

GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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General Project Information

Project Title

Greening of the Philippines cement and construction industry

Region

Philippines

GEF Project ID

11707

Country(ies)

Philippines

Type of Project

FSP

GEF Agency(ies):

UNIDO

GEF Agency ID

230234

Executing Partner

Department of Trade and Industry; TBD

Executing Partner Type

Government

GEF Focal Area (s)

Multi Focal Area

Submission Date

9/18/2024

Project Sector (CCM Only)

Technology Transfer/Innovative Low-Carbon Technologies

Taxonomy

Climate Change, Focal Areas, United Nations Framework Convention on Climate Change, Paris Agreement, Nationally Determined Contribution, Climate Change Mitigation, Technology Transfer, Chemicals and Waste, Emissions, Industrial Emissions, Mercury, Cement, Beneficiaries, Stakeholders

Type of Trust Fund

GET

Project Duration (Months)

60

GEF Project Grant: (a)

6,192,694.00

GEF Project Non-Grant: (b)

0.00

Agency Fee(s) Grant: (c)

588,306.00

Agency Fee(s) Non-Grant (d)

0.00

Total GEF Financing: (a+b+c+d)

6,781,000.00

Total Co-financing

43,795,000.00

PPG Amount: (e)

200,000.00

PPG Agency Fee(s): (f)

19,000.00

PPG total amount: (e+f)

219,000.00

Total GEF Resources: (a+b+c+d+e+f)

7,000,000.00

Project Tags

CBIT: No NGI: No SGP: No Innovation: No

Project Summary

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

The construction market in the Philippines is expected to continue growing at the rate of more than 7% annual average growth rate (AAGR) from 2025 to 2028, resulting in an increase in the demand for primary construction materials such as steel, glass and especially cement. Cement use in the Philippines is 6 times higher than steel and when considering that mercury emissions from cement contribute to approximately 2220 tons per year (11% of the global anthropogenic mercury emissions), it is clear that such growth represents a serious potential for hazardous emissions increase from the most commonly used material.

The Philippines, as signatory to the Minamata Convention, identified the following measures to reduce mercury emissions in the cement industry:

- Implement targeted Hg control policies.
- Use additional methods of mercury removal from flue gas.
- Increase oxidized mercury content through selective catalytic reduction(SCR) or selective non-catalytic reduction (NSCR) processes Install a conditioning tower to reduce mercury emissions during raw material mill downtime.
- Enforce National Action Plans (NAPs).

The objective of this project is to support the national efforts to reduce mercury releases into the environment, focusing on cement manufacturing, and leveraging policies and actions for reduction of the GHG emissions by seeking synergies for efficiency (e.g. raw materials input reduction often reduces both mercury and GHG emissions). This project aims to supplement existing programs in key, strategically selected ways to ensure that globally significant reductions by:

- Promoting enabling policies for hazardous chemicals emission reduction in the construction sector. This will involve reviewing national regulations, establishing industry guidelines, demonstrating technologies for tracking emissions, and conducting a comprehensive study on the feasibility of increased use of alternative raw materials and fuels. This project also seeks to update mercury inventory information by providing guidance on methods for cement plants to assess their emissions more accurately.
- Supporting the development of new business models and practices for reduced mercury releases into the environment. This includes fostering business to business cooperation and promoting the introduction of innovative materials in the national market, particularly through green procurement and other modalities.
- Facilitating technology transfer for cleaner production across the cement supply chain. This includes implementing practices for control and reduction in the cement plants selected for pilot demonstration, but also on screening the input materials and alternative fuels. Application of energy efficient and circular economy approaches will seek to identify alternative materials to clinker for cement

production, increased use of supplementary cementitious materials and recovery of concrete from demolition sites.

- Capacity building for relevant stakeholders and increasing the awareness of the cement industry to mercury as a pollutant. The project will focus on strengthening the capacity of relevant stakeholders for monitoring and management of the mercury emissions from the cement industry and enabling/fostering partnerships to advance national efforts for mercury emissions reduction. A dedicated knowledge platform will ensure faster uptake and scaling up of suitable BAT/BEPs.

By adopting this approach, the project aims to achieve a cumulative reduction of 3.5 tons of mercury and 1 million tons of CO₂e. Through targeted capacity-building activities, awareness raising and knowledge generation activities, will help the project benefit at least 6 million people living in the area affected by airborne emissions from the cement factories engaged in the project.

Among the strategies to reduce mercury emissions in the cement industry are lowering the clinker ratio (currently in the Philippines estimated at 78%), replacing limestone, fuel switching, recycling and circular economy approaches, optimal design of structures, and utilization of replacement green building materials.

Other construction sector materials that the project will seek to establish synergies with are steel and glass (glass manufacturing is one of several sources that contribute about 8% of total anthropogenic mercury emissions and steel is comparable with cement at 11%).

Due to anticipated high economic growth, the Philippines is expected to have the fastest-growing construction market in the region, driving demand for primary construction materials (cement, steel, glass) and as result driving the growth of GHG emissions and construction and demolition waste from the construction sector. The construction sector broadly (including mining, cement production, and construction materials manufacturing) is a key contributor to the Philippines' energy and industrial processes emissions. Currently, there is no data available on the amount of construction and demolition (C&D) waste generated in the country. Detailed assessment of the construction sector's impact on climate, material efficiency and biodiversity are a gap, which the project aims to fulfil.

The project will aim to advance the country's efforts to increase the use of green construction materials (hazardous chemicals-free, low-carbon and resource efficient) addressing reduction of hazardous chemicals emissions, built environment decarbonization and increased material efficiency. This will be done in an integrated way by tackling the main drivers and addressing key gaps in policies, capacities, technology, financing, and implementation. This in turn will support the implementation of and strengthen the achievement of the obligations under the Minamata Convention and the Philippines' NDC. The project will focus on:

- cement and clinker production hubs as well as construction materials manufacturers.
- key actors in the construction industry value chain.
- use of materials in specific public construction works (cities/infrastructure projects outside cities).

The project brings together policymakers, industry stakeholders, and financial institutions to develop a comprehensive environmentally sustainable, resource efficient, net-zero carbon emission strategy for the construction sector. It aligns towards a common goal (SDG 3 on Good Health and Well Being by fulfilling the commitments under the Minamata Conventions and SDG 13 on Climate Action by achieving the Paris Agreement), the interventions of national and sub-national governments with private sector investments and actions by civil society.

Indicative Project Overview

Project Objective

Advance Philippine's efforts to reduce mercury releases to the environment, focusing on cement manufacturing, leveraging on the policies and actions for reduction of the GHG emissions

Project Components

1. Enabling policy

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
700,000.00	2,100,000.00

Outcome:

1.1 Enhanced construction sector policy creating a conducive framework for technology innovation, financing for green construction materials and sustainability, encouraging gender parity

Output:

- 1.1.1 Policy review of the construction related policies relevant for the cement sector
- 1.1.2 National regulatory policies and frameworks developed to monitor and control mercury emissions
- 1.1.3 National guidelines and standards for low impact buildings and industrial emission reduction
- 1.1.4 Traceability and monitoring of materials used in the construction sector strengthened
- 1.1.5 Gender assessment on green construction materials policies

2. Business development

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,300,000.00	3,900,000.00

Outcome:

2.1 Net-zero path free from hazardous chemicals for construction industry and investment opportunities created

Output:

- 2.1.1 Full value-chain cement roadmap for low-mercury and net-zero sector by 2050 with climate-smart technologies developed and gender mainstreamed
- 2.1.2 Business model incentives for private sector investment and green jobs creation in the construction industry developed
- 2.1.3 Business to business events to exchange best practices and establish linkages for technology transfer and cooperation

2.1.4 Connecting with development banks to support bankable investments for green construction practices and products

3. Technology demonstration

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
3,011,804.00	32,409,500.00
Outcome:	

3.1 Innovative, regenerative and resource efficient cement technologies demonstrated at scale

Output:

- 3.1.1 Technology demonstration projects for low-mercury green cement
- 3.1.2. Supporting the implementation of energy-efficient processes in kiln operations
- 3.1.3 Advancing circular approaches for recycled concrete, clinker and alternative materials

4. Capacity building

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
700,000.00	2,100,000.00
Outcome:	

4.1 Strengthened capacity for control and reduction of industrial emissions

4.2 Knowledge management platform established to support construction industry transformation, promoting female leadership

Output:

- 4.1.1 National enforcement capacity strengthened for mercury monitoring and reporting, to ensure compliance with regulatory limits
- 4.1.2 National institutional capacity for green procurement on infrastructure programmes built to facilitate green cement and construction materials use
- 4.2.1. Knowledge documented and shared with stakeholders
- 4.2.2 Project results communicated through relevant platforms
- 4.2.3 Targeted outreach for the general public, decision-makers and industry experts with gender-specific communication

M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
186,000.00	1,200,000.00

Outcome:

5.1. Project monitored and evaluated

Output:

5.1.1 Ongoing project monitoring

5.1.2 Mid-term project review

5.1.3 Terminal evaluation

Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
1. Enabling policy	700,000.00	2,100,000.00
2. Business development	1,300,000.00	3,900,000.00
3. Technology demonstration	3,011,804.00	32,409,500.00
4. Capacity building	700,000.00	2,100,000.00
M&E	186,000.00	1,200,000.00
Subtotal	5,897,804.00	41,709,500.00
Project Management Cost	294,890.00	2,085,500.00
Total Project Cost (\$)	6,192,694.00	43,795,000.00

Please provide justification

PROJECT OUTLINE

A. PROJECT RATIONALE

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

Current trends and challenges

In 2023 the Philippines population is estimated at 110 million people, with a high population growth rate (1.5% in recent years). The urbanization rate is 48% and has been growing since 2010. The country's GDP was 394 billion USD in 2021, with a 5.7% growth rate, with even higher growth expected in coming years, according to ADB. The country's GHG emissions have been on the rise since 1990 levels, slightly decreasing in 2020 due to the pandemic, but continuing upward trend until 2021. The dominant emission source is the energy sector, followed by agriculture and industrial processes (Figure 1).

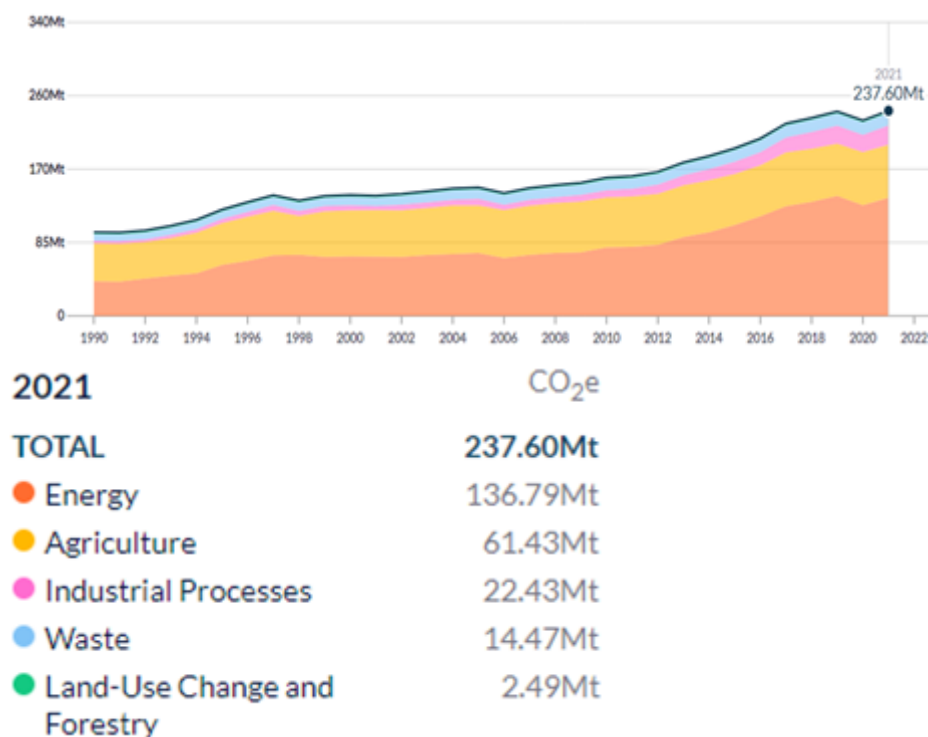


Figure 1. Philippine GHG emissions 1990 – 2021

Source: <https://www.climatewatchdata.org/countries/phl>

In the latest Nationally Determined Contribution or NDC (2021) the Philippines committed to reduce and avoid 75% of its projected GHG emissions against the BaU scenario. This commitment is conditional and aligned with the Paris Agreement based on common but differentiated responsibilities and national circumstances. It presents a “fair share” of the 2°C target. The conditions for reaching the target set out include technology transfer, financial resources, and capacity building for action in specific sectors including industrial processes and product use. The country is looking to increase its ambition in the decarbonization of the economy.

