GEF-8 REQUEST FOR CEO ENDORSEMENT/APPROVAL

TABLE OF CONTENTS

GENERAL PROJECT INFORMATION 3

Project Summary 4

Project Description Overview 4

PROJECT OUTLINE 8

A. PROJECT RATIONALE 8

B. PROJECT DESCRIPTION 35

Institutional Arrangement and Coordination with Ongoing Initiatives and Project 56

Core Indicators 66

Key Risks 68

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES 71

D. POLICY REQUIREMENTS 77

Gender Equality and Women's Empowerment 77

Stakeholder Engagement 78

Private Sector 78

Environmental and Social Safeguards 79

E. OTHER REQUIREMENTS 79

Knowledge management 79

Socio-economic Benefits 79

ANNEX A: FINANCING TABLES 80

GEF Financing Table 80

Project Preparation Grant (PPG) 80

Sources of Funds for Country Star Allocation 81

Focal Area Elements 81

Confirmed Co-financing for the project, by name and type 81

ANNEX B: ENDORSEMENTS 82

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s): 82

ANNEX C: PROJECT RESULTS FRAMEWORK 83

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG) 91

ANNEX E: PROJECT MAP AND COORDINATES 92

ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING 94

ANNEX G: BUDGET TABLE 94

ANNEX I: RESPONSES TO PROJECT REVIEWS 98

General Project Information

Project Title Global decarbonization investment accelerator for the hard to abate sectors	
Region Global	GEF Project ID 12132
Country(ies) Global	Type of Project MSP
GEF Agency(ies): UNIDO	GEF Agency Project ID 250417
Project Executing Entity(s) United Nations Industrial Development Organization (UNIDO) Ministry of Industry (Ethiopia) Ministry of Industry (Kenya) Ministry of Energy and Mineral Development (Uganda) Ministry - to be defined (Colombia)	Project Executing Type GEF Agency Government Government Government Government
GEF Focal Area (s) Climate Change	Submission Date 7/29/2026
Type of Trust Fund GET	Project Duration (Months) 36
GEF Project Grant: (a) 3,000,000.00	GEF Project Non-Grant: (b) 0.00
Agency Fee(s) Grant: (c) 285,000.00	Agency Fee(s) Non-Grant (d) 0.00
Total GEF Financing: (a+b+c+d) 3,285,000.00	Total Co-financing 15,465,300.00
PPG Amount: (e) 150,000.00	PPG Agency Fee(s): (f) 14,250.00
Total GEF Resources: (a+b+c+d+e+f) 3,449,250.00	
Project Tags CBIT: No NGI: No SGP: No Innovation: No Competitive Window: No	
Project Sector (CCM Only)	

Technology Transfer/Innovative Low-Carbon Technologies

Taxonomy

Private Sector, Stakeholders, Financial intermediaries and market facilitators, Consultation, Type of Engagement, Capacity Development, Capacity, Knowledge and Research, Innovation, Workshop, Knowledge Generation, Training, Gender-sensitive indicators, Gender Mainstreaming, Gender Equality, Sex-disaggregated indicators, Beneficiaries, Knowledge Generation and Exchange, Gender results areas, Climate Change, Focal Areas, Climate Change Mitigation

Rio Markers

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

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. (max. 250 words, approximately 1/2 page)

