many contracts"**.

a. May we request to specify/qualify on what stage of procurement is weak to be fair to all involve and in order to determine the appropriate measure/s that would be instituted to strengthen and or improve the process.

b. May we clarify if the **"process"** cited here in the example, referred to procurement process. If that the case and is considered as one of the issues, we would like to note that the Phil Government and/or the implementing entities just followed the WB Procurement procedures as required for the Project. In this case, the WB procurement procedures may also need revisiting for possible enhancement.

c. May we request also, if possible to replace the phrase **"weak procurement capacity"** to **"weak procurement planning"**, because the reasons cited here are more on planning, designing, budgeting, packaging, TOR preparation, etc. We are in the view that these are all preparatory activities prior to procurement. It should be noted again that WB is fully involved in these activities by providing guidance, directions and even concurrence.

2. In paragraph 105 pertaining to INT case, we may clarify what/who is **CMU** as this is not included in the Abbreviation and Acronyms.

3. In paragraph 108 which stated "Project design was not only too ambitious, but also it was relative to the **low capacity of the Implementing Agency (IA) and its procedures**". May we clarify to specify/qualify in what area the IA has low capacity (e.g., technical, managerial, financial, administrative, etc) and what are the procedures referred to.

4. From Mr. Romel Edwin Navaluna – IPOPs PMO.

"IPOPs PMO has no further comments on the ICR. However, FASPS might still have some comments"



ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

1. Department of Environment and Natural Resources Environmental Management Bureau
2. (EMB)PHI: Integrated Persistent Organic Pollutants Management Project (IPOP's Project)
3. Project Completion Report October 17, 2018

ANNEX 7. SAFEGUARDS

1. An SAP was agreed with the PMO to set out the requirements for compliance of unfinished IPOP subprojects with the environmental and social safeguards policies of the World Bank after project closure. Progress has been monitored in all four sites/activities that are subject to the SAP.
2. A summary of the progress on the completion of the SAP is as follows:

Social Safeguards

- (a) **Legaspi City** successfully implemented a Social Development Plan for 71 affected waste pickers who were present in the area and were interested in the livelihood options of the subproject proponent. As of the last mission in May 2017, only 53 were under its watch. This is because 1 scholar has already finished his studies, another scholar discontinued and is already working in Manila, 9 have issued quit claims, 1 has moved out of Legaspi, 1 died, and 5 were counted together with their respective family members. Of the 53 waste pickers, 10 are employed in the composting facility, 2 are scholars, 29 are engaged in crop production, and 12 are engaged in vending. Legaspi, through the Office of the City Environment and Natural Resources (OCENR) said that it will continue monitoring the condition of the waste pickers even after subproject closure because they have now become part of its office's responsibility. It will also try to ensure the sustainability of the livelihood interventions for the waste pickers. For instance, the OCENR has requested that a certain percentage of employees for a septage project will be waste pickers. A project is also being worked out with the Japan International Cooperation Agency to improve and expand the composting facility to employ more waste pickers.
- (b) **Cabanatuan City** applied for IPOP financing for the safe closure of its dump site in Valle Cruz, which was assumed to affect some 70 waste pickers. The project supported preparation of technical designs for safe dumpsite closure and a new MRF. The World Bank cleared the designs but a no-objection to procurement of works was not provided due to an unsatisfactory Social Development Plan and ESMP. The Social Development Plan involved the employment of all affected waste pickers in the MRF that was deemed not economically viable. In short, there was no physical investment and safeguards were abandoned until toward the original project closing date of June 2017 when the project was advised to continue with compliance even with the absence of a subproject. In response to this advice, a Livelihood Plan was developed for the remaining 57 waste pickers. The Livelihood Plan involved the IPOP project providing equipment in the city's old MRF that will be operated by most of the affected waste pickers as they work in shifts. It included the socioeconomic profile of the affected waste pickers, the selection criteria for prioritizing who would be employed in the MRF, and a list of other livelihood opportunities that are available in the city. The socioeconomic survey revealed that affected waste pickers helped themselves after their access to waste in the dump site became more and more limited due to the enforcement of RA 9003. They found alternative sources of livelihood such as driving



tricycles, being involved in the sack business, and sorting waste. Some even secured regular employment such as the one who was hired as a security guard and earned a regular income. The World Bank and EMB continued to monitor the status of the affected waste pickers quarterly for one year and as of the last monitoring mission, Cabanatuan City proactively placed 12 affected waste pickers in a private sorting/recycling company using the selection criteria developed in the Livelihood Plan. The city's Environmental Protection Division and City Social Welfare and Development conducts regular monitoring of waste pickers status.