Current development policies focus on the transition to a low-carbon economy, but their implementation requires building the government's capacity to translate high ambition into concrete, measurable action. This is specifically relevant to the construction materials sector, which is rapidly developing in the country. Therefore, the government is seeking support through a foreign-assisted project focused on the decarbonization of the cement and construction industry.

According to a recent forecast the Philippines is set to be the fastest-growing construction market over the next 15 years, averaging over 6% growth per annum. This will be driven by economic growth and the working-age population growing 1.5% per annum over the next decade. The government's public-private partnership initiative and improved long-term investor confidence are set to support investment—and therefore construction activity—over the forecast period. Civil infrastructure will be the growing and fastest-growing sector, with significant government support.

The number of residential, non-residential, addition, alteration and repair types of construction activities in the Philippines more than doubled in 2023 compared to 2021. In 2023, an estimated amount of 47.4B USD construction project was recorded based on the building permits secured for that year.

Construction Statistics		
Year	Floor Area (m2)	Value (USD 1,000)
2023	2,747,301.00	47,367.26
2022	1,710,053.00	29,483.67
2021	1,273,548.00	21,957.72

In 2023, the list of Infrastructure Flagship Projects includes 197 projects worth over 8,714 billion PHP (153 billion USD) to be completed in the next years, driving demand for construction materials, and resulting in millions of tons of embodied carbon (mainly from the use of cement, steel and glass). The current Philippine Development Plan 2023-2028 prioritizes the shift of the economy towards low-carbon industry, especially sustainable production, and consumption.

The construction sector broadly (including mining, cement production, and construction materials manufacturing) is a key contributor to the Philippines' energy and industrial processes emissions. The cement sector emissions in 2021 were estimated at ca. 16.46 Mt CO₂ per year, not including indirect emissions and associated land degradation and biodiversity loss. Other manufacturing and construction sector's emissions are estimated at an additional 3 – 5 Mt CO₂ per year. The Philippine's cement industry emissions intensity was 683 kg CO₂/t product in 2016, 11% higher than the world average. Currently, there is no data available on the amount of construction and demolition (C&D) waste generated in the country. It can be assumed that ca. 10% of the weight of materials purchased for construction projects end up in waste. Detailed assessment of the construction sector's impact on climate, material efficiency and biodiversity are a gap, which the project aims to fulfil.

Specifically on the cement sector, the projected emissions from the cement industry are estimated based on the growth of the sector in terms of cement production. The standard industry clinker ratio and the IPCC default clinker emission factor were used to come up with estimates. By 2030, cement production is estimated to emit 31.37 Mt CO₂ per year, approximately twice the emissions in 2023.

Table 1. Projected annual cement productions, related Hg emissions and GHG emissions:

	2023	2024	2025	2026	2027	2028	2029	2030
Annual Cement	40,568,659	44,395,616	48,594,795	53,237,959	58,369,675	64,039,370	70,321,546	77,301,185

Production [t]								
Annual Hg Emission (ton)	3.7	4.0	4.4	4.8	5.3	5.8	6.3	7.0
Annual GHG* Emissions [Mt CO ₂]	16.46	18.02	19.72	21.61	23.69	25.99	28.54	31.37

*Source: DENR model for Cement Industry Emissions (2022);

The MIA for the Philippines in 2019 used a 0.09 g Hg per ton of cement as input factor for the estimated 26.6 Mt cement output, calculating cement sector emissions of 2,392 kg of mercury per year. With the data for 2023 at 40.6 Mt, this calculation would amount to 3,654 kg mercury emissions. Towards the end of the project timeline, in line with the predicted construction growth, DENR estimates a cement production of 77.3 million tons in the Philippines which would correspond to 6,957 kg Hg emission per year.

The emission factors considered in the MIA were 40% air, 20% product and 40% sector specific disposal. Most of the emission control used in cement industry employs electrostatic precipitator systems which incorporate collected particulates, and the particulate bound mercury, into the system. The removal rate of such systems for oxidized mercury however remains rather low (approximately 10%).

The construction industry in the Philippines contributed about 9.5% of the total workforce of the country or about 4.55M employed persons. The average participation of the female workforce in construction is 9.54% - much below the national average value of 53.4%. With these numbers, it is crucial to ensure the presence of an empowering, enabling, and inclusive environment for both women and men in the construction industry.

Project's baseline

The Philippine Development Plan 2023-2028 (PDP) serves as the country's overall blueprint for development planning for the next six years. It reflects the government's policies, strategies, programs, and legislative priorities in support of and consistent with the Socioeconomic Agenda. The Plan is geared toward the attainment of the country's long-term vision, the AmBisyon Natin 2040, where all Filipinos are envisioned to enjoy strongly rooted, comfortable, and secure lives. The PDP focuses strongly on maintaining high economic growth (between 6% – 8% p.a.), creating more, better, and more resilient jobs, and transforming the production sectors through innovation.

One of the key transformation strategies is the revitalization of the industry by encouraging innovation and technology adoption. This has a special relevance for the cement and the construction materials sector, which will need to deliver materials for the growing economy. Expanding and upgrading infrastructure is one of the important areas of the PDP implementation, with a vision of “green infrastructures that are not only adaptive and resilient against shocks and natural disturbances but also contribute towards a low-carbon future”. The PDP is implemented through regional development plans and various national investment programs:

- Public Investment Program contains the priority programs and projects (PAPs) to be implemented by the national government agencies (NGAs), government-owned and controlled corporations (GOCCs), other national government offices
- The Build Better More program addresses infrastructure gaps that impede Philippine economic development. It includes a list of 197 approved Infrastructure Flagship Projects (above 2.5 billion PHP) to be completed by 2028, mainly focusing on transport infrastructure, urban development, agriculture, and water resources infrastructure.
- The demand for manpower and construction materials to support the Build Better More program, led to an increased number of contractors in the Philippines. In March 2024, there are 990 contractors listed in the Philippine Contractors Accreditation Board (PCAB), 73 of these contractors are active with the Social Housing Finance Corporation (SHFC). The contractors and developers employ 19% female of its total workforce. Only 68% of these companies have gender sensitivity training.
- As of March 2024, there are ten cement companies in the Philippines. with a total of 19 and 4 integrated and grinding plants respectively. The top five biggest cement manufacturers in the Philippines are San Miguel Corporation (Eagle Cement), Holcim, CRH PLC (Republic Cement and Building Materials), Cemex Holdings Philippines (Solid Cement (and Taiheiyo Cement. Other cement companies are Phinma Corporation (PhilCement and Petra Cement), Goodfound Cement Corp, Big Boss Cement and Century Peak Cement and Manufacturing

The Philippine Green Building Council (PhilGBC) leads actions in greening the built environment in the country. It established a Green Building Procurement Hub - a platform where the products, services and public spaces can be procured. It provides a listing of suppliers with green credentials that can be easily searched and navigated.

The Philippines, ranked at the riskiest country for the 3rd time in 2023 according to the World Ranking Index (WRI) on climate change, should have a framework on how to manage post-disaster wastes. It is essential that buildings and infrastructure shall be free from hazardous substances so these wastes could be managed properly after a disaster.

The Department of Science and Technology (DOST) helps private companies and industries acquire new technologies through its Business Innovation through Science and Technology (BIST) program. It has several ongoing and completed projects related to the construction such as the following: 1) TransWood - production of transparent wood for next generation smart building materials in the Philippines; 2) Development of Eco-Cement and smart eco-blocks using locally available industrial wastes; 3) Banana textile fibers for construction applications; 4) Cement-bonded board or composite panel using bamboo for low cost housing construction; 5) Utilization of waste plastic as binder for plywood production; pilot scale production of binderless coco coir boards, performance testing of emerging prefabricated wall systems in the Philippines among others.

In terms of mercury control relevant for the cement sector, the MIA has outlined the need for policies and regulations that require BAT/BEP for new facilities as well as requirements for existing facilities to control/reduce mercury emissions. The main act that regulates the topic of hazardous air pollutants such as mercury is the Philippine Clean Air Act of 1999 (Republic Act No. 8749). Through this Act, DENR sets specific limits for pollutants, including mercury, to maintain air quality.

-DENR AO 1997- 08 Chemical Control Order for Hg which applies to the importation, manufacture, processing, use and distribution of mercury and mercury compounds. It also addresses the treatment, storage and disposal of mercury-bearing or mercury-contaminated wastes in the Philippines. DAO 2019-20 was issued to update the previous CCO to include materials under Mercury Added Products (MAPs) and mercury phase-out plans.

-Philippine National Action Plan to Phase-out mercury as part of the country's commitment to the Minamata Convention, which includes compliance to Article 8.5 to control or reduce mercury emissions from existing sources listed in Annex D, which shall be operational at the source within 10 years. A monitoring/reporting system also needs to be devised for this purpose. Existing sources in the country cover five categories: (1) coal-fired power plants; (2) coal-fired industrial boilers; (3) smelting and roasting processes; (4) waste incineration facilities (none in the country); and (5) cement production facilities.

Emissions of mercury in the cement industry are regulated in many countries. Where emission limit values are in place, they range between 0.005-10 mg/Nm³. The limit values relate to mercury emissions from kiln stack. The application of data (conditions, measurement techniques, compliance criteria could differ from one country to another. The range of Emission Limit Values (ELV) is quite broad. In the Philippines, the limit is set at 0.05 mg/Nm³ measured over a sample period of a minimum of four (4) hours and a maximum of eight (8) hours.

Currently, there are existing laws that address the carbon intensity of the built environment, but further work is needed to streamline their implementation and create a conducive policy environment stimulating innovation in construction materials and construction sectors, presenting an opportunity to synergize actions that lead to reduction of mercury emissions as well as lower GHG emissions.

Currently enacted laws, which require further implementation and operationalization, supporting the creation of low carbon construction sector in the Philippines, include:

- Green Building Code (a Referral Code of the National Building Code, Presidential Decree No. 1096) seeks to improve the efficiency of building performance through a framework of standards that will enhance sound environmental and resource management to counter harmful gases, throughout the building's life cycle, including efficient use of materials, site selection, planning, design, construction, use, occupancy, operation and maintenance, without significant increase in cost.
- Green Jobs Act (RA 10771) The Philippine Green Jobs Act aims to promote the creation of green jobs in various sectors (defined as "employment that contributes to preserving or restoring the quality of the environment"). It provides specific financial incentives for green job creation, including tax deductions, and tax-free imports of capital equipment that would be used directly and exclusively to promote green jobs.
- DPWH Administrative Order 2015-168 Guideline in the disposal and management of spoils and debris generated from all ongoing and completed construction and maintenance projects and the imposition of sanctions for violations thereof. The implementation covers all DPWH projects/contractors. The regulations focus on good housekeeping and practices associated with the disposal and management of the following materials: uncontaminated spoils and debris generated from on-going and completed construction and maintenance projects and activities; non-hazardous petroleum contaminated soils; and non-hazardous contaminated soils.

There is no existing specific framework for the management of C&D waste. Some of the laws in force, relevant to waste management in the construction sector include:

- Philippine Environmental Code (PD 1152) requires all local government units (LGUs) to prepare and implement waste management programs. It regulates methods of proper solid waste disposal. A policy on managing and conserving natural resources includes managing mineral resources.
- Ecological Solid Waste Management Act of 2000 (RA 9003) focuses on solid waste avoidance and waste minimization, proper waste segregation, promotion of research and development. The

implementing rules and regulations include the establishment of material recovery facilities (MRFs) at local level.

- National Solid Waste Management Strategy is a medium-term plan designed to address critical issues, gaps, and barriers encountered by SWM implementers and demonstrate the path for full implementation of RA 9003.
- Recycle Construction Materials Act (HB No. 7044) is a proposed legislation aimed at providing economic incentives and assistance for individuals and entities to establish facilities that recycle CDW as components for building or construction materials. It also aims to reduce CDW through granting of the following some tax and financial incentives.
- Republic Act 11898 or the Extended Producer's Responsibility (EPR) Act of 2022 was created to regulate the production, importation, and disposal of single-use plastics. It also aims to reduce waste by extending the life cycle of products and keeping materials within the economy. Plastics, due to their high calorific value, are being co-processed in cement kilns as alternative fuels. In fact, Ecoloop, the resource recovery group of Republic Cement has reported a diversion of 21.4 billion plastic sachets in 2023. This is equivalent to 110,000 metric tons of residual waste used as alternative fuel in the company's co-processing operations for cement manufacturing.
- DENR Administrative Order 2010-06 entitled Guideline on the use of alternative fuels and raw materials in cement kilns, set the registration and permitting requirements, standards and procedure on co-processing of alternative fuels and raw materials (AFR) for clinker for cement production. Co-processing was defined as the reuse or recovery of mineral or energy content of waste materials while simultaneously manufacturing cement in a single combined operation. Waste materials shall pass the requirements: for alternative materials - heavy metal content, ash content >50% and mineral oxide content >76%; for alternative fuel - gross calorific content should be 2,000 kcal/kg or higher.