Industry generates about one-third of global greenhouse gas emissions, with cement alone accounting for around 7% of global CO_2 emissions and facing rapid demand growth in emerging economies. Without targeted support, developing countries risk locking in carbon-intensive infrastructure due to limited data, outdated standards, weak enabling environments, and insufficient access to finance for low-carbon technologies. Integrating zero- and low-emission technologies into these sectors, and into the next generation of Nationally Determined Contributions, is essential to remain on track with global climate goals. The Global Decarbonization Investment Accelerator (GDIA) addresses these challenges by strengthening the policy, technological, and financial foundations of a coherent investment ecosystem for industrial decarbonization, enabling countries to translate climate ambition into investment-ready sectoral decarbonization plans and pipelines, in alignment with Climate Goals and other industry initiatives, such as the Climate Investment Funds Industry Decarbonization Program. Cement is the entry point and the direct scope under GDIA for GEF-8, given its infrastructure role and the sector-agnostic methodologies shared with steel and aluminum. The project follows a three-part approach: (i) establishing harmonized methodologies, including plant-level-data modelling, technology pathways, supporting policy, enabling financial architecture, and impact monitoring; (ii) designing and validating these methodologies in four pilot countries to generate integrated sectoral decarbonization investment plans; and (iii) developing a robust monitoring, evaluation, and learning system (MEL). The project could indicatively unlock 12.6 million metric tonnes of CO_2 emission reductions over 20 years, deliver environmental and socio-economic co-benefits, strengthen GEF-CIF cooperation, and serve as a scalable model for industrial transformation under future GEF programming.

Project Description Overview

Project Objective

The project drives the decarbonization of cement production in the four pilot countries, through methodologies, technology pathways and financial instruments designed sector-agnostic across cement, iron and steel, and aluminium, so that decarbonization projects become pipelines of investment opportunities.

Project Components

Component 1. Define the technology & policy, investment assessment methodology to form the methodological backbone of the global investment accelerator.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
542,943.00	1,000,000.00

Outcome:

Outcome 1A. Strengthened global coordination, communication, and knowledge systems for industrial decarbonization.

Output:

Output 1A.1: Global coordination and governance mechanisms established.

Output 1A.2: Communication and knowledge management systems established and operational.

Component 1. Define the technology & policy, investment assessment methodology to form the methodological backbone of the global investment accelerator.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
555,000.00	3,900,000.00

Outcome:

Outcome 1B: Strengthened global coordination, methodological frameworks, and financial readiness to support country-level planning and investment for industrial decarbonization.

Output:

Output 1B.1: Plant-level-data based methodology for country-wide decarbonization scenarios aligned with global climate goals.

Output 1B.2: Methodology for technology pathways, to support the decarbonization of hard to abate sectors

Output 1B.3: Methodology for supporting policy frameworks to support the decarbonization of hard-to-abate sectors.

Output 1B.4: Methodology for the financial architecture to support the decarbonization of hard-to-abate sectors.

Output 1B.5: Methodology for impact estimation and monitoring, to support the decarbonization of hard-to-abate sectors.

Output 1B.6: Training curriculum and template framework developed to support execution of sectoral decarbonization investment plans.

Component 1. Define the technology & policy, investment assessment methodology to form the methodological backbone of the global investment accelerator.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
1,263,200.00	8,778,857.00

Outcome:

Outcome 1C: Enhanced readiness of the global GDIA data modelling tool and methodologies for cement sector decarbonization, achieved through integrated data-driven planning, enabling policy frameworks, and financing strategies finalized using data from the four pilot countries.

Output:

Output 1C.1: Plant-level-data modelling and monitoring tool: readiness enhanced through integration and testing of data from the four pilot countries.

Output 1C.2: Technology pathways for cement decarbonization: readiness enhanced using data from the four pilot countries.

Output 1C.3: Supporting policy framework for cement decarbonization: readiness enhanced using data from the four pilot countries.

Output 1C.4: Financial architecture for cement decarbonization: readiness enhanced using data from the four pilot countries.

Output 1C.5: Impact estimation and monitoring for cement sector decarbonization: readiness enhanced using data from the four pilot countries.

Output 1C.6: Knowledge materials consolidated and disseminated.

Component 2: National Readiness for Cement Sector Decarbonization.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
320,000.00	750,000.00

Outcome:

Outcome 2: Enhanced national readiness and enabling environments for cement sector decarbonization, achieved through nationally endorsed, investment-ready decarbonization models.

Output:

Output 2.1: National design clinics conducted to review, co-design, and validate sectoral decarbonization pathways and enabling frameworks.