- (c) **Butuan City** also applied for the safe closure of its dump site in Barangay Doongan for IPOP financing. The project supported the preparation of a technical design for the construction works to close the dumpsite. Eventually, the subproject was rendered ineligible for IPOP financing because the city opened a new dumpsite that was in violation of RA 9003. The Abbreviated Resettlement Action Plan involved relocating the 23 ISFs in an existing relocation site within the same Barangay that has access to electricity and clean water, providing them with construction materials, giving them PHP 5,000 as incentive to relocate and to use for connecting to utilities or pay for extra labor during construction, and providing food assistance during demolition and relocation. Latest status: Three families have been relocated in the new resettlement site. Seven more families can be moved to the resettlement site because their lots have already been awarded and there is enough lumber ready to construct their homes. A total of 29 plots in the resettlement site have undergone the forfeiture process, 5 of which have already been awarded to eligible families, and 8 more will be awarded by the Committee on Lot Awards benefiting a total of 13 families.
- (d) **The World Bank and EMB** continued to monitor the status of the relocation and waste pickers in Butuan quarterly for one year. As of the last monitoring mission, three ISFs have already transferred to the relocation site and have connected to utilities. They are happy about being elevated from being informal settlers to eventually becoming landowners as they pay PHP 152 per month for 15 years for the 80-85 m² lot where their houses were built. Seven more families can be moved to the resettlement site because their lots have already been awarded and there is enough lumber ready to construct their homes. Some issues must be resolved to facilitate the transfer of the remaining 12. One of them is that the local ordinance setting limitations on the eligibility for lot awards needs to be revised to align with OP 4.12. Some of the limitations cited were not being considered Butuan residents despite staying there for decades, not having marriage certificates as couples choose to be live-in partners instead and being single and not having a family. Alternatively, the city may consider exempting the affected ISFs of the IPOP project from these criteria. Another issue is that the relocation area has a limited number of plots and some need to undergo forfeiture procedures from the previous awardee before these can be awarded to the affected ISFs. The City Administrator's Office, City Housing and Development Office, City Social Welfare and Development, and the Lot Awards Committee are working together toward the resolution of these issues and the eventual relocation of the affected ISFs. In addition, as part of its goal to get the Seal of Good Governance, Butuan City is securing funding from banks to implement its safe closure and rehabilitation plan for its dumpsites. The plan will include the ARAP and the Social Development Plan.



Environmental Safeguards

3. As agreed in the SAP, an ESIA will be conducted by the two entities, CENECO and Subic Bay Metropolitan Authority (SBMA), and an ESMP will be incorporated into the SAP for adequate compliance to the safeguard requirements:

- (a) **CENECO (Bacolod)** has submitted a commitment letter to conduct an ESIA of the site control activity. CENECO has submitted an advanced draft of its ESIA. This document was prepared by its environmental officer, as agreed in the previous mission. A final round of baseline soil and water sampling and analysis needs to be completed to finalize the ESIA. The General Manager of CENECO agreed that the analysis of the water and soil samples will be arranged with a local laboratory and the ESIA finalized.
- (b) **The SBMA** has issued a letter to the World Bank dated June 27, 2018, affirming its commitment to conduct the ESIA once the budget for its preparation is approved and released by the SBMA management. The budget was requested by the Ecology Center while the IPOP project was still active. However, the approval of the budget was delayed several times due to the high turnover of officers in the management of the SBMA. The SBMA National Ecology Center has reviewed the terms of reference for the conduct of an ESIA.