Gender related laws and convention, in consideration of the construction and cement industry, are the following:

Republic Act No. 11313 (2019): Safe Spaces Act: covers all forms of gender based sexual harassment (GBSH) committed in public spaces, educational or training institutions, workplace, as well as online space.

Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW): This international convention obliges the government to eliminate all forms of discrimination against women, ensuring that women and girls are protected from violence and have equal rights in all spheres.

Identified baseline investments linked to alternative materials and fuels that can lead to reduced mercury and GHG emissions are presented in the table below.

Table 2. Investment landscape in the cement sector

Entity	Commitments and achievements	Investments
Cemex Philippines	Cemex Philippines has achieved a 50 percent reduction in carbon dioxide (CO ₂) emissions generated by its two cement subsidiaries, Solid Cement Corp. and APO Cement Corp., from 1990 to 2022. From 2020 to 2022 alone, Cemex reduced 18 percent of its net CO ₂ emissions, establishing its commitment to decarbonizing its operations through its Future in Action program.	<ul style="list-style-type: none"> • increase the use of alternative fuels • increase use of decarbonated raw materials • reduce clinker factor • using clean energy in cement operations • better manage water process • Regenera Program launched in 2023 specializes in providing circularity solutions through the recovery, management, recycling

	<p>Goal: less than 430 kg of net CO₂ per ton of cement by 2030 and deliver net-zero CO₂ concrete by 2050.</p> <p>Prior to the passing of the EPR law, Solid cement plants and Apo Cement plants have been supporting several companies in their plastic neutrality and waste diversion programs through co-processing.</p>	<p>and sustainable disposal and diversion of waste such as the use of municipal waste and industrial byproducts as sustainable substitutes for fossil fuels and natural raw materials in its production processes.</p>
Holcim Philippines	<p>In 2021, Holcim Philippines set net-zero targets for 2030 and 2050 validated by the Science Based Targets initiative (SBTi). In addition to scope 1 and 2 emissions, Holcim is reducing indirect transportation and fuel-related emissions from the value chain.</p> <p>Holcim is moving away from a linear “make, take, waste” approach towards a circular “reduce, reuse, recycle” economy. This involves reducing surplus material and waste, building better with less, and driving circular economy initiatives.</p>	<ul style="list-style-type: none"> • drying facility in its La Union plant that would reuse hot gases from operations to dry materials instead of a separate equipment, thereby reducing fuel consumption • drying facility in Holcim’s Misamis Oriental factory reduce moisture of raw materials to improve grinding operations • replacing the clinker in final cement products with alternative mineral components • raise the efficiency of converting qualified waste materials to alternative fuels of its cement plant in Norzagaray, Bulacan
San Miguel Coporation	<p>-4th largest cement players with 1 cement plant, 1 grinding plant, 4 distribution centers and 5 regions served in the Philippines</p> <p>-7.1M metric tons cement production and 4.2M metric tons clinker production capacity</p> <p>-employs 1298 employees, 43% female</p>	<ul style="list-style-type: none"> • Reduction in GhG emission by 9.2% • Clinker replacement of 896MT in 2020 • 7% Recycled input materials • Areas planted with trees: 137 hectares
Phinma	<p>Phinma subsidiary Philcement Corp. entered into joint venture agreements with Anfloer to build a modern cement manufacturing plant in Davao del Norte which will be operational in 2026 with a production capacity of two million metric tons per year, of its legacy brand Union Cement</p>	<ul style="list-style-type: none"> • Purchased Petra Cement in Mindanao and constructing a state-of-the-art cement manufacturing facility in Davao del Norte

Systemic challenges addressed by the project

Due to anticipated high economic growth, the Philippines is expected to have the growing and fastest-growing construction market in the region, driving demand for primary construction materials (cement, steel, glass) and as result driving the growth of the industrial emissions from the cement and construction materials industry.

According to the DENR, one of the main barriers to addressing the challenges of using green construction materials in the built environment in the Philippines are:

- Governance and institutional capacity (weak green procurement regulations, limited low carbon development strategy);
- Financing and valuation (weak incentive system to unlock private sector investments);
- Access and application of best available technologies;
- Limited capacity for research and data generation for monitoring and basis for program and policy development.

Particularly on mercury emissions from the cement sector, there is lack of information and insufficient capacities related to monitoring and reporting, sidelining the issue for both the industry and the national regulators in the Philippines.

The project focuses on the Philippine construction materials sector to address the issue of embodied carbon in the built environment, mercury emissions from the production process and increase material efficiency. The cement industry is key in this regard, with its reliance on abundant limestone deposits in the country and its share on the construction market in the country.

Aiming to achieve transformation and long-term impact, the project will ensure a conducive environment for mercury monitoring and control in the Philippines. To address the current limited monitoring capacity, the project targets the enforcement capacity for mercury monitoring with continuous monitoring systems and aims to establish guidelines on mercury monitoring for industries, strengthen policies and regulatory frameworks to monitor and control mercury emissions. The Project will promote continuous learning through the integration of knowledge in decision-making processes, development of additional tools for knowledge generation, and dissemination mechanisms for successful outcome and innovation. Thus, the project will maximize the accessibility and utility of lessons learned, supporting future interventions and policy refinement. Furthermore, pilot demonstrations and feasibility studies on alternative low-carbon materials, supported by green procurement practices, represent a proactive step reinforcing the project's commitment to sustainable practices and environmental stewardship.

Table 3. Identified barriers addressed by the project

Barrier type	Barrier description
Political	<ul style="list-style-type: none"> • Weak policy framework for promoting the use of green construction materials. No requirements for the use of low mercury, low carbon, resource efficient materials in the construction industry. • Implementation gaps on the regulations of construction and demolition waste (reuse); i.e. hazardous and non-hazardous wastes especially for Class A and Class A contractor categories. • Lack of gender mainstreaming in the construction-related policies.
Financial	<ul style="list-style-type: none"> • High investment cost for new technologies translates into higher price of the end-product (green construction materials). • Practically non-existent market demand for green construction materials, discouraging investment and R&D in new products (e.g. cement with alternative raw materials). • High capital cost due to high investment risk for new production processes.

	<ul style="list-style-type: none"> • Insufficient financial incentives for pioneering innovations/technologies.
Technological	<ul style="list-style-type: none"> • Available technologies for production of green construction materials are still considered as challenging and complex compared to business-as-usual technologies (in the cement sector) due to factors such as the high cost of initial investment, the need for specialized equipment, the requirement for skilled personnel to operate and maintain advanced systems, and the limited availability of local suppliers and expertise to support these technologies. • Difficulties in large-scale demonstration for innovative technologies due to investment risk (in the context of low market demand, uncertain long-term policy framework). • Cement plants have low knowledge about mercury emissions in cement plants, lack understanding for the behavior of mercury transfer and transform along the production processes.
Institutional	<ul style="list-style-type: none"> • Insufficient capacities to review and assess mercury control and reduction technologies for cement industry • Limited technical capacity from national stakeholders and local environmental management departments to monitor the atmospheric mercury emissions from cement kilns • Low awareness of decision-makers and industry on cement environmental impact related to the emissions from the production process.
Social and awareness	<ul style="list-style-type: none"> • Low interest in greening of the construction sector in the country. • Lack of public gender sensitive outreach material and channels, on the importance of the issue. • The general public has limited knowledge of the health impact of mercury emission from cement production, and consequently do not participate in the supervision of mercury pollution control of enterprises.

Stakeholders and their roles in the system

The current institutional framework relevant to the project covers the main institutions engaged in the built environment and construction materials development, among which cement, are included in Table 1.

Table 4. Main project stakeholders

Policy development (incl. planning)	Financing	Implementing
<ul style="list-style-type: none"> • National Economic and Development Authority • Department of Budget and Management • Department of Trade and Industry • Bureau of Product Standards 	<ul style="list-style-type: none"> • Department of Finance • IFIs (ADB, IFC, World Bank) • ODA projects • Green Financing in the Philippines <ul style="list-style-type: none"> • Bank of the Philippine Islands (BPI) Sustainable 	<ul style="list-style-type: none"> • Department of Environment and Natural Resources • Department of Public Works and Highways (DPWH) • Department of Transportation (DOTr) • Local Government Units

<ul style="list-style-type: none"> • Construction Industry Authority of the Philippines • Department of Environment and Natural Resources • Department of Energy • Mines and Geosciences Bureau 	<p>Development Finance Program</p> <ul style="list-style-type: none"> • Land Bank of the Philippines' Climate S.M.A.R.T. (Synergistic, Mitigation, Adaptation, Resiliency, and Transformation) Financing Program • Development Bank of the Philippines (DBP)'s Green Financing Program (GFP) 	<ul style="list-style-type: none"> • Private sector (industry, MSMEs) • Department of Tourism (DOT) • Department of Education (DepEd) • Construction Industry Authority of the Philippines (CIAP) • Association of Construction Women Workers
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B. PROJECT DESCRIPTION

Project description

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

Integrated Approach and Theory of Change

The objective of this proposal is to reduce and control mercury and GHG emissions from the construction and cement industries in the Philippines while fostering a transition toward a more sustainable and resource-efficient sector. In the context of increasing cement production due to growing housing and infrastructure demands, the project intervention aligns with the national response to the environmental obligations under the Minamata Convention and supports decarbonization efforts in the cement industry.

Central to this initiative is the recognition of several barriers that currently hinder progress in the sector. These include weak policy frameworks that fail to support sustainable practices, high capital costs and investment risks that prevent the adoption of innovative technologies, limited access to financing, a limited market demand for green construction materials, and a lack of awareness about the environmental impacts of traditional methods and low technical capacity to implement green practices. These challenges present significant obstacles to reducing mercury emissions and improving resource efficiency.

To address these barriers, the project proposes a comprehensive and integrated approach to address the complex and systemic connections between hazardous chemicals, climate change, built environment and waste. This approach aims to build sufficient capacity and create enabling conditions for environmentally responsible cement production in the Philippines, fostering long-term economic transformation that supports circular economy and inclusivity.

The project is structured in four distinct components aligned with GEF-8 levers of transformation: (i) enhancing cross-sectoral institutional integration and active engagement of multiple ministries for formulating and/or implementing policies and targets for hazardous chemicals, as well as for industrial decarbonization; (ii) mobilize resources through national planning budgets aligned with environmental objectives, as well as private capital towards implementation of low-mercury cement and carbon

emissions reduction projects; (iii) disseminating innovative technologies, business models and institutional arrangements and building long-term capacities among different stakeholders; (iv) knowledge curation, training, peer exchanges, capacity building, and technical assistance are consistent across components, in addition to Component 4, which specifically focuses on capacity building and knowledge management.

In more detail, the project will work towards establishing national guidelines specifically for mercury monitoring in the cement sector, ensuring standardized protocols and reporting mechanisms. The effective enforcement of these regulations is hinged on the strengthened enforcement capacity, so the project aims to ensure compliance with regulatory limits and uphold environmental standards. National and subnational government entities expected to participate in policy integration include (but are not limited to) those responsible for industry, economic development, infrastructure, energy, environment, and natural resources.

Emphasis on developing sectoral guidelines for emission control measures, tailored to the unique needs of cement manufacturing processes in the Philippines is key to reducing mercury emissions, and the project would further help these with pilots that deploy cutting-edge technologies to achieve this goal.

Demonstration projects will showcase the practical application and economic viability of these innovations, creating a foundation for their widespread adoption. This is expected to deliver global environmental benefits in terms of reduced mercury and GHG emissions, minimized waste from the built environment, and improved human well-being and productivity.

Moreover, dedicated project activities will focus on facilitating business-to-business events, creating opportunities for industry stakeholders to exchange best practices and forge partnerships to advance mercury emission reduction and decarbonization goals in the Philippines' cement industry.

The project will also explore avenues for financing investments in the sector, with the aim of ensuring long-term sustainability and scalability of project outcomes beyond its duration.

There is a strong need for close coordination among the various project stakeholders. Therefore, one of the aims of the project is to bring together and engage diverse groups of gender and age-balanced stakeholders. These include stakeholders in the construction sector, policy and regulatory institutions, working population, academic and private sector groups involved in developing and testing low-carbon technologies, and also those involved in financing decarbonization activities, and relevant stakeholders along the cement materials value chain. The project will also prioritize working with existing GEF and non-GEF initiatives to avoid duplication, optimize resources and ensure that proposed activities effectively contribute to the detoxification and decarbonization of the cement materials and construction sector.

The promotion of knowledge sharing and collaboration is central to the project strategy. Achieving transformation of the built environment requires a coordinated strategy to align ambitions, priorities, plans and actions at national and subnational levels. The project will scale up its impacts by ensuring collaboration among multiple stakeholders and peers, (government, private sector players and civil society) towards common objectives, avoiding duplication of efforts and resources, while developing standardized approaches, tools, and methodologies.