Output 2.2: National validation workshops conducted to validate sectoral decarbonization scenarios.

Output 2.3: National capacity-building programme delivered to support cement sector decarbonization planning.

Component 3: Progress and impact tracking.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing ($)	Co-financing ($)
176,000.00	300,000.00

Outcome:

Outcome 3. Effective monitoring, evaluation, and learning system established, ensuring accountability, adaptive management, and globally harmonized MEL systems for industrial decarbonization.

Output:

Output 3.1: Project performance monitored and reported.

Output 3.2: Key evaluation and reporting activities completed.

Component Balances

Project Components	GEF Project Financing ($)	Co-financing ($)
Component 1. Define the technology & policy, investment assessment methodology to form the methodological backbone of the global investment accelerator.	542,943.00	1,000,000.00
Component 1. Define the technology & policy, investment assessment methodology	555,000.00	3,900,000.00

to form the methodological backbone of the global investment accelerator.		
Component 1. Define the technology & policy, investment assessment methodology to form the methodological backbone of the global investment accelerator.	1,263,200.00	8,778,857.00
Component 2: National Readiness for Cement Sector Decarbonization.	320,000.00	750,000.00
Component 3: Progress and impact tracking.	176,000.00	300,000.00
Subtotal	**2,857,143.00**	**14,728,857.00**
Project Management Cost	142,857.00	736,443.00
Total Project Cost ($)	**3,000,000.00**	**15,465,300.00**

Please provide Justification

PROJECT OUTLINE

A. PROJECT RATIONALE

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

A1. Global environmental problem

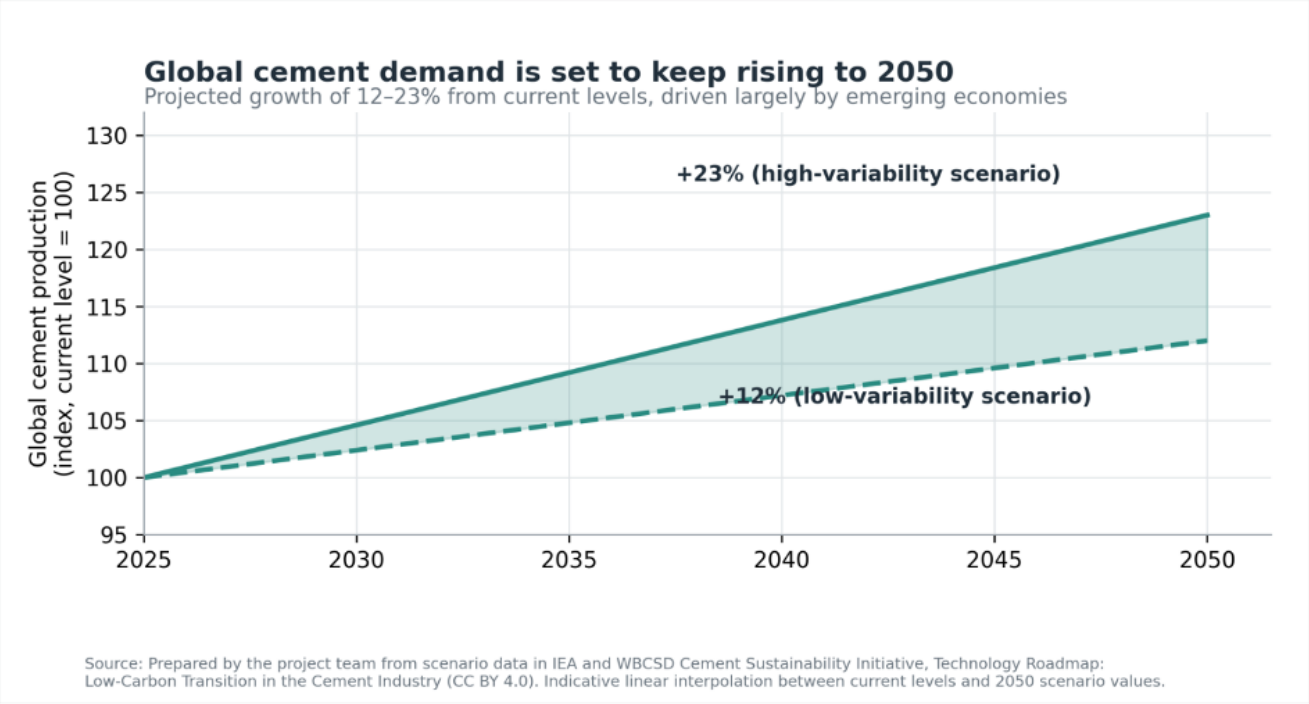
On scope and sector definitions:

'Hard-to-abate' is a defined term that was coined by the Energy Transitions Commission in its 2018 Mission Possible report and is now maintained by the Mission Possible Partnership. It covers seven sectors in two groups: heavy industry, i.e. cement, steel, chemicals and aluminum, and heavy transport, i.e. aviation, shipping and trucking. These sectors cannot decarbonize through renewable electricity alone, because their emissions come from process heat far above what electrification can deliver today, from the chemical reaction of production itself, or both. GDIA's foundational methodologies are built for the heavy-industry group of this taxonomy, namely cement, iron and steel, and aluminum. Cement is the anchor sector and the only one tested under this GEF-8 proposal; the methodologies itself, however, are designed sector-agnostic so that iron and steel and aluminum can be populated with country data in a future phase. Chemicals sits inside the wider Mission Possible taxonomy but outside GDIA's boundary in either phase, since its hard-to-abate character comes from feedstock chemistry rather than the process-heat and reduction chemistry this Accelerator's

methodologies are built around. Heavy transport is outside the taxonomy this project addresses at all.

Industry generates 14.1 $GtCO_2$-eq, or 24% of global direct greenhouse gas emissions, rising to 20 $GtCO_2$-eq, about one third of global emissions, once indirect emissions from power and heat generation are included (IPCC, 2022). Within industry, the hard-to-abate basic materials sectors addressed by this programme, cement, iron and steel, and aluminum, together account for approximately one sixth of global CO_2 emissions. Demand for these materials is set to rise sharply in emerging economies, risking long-term lock-in of carbon-intensive infrastructure if low-carbon solutions are not scaled. Integrating zero- and low-emission technologies into these sectors, and into the next round of NDCs due in 2025, is essential to stay aligned with global climate goals. Decarbonization pathways include energy and material efficiency, circularity, electrification of heat, hydrogen-based processes, and carbon capture and storage. Yet, progress is slowed by cost premiums, limited availability, outdated standards, and weak policy and financial incentives. Because cement shares many solutions and enabling conditions with steel and aluminum, targeting it as a strategic entry point can deliver spillover benefits across multiple hard-to-abate sectors. This requires international cooperation, clear milestones, and coordinated action by governments, industry, and finance to accelerate deployment and ensure accountability (UNIDO, 2025).

Figure 1: Global Cement Demand 2050



Rising global population, urbanization, and infrastructure development continue to drive demand. Global cement production is projected to grow by 12–23% by 2050 from current levels, with regional dynamics exacerbating the challenge. Some regions, such as China and the Middle East, already operate with per capita production well above the global average, while others (e.g. India and African countries) are set to increase their domestic cement production capacity to fulfil their infrastructure development needs.

Beyond its substantial carbon footprint, cement and concrete also exert significant pressures on water resources, land, and ecosystems. Concrete production is estimated to account for nearly 9% of global industrial water withdrawals and around 1.7% of total global water use, equivalent to the annual

domestic water consumption of more than 140 million people in the United States. By 2050, as much as three-quarters of this water demand is expected to occur in already water-stressed regions such as India, China, and the Middle East, amplifying the risks of resource scarcity and social vulnerability (Miller et al, 2018). In addition, the expansion of limestone quarries and associated raw material extraction contributes to land degradation, biodiversity loss, and habitat fragmentation, while the pervasive use of concrete in cities accelerates soil sealing, urban heat island effects, and disruption of natural hydrological cycles. Although concrete can reabsorb some CO_2 through carbonation over its lifetime, this effect is only partial and insufficient to offset the sector's massive process emissions (Miller et al., 2020).

Cement manufacturing is also a significant source of mercury emissions. The UNEP Global Mercury Assessment 2018 attributes approximately 233 tonnes per year, translating to around 11% of total global anthropogenic mercury emissions, to cement production. This makes cement production the fourth largest mercury source category after artisanal and small-scale gold mining (37.7 per cent), stationary coal combustion (21 per cent) and non-ferrous metals production (15 per cent). Mercury is released from limestone, clay and fossil fuels during calcination and kiln combustion, and cement clinker production facilities are listed point sources under Annex D of the Minamata Convention. The anticipated GDIA emission reduction measures, including clinker substitution, fuel substitution and kiln energy efficiency, reduce mercury releases alongside CO_2 emissions. This is noted as a co-benefit, with no mercury reduction target or additional GEF core indicator; UNIDO addresses mercury through dedicated Minamata Convention projects in Brazil (GEF ID 11574), the Philippines (GEF ID 11707) and the Caribbean SIDS (GEF ID 11882).These environmental impacts are unfolding in parallel with rising global demand for cement and concrete, particularly in fast-growing economies. This demand creates a dual dynamic: on the one hand, it amplifies pressures on water, land, and ecosystems; on the other, it is driving the emergence of new supply- and demand-side trends around low-carbon materials, including the development of markets for near-zero emissions cement.These environmental impacts are unfolding in parallel with rising global demand for cement and concrete, particularly in fast-growing economies. This demand creates a dual dynamic: on the one hand, it amplifies pressures on water, land, and ecosystems; on the other, it is driving the emergence of new supply- and demand-side trends around low-carbon materials, including the development of markets for near-zero emissions cement.

Cement is widespread and essential, yet its manufacture is highly emissions-intensive. As the binding agent in concrete, cement forms the backbone of almost all modern infrastructure, including housing, commercial buildings, transport networks, and the foundations of renewable energy systems such as wind turbines and hydropower facilities. Its main end product, concrete, has a worldwide production of 30 billion tonnes of concrete, resulting in about 2.3 billion tonnes of CO2 emissions (Cavalett et al., 2025). Concrete is indispensable for societal and economic development, with end uses spanning infrastructure (23%), residential (20.5%), and commercial buildings (20.5%) while the construction sector as a whole employs millions and contributes significantly to GDP worldwide (FCA, 2024). Yet, this indispensability comes with a steep environmental cost: the cement sector is one of the most energy- and carbon-intensive industries, responsible for around 7% of global CO_2 emissions, ranking alongside steel and oil refining as the largest industrial emitters. This dual role makes cement both a foundation of progress and a critical driver of the global climate challenge (IEA, 2018).

Cement production is a uniquely challenging sector to decarbonize because most emissions stem from the calcination of limestone (calcium carbonate) into clinker, a process that alone accounts for about 60–67% of total emissions through direct CO_2 release. The remaining share largely comes from the combustion of fuels: around 30% from the extreme heat required in kilns and roughly 10% from other energy uses across the production chain. This means that, even with a full transition to renewable energy, nearly half of cement sector emissions would persist due to the process-related