Targeted outreach and training sessions to raise awareness and build capacity among stakeholders will be set up through national industry associations, including the cement industry association, as well as relevant government bodies such as the Department of Environment and Natural Resources (DENR). Concurrently, the project will establish a digital knowledge-sharing platform to disseminate information and solutions, fostering a culture of learning, innovation, and best practices within the construction and cement sectors.

To ensure optimal project management and results, the project will deploy a robust monitoring and evaluation framework, tracking progress and assessing its impact. This framework will include standardized indicators tailored to measure reductions in mercury and GHG emissions, as well as capacity-building impacts. Midterm and terminal evaluation reports will provide valuable insights into the effectiveness of the project's interventions, informing future efforts and potential replication in similar contexts.

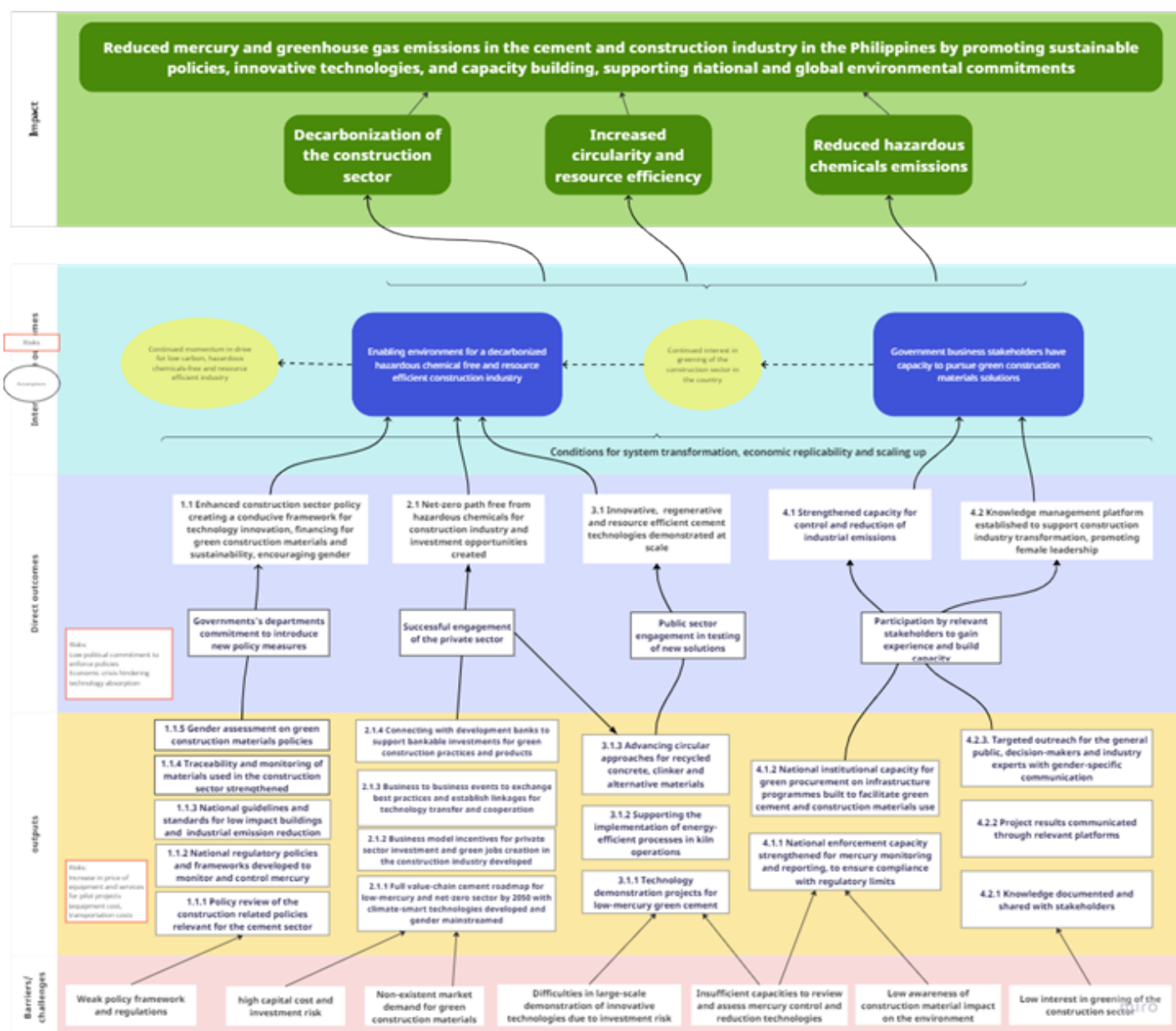


Figure 2. Project's Theory of Change

Detailed project description by components

The objective of this proposal is to enable monitoring and control of mercury emissions in the air and further reduce GHG and mercury emissions from the cement industry.

Component 1: Enabling policy

This component will demonstrate the capacities to meet the requirement of the Convention and the NDC goals through integrated policy, regulatory framework, and standard implementation.

Outcome 1.1 Enhanced construction sector policy creating a conducive framework for technology innovation, financing for green construction materials and sustainability, encouraging gender parity

Enabling a circular approach in the construction sector necessitates the creation of a conducive policy framework mindful of the challenges and synergies for achieving mercury and GHG emissions in the cement sector. This work package focuses on policy improvement to create the enabling regulatory environment for the transformation of the cement sector in the Philippines.

Output 1.1.1 Policy review of the construction related policies relevant for the cement sector.

Policy needs assessment, including an analysis of gaps and challenges in the technical aspects of current policies will be done to identify priority areas of policy support in the context of Minamata Convention and NDC implementation. Opportunities for improvements and recommendations on enhancing policy framework will be developed where necessary, to suggest revisions or updates to existing policies, regulations, and standards. This is necessary in order to streamline existing policies (the Philippine Green Building Code, Green Jobs Act), and outline new policies aimed at increasing the cement sector's ambition for mercury reduction while pursuing a decarbonization agenda. This will be done through a consultative process engaging stakeholders at different levels, based on a supply chain perspective and promotion of circularity in building materials.

Output 1.1.2 National regulatory policies and frameworks developed to monitor and control mercury emissions.

As part of the detailed analysis of the current regulatory framework, the project will review the Philippines requirements on mercury emissions. As part of the detailed analysis of the current regulatory framework, the project will review the Philippines's National Air Quality Standards (RA 8749 (Clean Air Act), DAO 2000-81 (Implementing Rules and Regulations of the Clean Air Act) and DAO 2004-26 (Amendment of Rule XI) for strengthened requirements on mercury emissions. Additionally, the project will propose technical policies and specifications aimed at preventing and controlling mercury pollution within the cement industry. In line with the Minamata Convention, which prioritizes gender mainstreaming to safeguard human health and the environment from mercury's harmful effect, the project will advocate for integrating gender mainstreaming into technical policies where applicable.

Output 1.1.3 National guidelines and standards for low impact buildings and industrial emission reduction.

To support low impact building and infrastructure, the project will focus on developing national guidelines and standards for effective monitoring and regulation of mercury emissions, tailored to the unique characteristics of cement manufacturing processes. The project will involve extensive research and collaboration with relevant stakeholders to identify key parameters for mercury monitoring, establish standardized monitoring protocols, and define reporting requirements. Through such guidelines, the project should enhance the capacity of regulatory authorities and industry stakeholders to manage mercury emissions effectively, and mitigate environmental and health risks associated with mercury emissions from the cement industry. Guidelines will include key information on the health impact of mercury on health and the environment, with specific elements on gender-specific impact.

Such guidelines will be in line with the one developed by the Global Cement and Concrete Association under their Sustainability Charter aimed at enhancing the monitoring and reporting of emissions from cement manufacturing. This initiative addresses the inconsistent use of analytical standards worldwide, which leads to inadequate monitoring and enforcement of environmental regulations in some regions. The guideline is designed with three primary goals: to standardize the monitoring and reporting of cement

emissions data, to deliver credible and practical information on emissions, and to encourage the effective internal management of emissions within the cement industry.

Output 1.1.4 Traceability and monitoring of materials used in the construction sector strengthened

Environmental performance labelling will be promoted, integrating life-cycle assessment approaches into decision-making processes, and facilitating the establishment of a robust monitoring framework for traceability of materials in the construction industry, especially through generation of C&D waste. A framework for monitoring of the mercury as well as GHG emissions of the cement industry will be developed to support the country in the implementation and monitoring of the obligations under the Minamata Conventions and increase the transparency of the climate action. This will feed into the country's inventory databases for control of hazardous chemicals and GHG Inventory Management system.

Output 1.1.5 Gender assessment on green construction materials policies

The output entails conducting a comprehensive study on the social cost associated with mercury and carbon emissions. This study aims to qualify and quantify the potential greater social effects on women. By analyzing the social cost of carbon and mercury emissions and its health impact on both men and women, the project seeks to highlight the benefits of mitigating these pollutants beyond prescribed limits, thereby providing crucial insights into the economic incentives for further emission reduction measures. The research and analysis in this output aims to inform policymakers and stakeholders about the gender implications of reducing carbon and mercury emissions, facilitating informed decision-making towards more gender responsive environmentally responsible practices.

Component 2: Business development

Outcome 2.1 Net-zero path free from hazardous chemicals for construction industry and investment opportunities created

The project aims to provide investors with more confidence in markets that are de-risked by the establishment of a technology roadmap and new business models that address net-zero carbon emissions. This will drive the creation of a chemicals-free, climate-compatible cement materials industry in the Philippines, aligned with the net-zero pathway.

Output 2.1.1 Full value-chain cement roadmap for low-mercury and net-zero sector by 2050 with climate-smart technologies developed and gender mainstreamed.

Existing business initiatives in the Philippines will be mapped, available resources, knowledge and capacity will be identified. Based on analysis (e.g. SWOT / PESTEL) a roadmap for the development of net-zero construction sector free of hazardous chemicals in the Philippines will be developed, indicating priority areas for the government action and proposed timelines. Investment opportunities for industries in new technologies and business models will be identified. The roadmap will feed into the policy component – supporting implementation of Component 1. The document will also examine the role of women-led businesses in the road to a net-zero emission industry, as well as the necessary support for start-ups and existing companies willing to invest in environmentally responsible cement materials or construction services.

Output 2.1.2 Business model incentives for private sector investment and green jobs creation in the construction industry developed.

Through a gender-responsive, consultative process and analysis of needs, enhanced incentives schemes for the production and use of cement with low mercury impact and carbon emissions will be developed. Leverage for market transformation will be sought through incentives provided through green procurement and other governmental mechanisms. Green public procurement tools will be developed and operationalized

that will allow the inclusion of new materials standards, low mercury levels, reduced carbon emissions and circular economy requirements.

Output 2.1.3 Business to business events to exchange best practices and establish linkages for technology transfer and cooperation

The focus will be on organizing business-to-business events aimed at facilitating the exchange of best practices and establishing linkages in the field of technology transfer and cooperation. These events provide a platform for industry stakeholders, technology providers, and experts to come together, share insights, and forge partnerships through interactive workshops, seminars, and networking sessions. The project will encourage the participation of women-led businesses and women speakers in expert groups and business-to-business activities. Selection will be done in an open call for proposals and MSMEs working with innovative technologies and practices will be encouraged to take part.

Output 2.1.4 Connecting with development banks to support bankable investments for green construction practices and products

The PPG will conduct an assessment of current products offered by the financing sector to support investment benefitting environmental protection, with special attention to production with reduced toxicity, as it is commonly less recognized than climate transition. The Project will also offer technical support for the integration of gender considerations into finance initiatives. Recognizing the significance of gender criteria in the decision-making processes of multilateral investors, the Project will seek to enhance the capacities of national financing facilities, the private sector, and policymakers in this regard, thereby facilitating improved access to finance.

The Project will undertake various activities, including:

- Providing training on gender disparities in accessing finance and adhering to existing gender-sensitive incentive structures mandated by regional development banks and multilateral funds.
- Delivering training on the evaluation of gender-specific climate and environmental risks.
- Collecting sex-disaggregated and gender-specific data as required by investors and regulators.
- Developing gender-based criteria for the allocation of funds.

Based on the long list of potential investment demonstration projects (identified during the PPG), a detailed analysis will be done for a limited number of selected projects to improve the design of the investment leading to lower mercury emissions, making it climate-smart, and bankable. The selection criteria will consider the development of new construction materials and techniques.

Component 3: Technology demonstration

Outcome 3.1 Innovative, regenerative and resource efficient cement technologies demonstrated at scale

The project will support pilot infrastructure investments enhancing their design and use of new building materials, with major focus on alternative materials with low environmental impact. This will allow the industry to develop and test cement products with low hazardous chemicals emissions and reduced carbon footprint at scale in public construction works.

Output 3.1.1 Technology demonstration projects for low-mercury green cement.

The project will conduct feasibility studies on alternative low-carbon innovative materials and techniques that can effectively replace or reduce the use of clinker, as the main source of mercury emissions in cement manufacturing. Such alternative low-carbon materials include supplementary cementitious materials (SCMs) or alternative binders, and serve as a basis for viable strategies to reduce clinker content while maintaining or enhancing the quality and performance of cement products.

Concurrently, this Output will focus on facilitating technology demonstrations and supporting technology transfer initiatives aimed at increased utilization of supplementary cementitious materials (SCMs) in primary cement production while ensuring reduction in mercury emissions potential. This strategic approach underscores a commitment to implementing sustainable and environmentally friendly practices within the cement industry. By leveraging the findings and insights obtained from the feasibility studies, the project aims to enable cement manufacturers to effectively integrate SCMs into their primary production processes.

Gender will be mainstreamed in all indicators pertaining to these activities. Gender criteria will be considered when selecting private partners engaged in project activities for technology transfer. These could include the inclusion of gender equality and diversity in corporate governance, fair representation of women at all levels of the company and zero-tolerance policy for workplace gender discrimination. Feasibility studies will also look at social aspects of the materials supply chain with considerations on gender aspects on inclusion and employment.

Output 3.1.2 Supporting the implementation of energy-efficient processes in kiln operations

The output will leverage on the engagement with the cement industries for reduction of mercury emissions and support the implementation of energy-efficient processes in kiln operations through tailored audits assessing current operational practices and technology transfer initiatives for the identified areas for improvement. The objective is to use the adoption of new energy efficient technologies and combine them with targeted measures for temperature control at filters-level to prevent formation of metallic state mercury. Furthermore, the project will facilitate the transfer of knowledge and technology from experts to cement industry stakeholders, including women-led companies and experts, ensuring effective implementation and utilization of energy-efficient practices. By combining audits, feasibility studies, and technology transfer, the project aims to empower cement manufacturers to optimize their kiln operations, reduce energy consumption, and enhance environmental sustainability with strict preventions of conditions enabling mercury emissions. Capacity-building activities will be conducted with a focus on women engagement to a minimum of 40% of representation. Gender will be mainstreamed in all indicators pertaining to these activities.

3.1.3 Advancing circular approaches for recycled concrete, clinker and alternative materials.

Successful initiatives of using recycled clinker have relied on sourcing from a wide range of secondary materials including wood ash and mineral waste. However, any input in the clinker production lead to risks of introducing material with higher mercury content and result in increased emissions, so the focus of this output will be to ensure that sources of secondary material and production of recycled clinker is in line with mercury input control and categorization.

Through the circular approaches, the project will also aim to recover cement from Construction and Demolition Waste (CDW), reducing waste generation and conserving natural resources. Innovative technologies and processes will be supported to minimize the environmental impact of CDW.

Feasibility studies will also look at social aspects in post-use and recovery of secondary materials. The informal sector is usually over-represented in waste management and women are often even more impacted by having low access to decision-making spheres of these organizational schemes.

Outcome 4.1 Strengthened capacity for control and reduction of industrial emissions

The Outcome focuses on strengthening the national capacity to guide the industries in the cement supply chain through improved control of mercury emissions as well as through providing incentives and creation of market opportunities for products with reduced mercury emissions.

4.1.1 National enforcement capacity strengthened for mercury monitoring and reporting, to ensure compliance with regulatory limits.

The project will also focus on strengthening the national enforcement capacity for mercury monitoring and reporting, with a particular emphasis on increasing the knowledge of the regulatory stakeholders and improving the knowledge exchange through the Asia Pacific Mercury Monitoring Network (APMMN). It will also implement activities for continuous mercury monitoring systems to track emissions and ensure compliance with regulatory limits. This initiative thus involves enhancing the technical capabilities of regulatory authorities and industry stakeholders to effectively monitor mercury emissions in real-time. By deploying continuous monitoring systems, the project aims to provide timely and accurate data on mercury emissions, enabling proactive measures to address any deviations from regulatory limits promptly. Furthermore, the project will support the development of robust reporting mechanisms to facilitate transparent communication, learning and accountability in mercury monitoring and compliance efforts. Through these initiatives, the project seeks to enhance national enforcement capacity for mercury monitoring and reporting, contributing to improved environmental protection and public health outcomes.

The Air Quality Management Section at DENR is responsible for development of Guideline Values for Additional Hazardous Air Pollutants which include mercury.

4.1.2 National institutional capacity for green procurement on infrastructure programmes built to facilitate green cement and construction materials use.

As mentioned in the section on systemic challenges addressed by the project, weak green procurement regulations present one of the main barriers to addressing the challenges of using green construction materials in the built environment in the Philippines. The project will build on the initiative of the government's Department for Trade and Innovation in championing greening buildings construction through green procurement, strengthening the governmental institutions capacity to use green procurement effectively as an incentive to the private sector to reduce the mercury and GHG emissions. This will entail training workshops for public institutions and guidelines creation, supported by the green public procurement tools developed and operationalized in parallel under output 2.1.2.

Outcome 4.2 Knowledge management platform established to support construction industry transformation, promoting female leadership.

Output 4.2.1 Knowledge documented and shared with stakeholders

A set of knowledge management activities is envisaged with the objective to define a solid exit strategy, facilitate the flow of information and knowledge to national and international stakeholders and beneficiaries, as well as to recollect experiences from the Philippines during and after the project. These will be key for scaling up activities for the project. The role of knowledge management also includes documenting gender aspects of the project.

Throughout the project implementation phase all relevant data, information and lessons learnt will be documented in line with a detailed knowledge management strategy defined in the project document during the PPG. Knowledge products (datasets, reports, analysis, policy guidelines, case studies etc.) will be made available to relevant stakeholders nationally or internationally, as appropriate. Necessary links

with similar initiatives, under the GEF, will be made with the aim to facilitate relevant information sharing and increase uptake capacity.

Output 4.2.2 Project results communicated through relevant platforms

Project results will be communicated with a wide range of stakeholder groups nationally, regionally and globally through existing communication platforms, relevant social media channels and participation and organization of relevant events and forums. To facilitate effective sharing of information and experiences among agencies, reporting mechanisms will be established with standardized content forms and reporting timelines. These mechanisms will aid in the national implementation process. Additionally, participation in relevant international forums will be organized to facilitate knowledge exchange on relevant topics and allow for learning experiences from other countries.

To promote gender-equality in the sector, the project will prioritize gender mainstreaming throughout all aspects, including in the selection of partners and stakeholders. This entails considering gender criteria in all its training sessions to ensure diverse representation and perspectives in decision-making processes. All content developed with a specific gender aspects will be advised with particular attention on the knowledge platform.

Output 4.2.3. Targeted outreach for the general public, decision-makers and industry experts with gender-specific communication

Training sessions will be conducted focusing on various aspects of mercury emissions control regulatory systems, monitoring methods, supervision and management capabilities, and best available techniques/best environmental practices (BAT/BEPs). These sessions aim to equip municipal-level monitoring stations with the necessary capacity to monitor atmospheric mercury emissions effectively. Furthermore, they will ensure that government officials are proficient in supervising mercury emissions from cement plants.

Additionally, the public will receive education on mercury emissions from cement production, the effects of mercury exposure on human health and the environment, and will be encouraged to participate in supervising mercury pollution control in cement plants. Moreover, the training will provide cement plants with the knowledge required to independently select, utilize, and manage BAT/BEP technologies for controlling and reducing mercury emissions during cement clinker production. Questionnaires will be designed and distributed to gather feedback for the continuous improvement of future capacity-building activities.

Capacity-building activities will be conducted with a focus on women engagement to a minimum of 40% of representation. Gender will be mainstreamed in all indicators pertaining to these activities. Awareness-raising activities will include specific materials for women as a target group and focusing on (i) specific impacts of mercury with more adverse effects on women (ii) ensuring fair representation of women in the workplace and fighting gender discrimination.

Furthermore, the project will conduct a comprehensive analysis to identify the participation of women in the whole supply chain, analyzing working conditions, good practices, and barriers to gender equality. This analysis will inform decision-making processes and facilitate the development of targeted interventions to promote gender equality and inclusion within the industry.

Component 5. Monitoring and Evaluation

Outcome 5.1 Project monitored and evaluated

Ongoing project monitoring is the responsibility of the Executing Partner, while mid-term and final project evaluations are within the responsibility of implementing agency (UNIDO). A detailed M&E plan will be fully developed in PPG phase of the project.

Output 5.1 Ongoing project monitoring

The project activities will be developed to be fully in line with the GEF monitoring policy and monitored by the Executing Partner. As part of the GEF annual monitoring exercise, the Project Executing Entity will prepare a Project Implementation Report (PIR) and submit it to UNIDO, which will then submit it to the GEF. The PIR will include progress towards project-level outcomes, major milestones achieved through overall project implementation, and engagement with relevant stakeholders in the country.

Output 5.1.2 Mid-term project review

The Mid Term Review (MTR) of the project will be carried out by independent contractors (contracted by UNIDO) and will include an assessment of the project progress up to date. It will also provide valuable feedback for potential adjusting of the project activities, so the project remains on track to achieve its goals.

Output 5.1.3 Terminal evaluation

An independent Terminal Evaluation (TE) of the project will be undertaken by independent contractors (contracted by UNIDO) and will include an assessment of the added value of the projects. The TE will be carried out 6 months before the completion of the project. The TE will be the responsibility of the implementing agency, and the funds will be held within the project's budget. The TE of the Project will provide an independent assessment of project performance (in terms of relevance, effectiveness, efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among the partner agencies.

Innovation and scaling toward wider transformation

Advance Philippine's efforts to reduce mercury releases to the environment, focusing on cement manufacturing, leveraging on the policies and actions for reduction of the GHG emissions

The project brings together policymakers, industry stakeholders, and financial institutions to develop a comprehensive approach towards mercury emissions reduction from the cement sector, supporting its environmental credentials as well as its targets for resource efficiency and net-zero carbon emission. It aligns towards a common goal (achieving the SDGs 3 on good health and 13 on climate action, under the Minamata Conventions and Paris Agreement), the interventions of national and sub-national governments with private sector investments and actions by civil society.

The project provides unique access to a global set of industrial, academic and government knowledge through its fundamental association with CEM-IDD and the Global ABC Initiative. This project supports the development of harmonized standards for low-carbon steel and new alternative construction materials, develops a framework for reporting embodied carbon emissions and hazardous chemicals, and encourages government to develop green public procurement pledges for accelerating and supporting sustainable and net-zero carbon emission movement; its outcomes are replicable and will increase in impact over time as the downstream activities and built environment expands to accommodate population growth.

The project makes a voluntary effort to incorporate aspects of circularity within net-zero steel sector policy design. Furthermore, it seeks to enable circular approaches by removing hazardous chemicals from the C&D waste streams. Price and other incentives that encourage the uptake of sustainable, circular methods of production and consumption will replace the current linear economic model. This, in turn, benefitting not just net-zero goals but also other GEF-8 programming goals (e.g. C&W).

Stakeholder engagement

An initial mapping of potentially relevant national stakeholders at the PIF stage is shown in Table 5. Stakeholder engagement is at the heart of the project design and implementation, as well as continued engagement in the post project duration. It is vital for trust building and reliability and jointly identify potential risks and opportunities for a comprehensive, coherent, concerted effort required from various stakeholders. In general, stakeholders are of different types, including national government, international partners, industry associations and firms, academia, civil society organizations, private sector, investors, private banks and developers etc. Further, the mapped relevant stakeholders would play different roles within the project components, such as some stakeholders consulted on technical matters whereas others may be involved in the scaling up activities and for the execution of project activities.