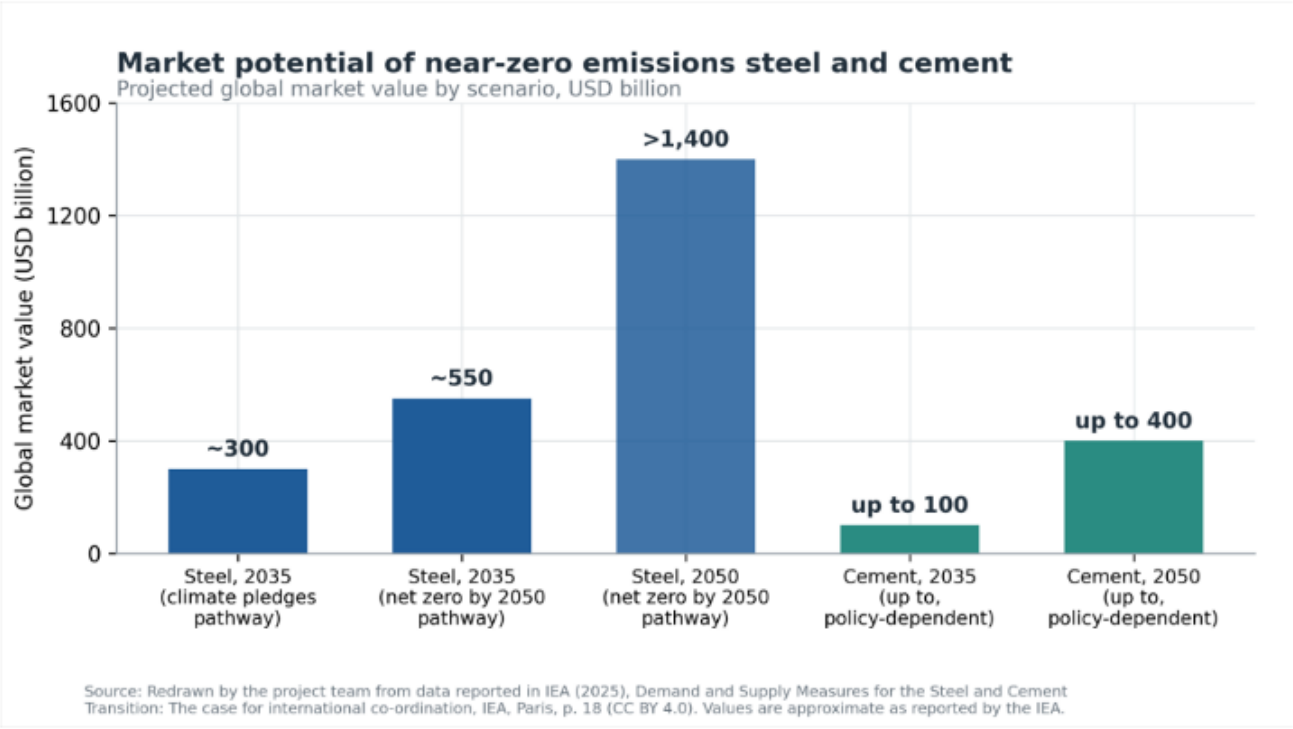
source. Despite advances in energy efficiency, greater use of alternative fuels, and substitution of clinker with supplementary materials, overall emissions remain stubbornly high. The sector's diverse and hard-to-avoid emissions profile leaves no single substitute or simple technological fix, especially considering additional energy and logistics emissions from handling and transporting cement in bulk or bags (IEA, 2018) (FCA, 2024).

Two fundamental characteristics make the sector hard-to-abate:

- Process emissions from calcination: Even if all kilns were electrified and powered by renewables, roughly half of today's cement emissions would persist because they come from unavoidable chemical reactions in clinker formation.
- High-temperature heat demand: Kiln operations require extremely high, continuous heat (~1,450°C), which is difficult to supply with alternatives to fossil fuels at scale.