Table 5. Stakeholder Engagement

Stakeholder Type	Contribution to accelerate reduction of mercury emissions from the cement sector and advance market transformations that support resource efficiency and net-zero carbon emission targets.	Name of the Ministry/institution/organization/company
National governments	<ul style="list-style-type: none"> • Nationally endorse and adopt sector roadmap for reduction of mercury and carbon emissions from cement production • Promote and incentivize compliance with green construction materials policies and regulations • Develop and adopt national standards for mercury reduction in cement production • Standardize on measuring, monitoring, verifying and reporting progress to lower mercury emissions. • Encouraging through policy and incentive measures to integrate targets for mitigating use of hazardous chemicals as well as low-carbon emissions requirements in downstream activities (urban and industrial planning) • Setting requirements and/or targets for low-carbon products without hazardous chemicals through green public procurement. • Setting guidelines on industry best practices and promotion of a safe and inclusive work place 	<ul style="list-style-type: none"> • Department of Trade and Industry (DTI) • National Economic and Development Authority • Department of Environment and Natural Resources (DENR) • Department of Public Works and Highways • Construction Industry Authority of the Philippines • Department of Finance • Department of Transportation (DOTr) Rail Sector
Sub-national governments	<ul style="list-style-type: none"> • Set requirements more ambitious than the national requirements • Demonstrate public-private partnerships to develop environmentally sustainable, low 	<ul style="list-style-type: none"> • Local Government Units • Public-Private Partnership Center • Department of Transportation (DOTr)

Stakeholder Type	Contribution to accelerate reduction of mercury emissions from the cement sector and advance market transformations that support resource efficiency and net-zero carbon emission targets.	Name of the Ministry/institution/organization/company
	<p>carbon construction sectors, integrating benefits to promote the well-being and productivity of workers and inhabitants, particularly for vulnerable groups.</p> <ul style="list-style-type: none"> Promote programmes such as innovation acceleration encouraging entrepreneurs developing alternative materials, circular practices and technologies that minimize mercury emissions, waste generation and are low-carbon. 	
International partners	<ul style="list-style-type: none"> Provide access and favorable conditions for financing chemicals free, net zero carbon emission efforts and projects Promote dialogues, knowledge exchange, and formation of networks on the industrial decarbonization, resource efficiency, material development and circular practices, thereby building capacity across all relevant stakeholders. Engage with international private sector technology partners for technology transfer 	<ul style="list-style-type: none"> International Finance Corporation (IFC) Global Cement and Concrete Association World Steel Association Global ABC The Energy Foundation Rocky Mountain Institute Bloomberg NEF
Private sector	<ul style="list-style-type: none"> Cement and construction sector industries adopt new business models incorporating sustainability and circular economy principles and practices Produce sustainable, free of hazardous chemicals, low-carbon, high efficiency materials and technologies Promote renewable energy sources and energy efficient technologies Support in the methodologies for embodied emissions carbon accounting and hazardous chemicals reporting exercise. 	<ul style="list-style-type: none"> Cement producers MSMEs: construction materials producers, suppliers and construction industries Cement Manufacturers Association of the Philippines, Inc. (CeMAP) Philippine Constructors Association Inc (PhilConstruct) Light Rail Manila Corporation

Stakeholder Type	Contribution to accelerate reduction of mercury emissions from the cement sector and advance market transformations that support resource efficiency and net-zero carbon emission targets.	Name of the Ministry/institution/organization/company
Investors, private banks and development banks	<ul style="list-style-type: none"> • Adjust strategy and investment criteria to promote the financing of environmentally friendly construction materials. • Banks shift from profit-driven investments to sustainable impact financing where both sustainability factors and profit drives the investments. • Private banks demonstrate their commitments through good ESG performance and make investments where ESG and profits are equally weighted. 	<ul style="list-style-type: none"> • Philippine Development Bank • Landbank • Bank of the Philippine Islands • ADB
Civil society members and organizations	<ul style="list-style-type: none"> • Disseminating the importance of mercury abatement agenda and its relevance to- and link with- the climate change agenda. • Opportunities to bring in green cement products into the built environment, especially for residences and places of work, and, for disadvantaged populations • Lead to behavioral change toward implementing environmentally responsible solutions in industries. • Participate in community actions to educate, reach out and promote the demand for environmentally sustainable products and get their commitments/willingness to support green products. 	<ul style="list-style-type: none"> • Public-Private Partnership Center of the Philippines • AWWCI - Association of Women Workers in the Construction Industry • ACIW – Association of Construction and Informal Workers • PHILGBC - a coalition of leaders from every sector of the building industry, making it the largest green building initiative in the Philippines. Leading corporations and numerous individuals collaborate to drive the advancement of the green building movement in the country.
Academia and Research Institutions	<ul style="list-style-type: none"> • A thorough analysis of the feasibility and inclusiveness of proposed solutions. • Involved in the design and implementation of policy and financing guidance, technical assistance, and capacity building. • Support research on alternative materials with superior environmental performance. 	<ul style="list-style-type: none"> • University of the Philippines, Building Research Services • Department of Science and Technology (DOST) - PCIEERD

Stakeholder Type	Contribution to accelerate reduction of mercury emissions from the cement sector and advance market transformations that support resource efficiency and net-zero carbon emission targets.	Name of the Ministry/institution/organization/company
	<ul style="list-style-type: none"> Implement awareness raising initiatives 	

Stakeholders information and relation to the project

Private sector engagement

The private sector will benefit from all project components and will be directly engaged as part of the activities under Components 2, 3 and 4. The project will engage with private sector representatives to collect their input to the cement value chain roadmap and support developing new business models (Output 2.1.). Private sector companies will be engaged in the demonstration activities (Output 3.1). The private sector will also be represented through participation of interested relevant companies and/or associations in stakeholder meetings and knowledge exchange events.

Socio-economic benefits

The project will provide strategic benefits to the construction sector and built environment, leading to reduced exposure to risk, increased competitiveness, business development, production continuity, and a better reputation with key stakeholders. The initiative shifts toward the use of alternative materials and drastically reduces or eliminates the use of toxic materials. Redesigning products, services, or processes transform non-valorized resources from waste to one that may be reused in closed-loop systems.

Gender Mainstreaming

In the context of gender integration into development, the Philippines have enacted two main laws (Women in Development and Nation Building Act, from 1992, and the Magna Carta of Women - Republic Act 9710 - from 2009). These laws recognize gender mainstreaming in government as an implementation strategy and provide the basis for the inclusion of a gender and development (GAD) budget in the national budget law. The Philippine government adopted the Philippine Plan for Gender Responsive Development (PPGD) 1995-2025, translating the Beijing Platform for Action into policies, strategies, programs, and projects for Filipino women. To implement the PPGD, the government, along with NGOs and academia, formulated the Framework Plan for Women (FPW) in 2001. The FPW prioritizes women's economic empowerment, protection and advancement of women's rights, and gender-responsive governance. The Philippines is among the few countries with a Gender and Development (GAD) Policy Budget, mandating that government agencies allocate at least 5% of their budgets to programs benefiting women.

UNIDO acknowledges that the empowerment of women and gender equality have significant positive impacts on key drivers of poverty alleviation and social progress, such as sustained economic growth and inclusive industrial development. UNIDO's mandate to promote inclusive and sustainable industrial development (ISID) relies on the advancement of gender equality and the empowerment of women.

UNIDO addresses gender inequalities in industry and harnesses women's full potential as economic agents of change and leaders thereby transforming economies and generating inclusive growth. UNIDO is committed to gender equality and empowerment of women, which is stipulated in the Organization's

Policy on Gender Equality and the Empowerment of Women issued in September 2019 and UNIDO's Strategy for Gender Equality and Empowerment of Women Strategy 2020-2023. UNIDO has also developed an operational energy-gender guide and robust process to support and assure gender mainstreaming of its sustainable energy initiatives. The guiding principle of the project will be to strive to ensure that both women and men equally lead, participate in, and benefit from the project. In order to promote gender equality and the empowerment of women, gender-related aspects will be systematically addressed in the project and will focus on gender mainstreaming in the following areas:

During PPG phase, a Gender Analysis will be carried out and a Gender Action Plan will be developed which will inform the project formulation. This will involve identification of the differentiated needs and roles of women and men as they relate to the project's interventions. In the project design, UNIDO will ensure that the relevant gender dimensions are considered, and the project log-frame developed reflects key gender dimensions of the respective outputs, activities, indicators and targets. The gender analysis will identify how the project can improve gender equality and empower women, as well as propose gender specific targets to be monitored and evaluated throughout the project implementation period. To establish a baseline and develop targets, basic relevant data and qualitative information will be collected during PPG as part of the gender analysis and gender markers will be assigned in the project design. Budget will also be allocated based on the gender mainstreaming action plan, to ensure project implementation will promote GEEW, including collecting additional baseline data and monitoring progress towards the targets.

Some of the measures that will be considered by the project include:

- i. Efforts will be made to promote equal participation of women as trainees and facilitators in all awareness raising and capacity-building activities. A minimum target of 35% women participation will be pursued.
- ii. Gender-responsive recruitment will be practised at all levels, when possible, especially in the selection of project staff and consultants, and the creation of energy teams. Gender sensitive recruitment will be encouraged in instances where the project does not have direct influence.
- iii. Ensure gender-diverse panels when organizing conferences and events. This might include advertising the events to women's technical associations; encouraging companies to send female employees, collaborating with organizations or associations that promote gender equality and women's empowerment. Moreover, gender balance will be aspired amongst participants by attracting both female and male participants in the audience by using adequate gender-responsive communication strategies and material.
- iv. Involve and, whenever possible collaborate with women networks and enterprises/ associations' gender focal points to enhance project visibility and mainstreaming gender within project communication and other project execution activities.
- v. To the extent possible, the project will collect and publish gender-disaggregated data.
- vi. All knowledge management activities and materials will be gender mainstreamed. This includes the integration of gender dimensions into publications and training materials.
- vii. Both project staff and stakeholders will receive training on gender awareness, including sensitization on gender dimensions and bias.
- viii. When data collection or assessments are conducted, gender dimensions will be considered. This will include gender-disaggregated data collection, performing gender analysis as part of ESMP and/or ESIAs, and the summary of current status on gender, which will be included in project progress/evaluation reports.
- ix. Research, data and assessments will consider gender and age differentiated needs of women and men from different social groups.
- x. Women's groups, associations that promote GEEW, gender focal points and stakeholders that work in the area of gender and mobility will be involved in the project, e.g. they will be consulted

during PPG phase to verify the final project log frame is gender mainstreamed as well as PPG funds will be allocated towards having a review completed by specialized expertise.

- xi. With respect to project management, the Project Steering Committee meetings will aim to be gender balanced and extend invitations to observers that represent gender dimensions, such as organizations / associations promoting gender equality and advocating women's empowerment. During project activity implementation, effort will be given during stakeholder consultations towards focusing on gender equality and women's empowerment issues, in particular during policy review and formulation.

Knowledge Management and Learning

Project's knowledge management is captured under Component 4, where specific activities are foreseen to disseminate knowledge. Knowledge capture, through technical reports, case studies, policy guidance etc., will be integral part of the activities under all outputs. The approach is based on UNIDO's operating modality of sharing experiences across its interventions worldwide, through many high-quality publications, organization of events, webinars, and more. The approach is described in more detail under Component 4.

The support through a knowledge sharing platform is one of the key elements to secure technology transfer, strengthen national and global exchange and building human capital and institutions. Examples are UNIDO's support for National Cleaner Production Centers, Small Hydropower Development (China), various Centers for Renewable Energy and Energy Efficiency, and others.

Coordination and Cooperation with Ongoing Initiatives and Project.

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

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

UNIDO is the GEF implementing agency of the project. The Department of Trade and Industry is the primary government counterpart for the project and will act as the Chair of the Project Steering Committee. Other key ministries are the Department of Environment and Natural Resources, Department of Public Works and Highways, and - Construction Industry Authority of the Philippines – which will be key counterparts on different components of the project and members of the project's steering committee. In coordination with DTI, UNIDO will select an Executing Partner for the project execution in the consultation process or through an open international tender, if a suitable executing partner will not be identified by the Government.

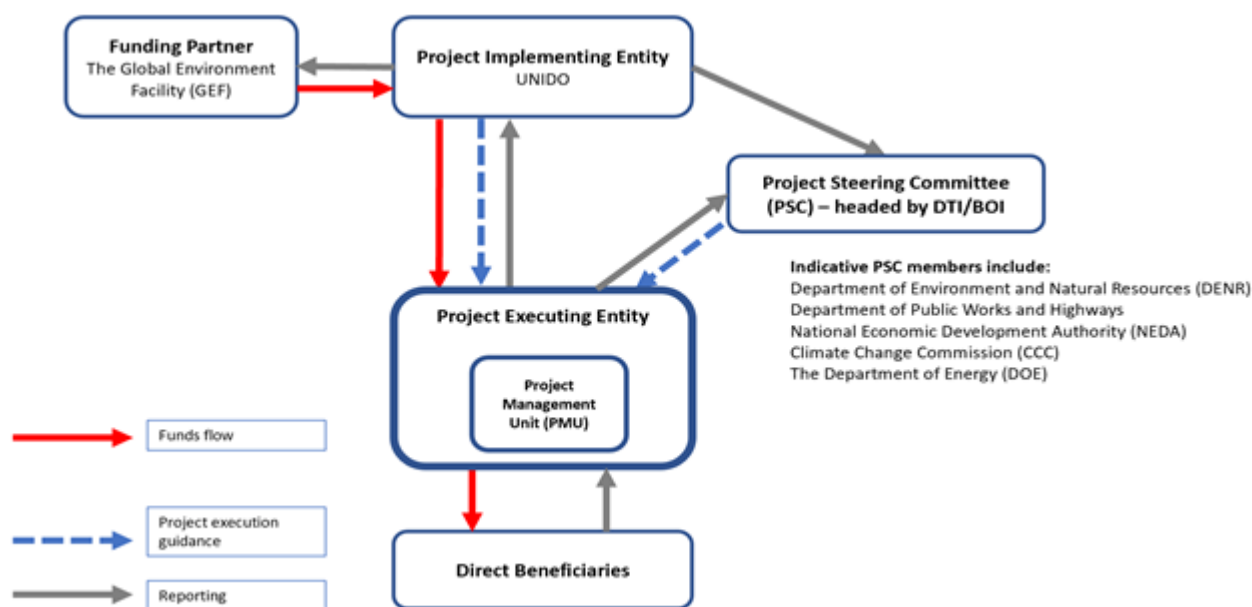


Figure 3. Project's implementation arrangements

Legal Context clause: 'The present project is governed by the provisions of the Standard Basic Cooperation Agreement between the Republic of Philippines and UNIDO, signed and entered into force on 26 February 1993'.

In terms of ongoing initiatives, Global Cement and Concrete Association (GCCA) is one of the most active players in the cement sector and provides inputs on issues related to thresholds and reporting of mercury emissions as well as embodied carbon. UNIDO is collaborating with GCCA on fund raising for development of the national roadmaps and the pipeline creation of projects especially on CCUS, as well as mercury abatement in the cement sectors across a number of projects and programmes (see example on Brazil below).

Global Alliance for Buildings and Construction (GlobalABC) is the leading global platform for all building stakeholders. It advocates for market transformation and focuses on catalyzing action by defining a carbon neutrality strategy for the built environment. It serves as a trusted platform to set and track targets via its Global Building Climate Tracker. It supports countries via policy guidance and global and regional road maps outlining aspirational targets, timelines, and key actions for essential policies and technologies, offering a model for national and city-level buildings and construction roadmaps. UNIDO started discussion with UNEP in coordination with the Global ABC on issues related to methodologies for calculation of embodied carbon in construction material and will be working with them under the leadership of the UK in conducting a forum on this topic in 2024.

The Control and reduction of mercury emissions from the cement industry in Brazil project, supported by the GEF aims for transformative change through three main lines of intervention – 1) strengthening the monitoring and regulatory frameworks in the country, 2) demonstrate technologies and alternative raw materials for reduced mercury emissions and 3) strengthen the decarbonisation roadmap implementation of the national industry through securing mercury free alternative fuel use. This project will serve as a platform for local industries and research institutions to connect their solutions to global markets through linking actors across innovation acceleration and leveraging UNIDO's international network of partners.

The Partnership for Net Zero Industry and the Global Matchmaking Platform are two global projects led by UNIDO. Both initiatives are part of the Climate Club, an initiative of the German government. One essential focus of the Climate Club is the decarbonization of heavy-emitting industries like steel, cement and concrete. The Global Matchmaking Platform is the Climate Club's central platform for cooperation

with developing countries. It supports developing countries in moving forward with industrial decarbonization agenda by facilitating the alignment, coordination and matchmaking of existing international technical and financial assistance offers and private finance instruments to the needs and priorities of emerging markets and developing economies. The Partnership for Net Zero Industry supports developing countries in their efforts to decarbonize heavy-emitting sectors, like steel and cement, with technical assistance.

The Global Green Building Council is involved with UNIDO on projects in Costa Rica, where the cement industry is one of the key sectors tackled by the project, demonstrating the environmental benefits of the circular approaches and use of alternative raw materials in the cement manufacturing.

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)	1000000	0	0	0
Expected metric tons of CO₂e (indirect)	0	0	0	0

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)				
Expected metric tons of CO₂e (indirect)	0			
Anticipated start year of accounting				
Duration of accounting				

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO₂e (direct)	1,000,000			
Expected metric tons of CO₂e (indirect)				
Anticipated start year of accounting	2026			
Duration of accounting	5			

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

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

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 9 Chemicals of global concern and their waste reduced

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
3.50	0.00	0.00	0.00

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

POPs type	Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
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Indicator 9.2 Quantity of mercury reduced (metric tons)

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
3.50			

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

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

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

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

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

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

Indicator 9.6 POPs/Mercury containing materials and products directly avoided

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

Indicator 9.7 Highly Hazardous Pesticides eliminated

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

Indicator 9.8 Avoided residual plastic waste

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

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	3,000,000			
Male	3,000,000			
Total	6,000,000	0	0	0

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

The GHG emission mitigated has been estimated based on the potential to reduce clinker-the clinker-to-cement ratio in construction materials used in the Philippines, by using alternative binders (cementitious materials). The use of these materials will be supported by relevant regulations and green procurement. Detailed estimation will be done during the project preparation phase. For the project concept, it is conservatively assumed that the project will deliver emission reduction equivalent to 5% of the cement sector emissions for 2025, or 1 million tons. The assumption is based on the Philippine cement carbon footprint indicated in Table 1 and the clinker-cement ratio of 78%. The use of substitute cementitious materials (SCM) that contain lower mercury levels than limestone, targeting a 70% ratio would lead to a carbon emission reduction beyond 5%, but this can be confirmed more accurately during the PPG phase.

Similarly, a conservative approach is taken for mercury reduction, where the implementation of mercury control and reduction techniques could lead to 25% lower mercury emissions to the air. The Philippine's national cement industry produces over 40 million tons of cement (2023). This quantity is almost to double by 2030 according to DENR – to 77.3 million tons of cement. Based on page 12, Table 1: Projected annual cement productions, related GHG emissions and Hg emissions and considering the emissions factor of 0.09 g Hg/t cement, as well as the 40% air emissions, the baseline for 2025 will increase from 1760 kg to 2800 kg of mercury released into the air from the cement production. Dust shuttling techniques could be anticipated along with the integration of additional abatement technologies, such as Selective Non-Catalytic Reduction (SNCR), Selective Catalytic Reduction (SCR), and the use of sorbents, outlining the potential for mercury emission reduction between 20% to as much as 80%. This can become particularly important in case of increased use of alternative fuels in cement production, but if we assume the above factors and cementitious materials, the project could achieve a 30% reduction in mercury emissions during the 2026-2030 period of implementation - amounting to 3.5 tons of mercury.

The prospects could well be higher, though currently not estimated due to lack of C&D data, if the 40% Hg emissions factor in the disposal is considered. The reduction can be achieved through circular approaches and concrete recycling and can be calculated more precisely during the PPG phase.

The number of people benefiting from GEF-financed investments is estimated based on the population size in the main project intervention site, the Manila Metropolitan area, conservatively assuming 40% of the population is affected by airborne emissions or 6 million inhabitants.

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Moderate	<p>Risks: Climate change is considered a key driver in the project description, but climate impacts may also occur during the project's implementation, either from direct events like flooding or indirectly due to responses to such events. Extreme climate events could impact project demonstration activities. The Philippines is highly exposed to extreme climate events, including tropical cyclones and their associated hazards.</p> <p>Government priorities may shift after a significant climate event which can lead to fewer resources for investment projects and lowering the priority of policy measures implementation.</p> <p>Mitigation measures: To mitigate this, climate consideration will be included in the selection criteria for demonstration activities. The project will identify and draw on the experience gained from other ongoing initiatives in the region that are addressing climate vulnerability and resilience in industries. An assessment of the impacts of climate change on the construction sector in the pilot locations and consultation with key stakeholder groups will be undertaken during the PPG stage. Further, training on managing climate impacts will be included in the capacity-building aspects of the project.</p>
Environmental and Social	Moderate	<p>Risks: (1) Traditions and cultural factors could prevent the inclusion of gender objectives into the project design and hinder the implementation and achievement of desired project outcomes. (2) Limited participation by women due to a lack of confidence that the project will benefit them and will also take time and effort that they cannot spare due to child rearing and other responsibilities. Mitigation measures: This project addresses the environmental and social issues related to the construction sector decarbonization. Hence, interventions will consider these concerns from the onset. Further, relevant stakeholders, including decision-makers, gender representatives, community leaders, industrial actors etc. will be engaged in the design of solutions, and cultural and traditional factors will be considered to ensure adequate buy-in. The project will engage women in further elaborating on the problems and responses in the Philippines, implementing a gender-tailored action plan, and ensuring women are equally benefited and positively impacted by the project interventions.</p>
Political and Governance	Moderate	<p>Risks: Political support is insufficient to drive strong engagement of relevant sector actors. Mitigation measures: Engagement of government personnel during project preparation will include a project continuity plan. Also, the project will engage with government stakeholders throughout the PPG and implementation phase to ensure that the countries' political buy-in and national priorities are considered. Political buy-in will also be maintained through strategic and periodic awareness-raising and communication to key decision-makers and targeted audiences at the national level.</p>
INNOVATION		
Institutional and Policy	Low	<p>Risks: Policies and institutional arrangements proposed by the project may not be welcomed by the affected government agencies at various levels. This in turn may lead to setbacks in project implementation. Mitigation measures: During the PPG stage stakeholders identified as key to the project's success</p>

		will be engaged in the consultation process to obtain their buy-in for the proposed measures.
Technological	Moderate	Risks: The project will support pilot deployment at the scale of new technologies in the construction sector (new hazardous chemicals-free and low-carbon materials, innovative technologies). Some of the technologies may not prove feasible at scale. As a result, the project may not deliver the expected environmental benefits. Mitigation measures: During the PPG a long list of the most feasible technology demonstration projects will be identified – relevant technology readiness assessments will be done. During the project implementation, this will be further verified by feasibility studies and if a project will be assessed as not feasible, another from the long list will be selected for implementation.
Financial and Business Model	Moderate	Risks: The project drives business models innovation in the construction materials sector. This requires the availability of financial resources with an appetite for risk. If the financing will not be available this may negatively impact project implementation and limit scale-up possibilities. Mitigation measures: During the PPG private partners and financial institutions will be identified which would engage in the project as co-financiers to support the project implementation.

EXECUTION

Capacity	Moderate	Risks: Lengthy government process for the project approval (Special Presidential Authority - SPA) may significantly delay project implementation. Changes in the project and country personnel could adversely impact project implementation and continuity. Mitigation measures: During the PPG special effort will be made to prepare for the SPA, to reduce the time to minimum and avoid delays. Continuity plans will be an essential factor in selecting personnel to be involved in project coordination and the training and capacity-building activities.
Fiduciary	Low	Risks: Mismanagement of funds by the executing partners. Mitigation measures: UNIDO has a proven system for the management of executing partners. GEF fiduciary guidelines, as well as that of the agency, will be followed in fund management. This will also be part of the frequent monitoring and evaluation activity of the project.
Stakeholder	Moderate	Risks: (1) Stakeholders do not engage appropriately, leading to inadequate project design and implementation, adversely impacting project outcomes; (2) Sudden drop out of important stakeholders; (3) Low and/or short-lived participation – particularly the private sector. Mitigation measures: The project will leverage the environmental targets and agendas of the cement producers and align the industrial emissions objectives of the project with their ongoing efforts. Effective frequent communication with all identified stakeholders will be structured through a stakeholder engagement plan. Further, the project will ensure that all stakeholders have specific roles to ensure continued involvement. Private sector groups will be engaged directly from early in project design and the project will aim to highlight the benefits of hazardous

		chemicals abatement and the synergies with the ongoing decarbonization efforts.
Other		N/A
Overall Risk Rating	Moderate	The overarching risk to this project is low-moderate. Close monitoring of the identified risks and effective implementation of mitigation measures will ensure that the risks do not adversely impact the success and durability of the project.

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

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

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

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

- A systems approach with the participation of relevant line ministries responsible for the construction sector and including sectors of finance, environment, energy, industry, mining etc. at the inter-ministerial coordination component. Integration will also be sought across different levels of governance, and involve various stakeholders, such as civil society, private sector, and academia.
- The project contributes to MEAs and related GEBs such as UNFCCC and Paris Agreement, where it supports the Philippines to increase the level of ambition of climate mitigation plans and NDCs towards net-zero emissions by 2050. The project will assist the Philippines to effectively implement the strategies aligned with 1.5°C target, establish short- and medium-term targets with coherent and enforceable policies with the appropriate financing. The project provides technical assistance support for reorienting policies and public investments; increasing awareness of the value of nature (UNCBD); mainstreaming nature-based solutions and circular economy principles into national strategies; and improving private sector participation.
- Aligned towards supporting the achievement of targets on several SDGs, especially: SDG3 on good health and well-being. It further aligns to the SDG13 on climate action. It is also well aligned with SDG7 on sustainable energy, SDG 8 on decent work and economic growth, SDG 9 on industry, innovation, and infrastructure, SDG11 on sustainable cities, and SDG12 on responsible consumption and production.
- In particular, the project zooms in on construction materials manufacturing. The project's overall trust is to create demand and supply for hazardous chemicals free, low carbon construction materials. The low carbon materials and technologies supported under the project will have environmental co-benefits, in terms of reduction of air emissions (CO, NOx, SOx, soot, dust, etc.) and utilization of previously discarded by-products and waste streams, each of which reduces impacts on biodiversity, and communities. The low carbon technologies are transformative and push beyond currently accepted and deemed feasible mitigation targets and aim for synergies between different sectors and value chains, particularly for cement, feeding into the building and construction sector.
- The GEF support will be provided for developing transformative policies, deploying innovative technological solutions, and attracting private sector engagement that have clear potential for

replication and scale up and are complementary to the Green Climate Fund (GCF) mechanism. Climate change projects will continue to ensure meaningful gender mainstreaming and the inclusion of gender-responsive approaches and results, in line with the relevant policy, strategy and guidance.

- The project interventions focus on a) development of low-carbon material pathways (addresses product redesign and effective sourcing and use of materials having a low-carbon footprint), b) development of certifications and standards for construction materials, c) establishing green public procurement, and d) demonstrate new business models.
- During the PPG phase, project activities will be designed considering women's and men's differentiated knowledge of, access to, and use of energy-efficient technologies and their presence in workforce participation especially in the steel sector, as well as the risks and benefits associated with adopting new technologies. Projects will also support the development of skills and training to promote women's participation in the relevant fields.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

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

Yes

Stakeholder Engagement

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

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities:

Civil Society Organizations: Yes

Private Sector: Yes

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

Organization	Consultation Date	Summary of the consultation
Department of Trade and Industry	February 14, 2023	The national agency is keen to be the implementing partner of the proposal highlighting the need of the country in greening the cement and the construction industry which has been identified as the sector where greening intervention would significantly contribute to attaining the nationally determined contribution to the Paris Agreement.

		<p>The proposal will complement and strengthen the initial initiative of the government in championing the initiative of greening buildings and construction through green procurement.</p> <p>The agency suggested doing local industry associations and group consultations, including the construction industry authority of the Philippines among others.</p>
Climate Change Commission	February 14, 2023	<p>The agency sees the proposal to be an instrument to propel the NDIC implementation and PAMS, especially in the cement sector, which is identified as one of the carbon-intensive sectors.</p> <p>The agency sees the project to be an opportunity to support the government in coming up with sound policies for low-carbon construction by addressing the gaps in strengthening green procurement.</p> <p>Upon consultation, the country does not have an official net-zero ambition.</p>
Department of Environment and Natural Resources	February 14, 2023	<p>As the main implementer of the NDCIP, the agency welcomes the project, especially in addressing waste reduction along the value chain- especially upstream interventions.</p> <p>The department has signified to work on the project, especially in the area of industry waste and chemicals management.</p>
Department of Energy	15 February 2023	<p>The agency recognized the cement and construction industry's intensive energy and carbon footprint. With the large number of MSMEs along the sector's value chain, most of these players are not covered by the regulation and incentives Energy Efficiency and Conservation Act. There is a need to assist the MSME sector in the value chain in aligning with this policy and towards just transitioning to the low-carbon economy as stated in Philippine Development Plan 2023-2040.</p>
Holcim Inc.	September 23, 2023	<p>As one of the largest cement manufacturers in the country, it has been working to adopt sustainable low-carbon transition in its operations through integrating circularity and resource efficiency. Moreover, they are setting their sustainability goal to an ambition of carbon neutrality- including the production of green products by 2050.</p> <p>The entity has identified the gap in realizing a carbon-neutral product includes the lack of sustainable traceability of local raw materials.</p>
Mindanao Development Authority (MinDA)	November 20, 2023	<p>MinDA is keen on looking for opportunities to develop industrialization in the Mindanao region. With the increase in public works projects in the area, there is a higher demand for the availability of construction materials. The challenge is the region lacks in the said industry and much more low-carbon construction materials.</p>
GIZ	February 13, 2023	<p>The organization has been working in the Philippines significantly in the areas of climate change mitigation and energy efficiency. They have worked with DTI-BSMED in developing and implementing the greening of industry roadmaps. The roadmap considered a value-chain approach including the housing industry among others.</p>

		There is still a gap in developing the net-zero ambition in the cement and construction industry
University of the Philippines Institute of Civil Engineering (UP ICE)	Dec 3, 2024	The UP ICE is a premier institution for teaching, research, and extension services in civil engineering and its specialized fields. Related to the proposed project, UP ICE has the Construction Engineering and Management Group and the Building Research Services promoting sustainable, resilient and agile construction. Among the ICE research for sustainability in construction are low-carbon construction materials, green construction and building materials, smart buildings, infrastructure and cities, circular economy in construction and management and maintenance of buildings and structures.

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

Private Sector

Will there be private sector engagement in the project?

Yes

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

Yes

Environmental and Social Safeguard (ESS) Risks

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

Yes

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

E. OTHER REQUIREMENTS

Knowledge management

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

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

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

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non- Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
UNIDO	GET	Philippines	Climate Change	CC STAR Allocation: CCM- 1-1	Grant	1,776,484.00	168,766.00	1,945,250.00
UNIDO	GET	Philippines	Chemicals and Waste	Mercury	Grant	4,416,210.00	419,540.00	4,835,750.00
Total GEF Resources (\$)						6,192,694.00	588,306.00	6,781,000.00

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

200000

PPG Agency Fee (\$)

19000

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non- Grant	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
UNIDO	GET	Philippines	Climate Change	CC STAR Allocation: CCM- 1-1	Grant	50,000.00	4,750.00	54,750.00
UNIDO	GET	Philippines	Chemicals and Waste	Mercury	Grant	150,000.00	14,250.00	164,250.00
Total PPG Amount (\$)						200,000.00	19,000.00	219,000.00

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
UNIDO	GET	Philippines	Biodiversity	BD STAR Allocation	2,000,000.00

Total GEF Resources	2,000,000.00
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Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
CCM-1-1	GET	1,776,484.00	12512857
CW-1	GET	4,416,210.00	31282143
Total Project Cost		6,192,694.00	43,795,000.00

Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	UNIDO	Grant	Investment mobilized	112000
GEF Agency	UNIDO	In-kind	Recurrent expenditures	300000
Recipient Country Government	Department of Trade and Industry	In-kind	Recurrent expenditures	300000
Beneficiaries	Local Government Units	Public Investment	Investment mobilized	3000000
Beneficiaries	Local Government Units	In-kind	Recurrent expenditures	450000
Private Sector	Commercial Banks	Loans	Investment mobilized	20000000
Private Sector	Industries	Equity	Investment mobilized	19633000
Total Co-financing				43,795,000.00

Describe how any "Investment Mobilized" was identified

Discussions with relevant government agencies and the private sector on co-financing and co-investments will be held during the PPG phase. Table C includes initially identified potential co-financing. The government and financial institutions will provide co-funding for the public investments in pilot locations. Private sector co-financing includes investment in new technologies or business models.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
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GEF Agency Coordinator	UNIDO	9/17/2024	Ganna Onysko	+43 1 26026 3647	G.Onysko@unido.org
Project Coordinator	UNIDO	12/20/2024	Vladimir Anastasov	+43 1 26026 3461	v.anastasov@unido.org

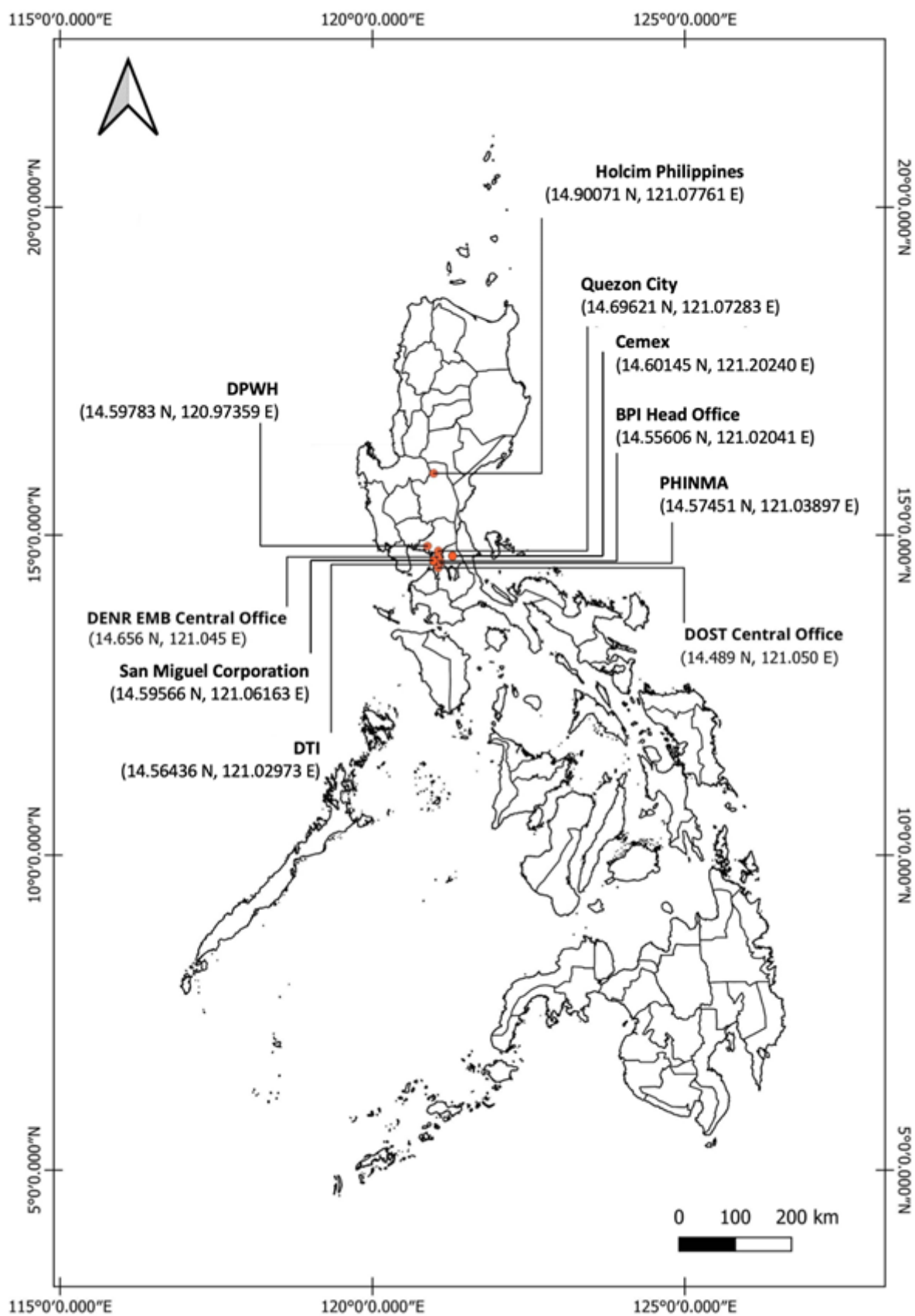
Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)
Ms. Analiza Rebuella - Teh	Operational Focal Point, Undersecretary	Department of Environment and Natural Resources	9/18/2024

ANNEX C: PROJECT LOCATION

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

Location Name	Latitude	Longitude	Geo ID	Name	Location and Activity Description
Makati City (Metro Manila)	14.56436N	121.07283E	1703417		Department of Trade and Industry – main government counterpart of the project
Quezon City (Metro Manila)	14.69621N	121.02973E			Quezon City Government
Quezon City (Metro Manila)	14.656N	121.045E			Department of Environment and Natural Resources
Manila City (Metro Manila)	14.59783N	120.97359E			Department of Public Works and Highways
Paranaque City (Metro Manila)	14.489N	121.050E			Department of Science and Technology
Pilot demonstration sites	TBD	TBD	TBD		TBD



ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

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

Title

ESS Screening template 230234 signed

ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Principal Objective 2	No Contribution 0	No Contribution 0	No Contribution 0

ANNEX F: TAXONOMY WORKSHEET

Level 1	Level 2	Level 3	Level 4
Influencing Models	Transform policy and regulatory environments		
	Convene multi-stakeholders alliance		
	Demonstrate innovative approaches		
	Strengthen institutional capacity and decision-making		
Stakeholders	Private sector	Large corporations	
	Beneficiaries		
	Civil society	Academia Trade Unions and Workers Unions Non-Governmental Organization Community Based Organization	
	Type of engagement	Participation Consultation Information Dissemination Partnership	
	Communications	Strategic Communications Behavior Change Awareness raising	

Capacity, Knowledge and Research	Knowledge exchange	South-South	
Gender Equality	Gender Results areas	Awareness raising Capacity development Knowledge generation and exchange	
	Gender mainstreaming	Women groups Sex-disaggregated indicators Gender-sensitive Indicators Beneficiaries	
Focal Area/Theme	Chemicals and Waste	Mercury	