Steel and aluminum are among the most critical yet difficult sectors to decarbonize, both because of their scale and their reliance on energy- and carbon-intensive processes. Steel production alone emitted around 3.4 $GtCO_2$ in 2022, roughly 7–8% of global anthropogenic emissions, driven primarily by blast furnace/basic oxygen furnace (BF/BOF) routes that depend heavily on coal. Even with recycling (currently about 28% of total production) scrap availability cannot keep pace with rapidly rising demand, particularly in emerging economies like India, where infrastructure and urbanization are set to expand dramatically (Rocca, 2025).
Aluminum, though produced at volumes an order of magnitude lower than steel, generates more than 1 $GtCO_2$ annually (about 2% of global emissions) due to its very high electricity demand (12–16 MWh/t). The carbon intensity of aluminum varies greatly depending on the grid mix: smelters powered by hydro in Canada or Brazil emit around 2–2.5 tCO_2/t, while coal-based regions in China and India reach 12–15 tCO_2/t. Primary aluminum remains highly carbon-intensive, whereas secondary (recycled) aluminum produces only ~0.9 tCO_2/t, showing the outsized importance of boosting recycling rates (Rocca, 2025).

Figure 2: Market Potential of Near-Zero Emissions Steel and Cement



On the supply side, the market potential for near-zero emissions materials is significant. For cement, estimates suggest a value of up to USD 100 billion by 2035 and up to approximately USD 400 billion by 2050, if markets expand in line with government climate pledges. Under a pathway compatible with achieving net-zero emissions by mid-century, this market could reach approximately USD 550 billion by 2050 (IEA, 2025).

Aluminum, which is infinitely recyclable and indispensable to modern economies, also holds transformative potential. While the aluminum industry accounts for around 2% of global GHG emissions (approximately 1.1 $GtCO_2e$ annually), largely due to its high electricity demand and the carbon intensity of primary aluminum production, it has a credible pathway to achieve net-zero emissions through the deployment of low-carbon power and breakthrough production technologies. Unlocking this opportunity will require an estimated USD 1 trillion in cumulative investment across refining, smelting, and low-carbon power supply, supported by policy innovation and financial sector engagement (Mission Possible Partnership, 2022).

On the demand side, uptake faces multiple barriers common across cement, steel, and aluminum. Near-zero emissions materials often carry a price premium that deters adoption in cost-sensitive sectors. Even where buyers are willing to pay more, availability constraints mean access to sufficient volumes is limited, while regulatory uncertainty complicates long-term offtake agreements. Industry conservatism, lack of familiarity with new material performance, and outdated building codes or standards add further friction, particularly in cement and construction. In aluminum, producers face the challenge that fossil-based technologies still show higher short-term returns than green alternatives, making early retirement of carbon-intensive assets risky without external support (IEA, 2025) (Mission Possible Partnership, 2022).

A2. Baseline

Global demand for cement continues to rise, particularly in Asia, Africa, and other emerging economies where urbanization and infrastructure needs are expanding rapidly. These trends are reshaping production patterns, with China, India, and other fast-growing economies playing an increasingly dominant role. Such shifts will determine the trajectory of industrial emissions in the coming decades and highlight the urgency of scaling low-carbon alternatives (IEA, 2018; UNEP, 2024; OECD, 2023). Steel and aluminum, alongside cement, are fundamental to modern economies and form the backbone of global infrastructure and manufacturing. Together with fertilisers, chemicals, and mineral processing, they constitute the core of today's hard-to-abate industrial sectors. Their developmental importance is unquestionable, but they also stand among the most carbon and resource-intensive industries worldwide (UNEP, 2024; OECD, 2023).

Among these industries, cement stands out due to its immense scale and reliance on clinker, the primary intermediary in ordinary Portland cement. Global cement production has remained above 4 billion tonnes annually in the past decade, reaching 4.09 billion tonnes in 2023 (USGS, 2023). China continues to dominate the sector, accounting for nearly half of global output, with production of about 2.02 billion tonnes in 2023. India is the second-largest producer, with 420 million tonnes in 2023, followed by Viet Nam (107 Mt), the United States (90 Mt), Türkiye (81 Mt), Iran (71 Mt), and Indonesia (67 Mt). Other major producers include Brazil, Russia, Egypt, the Republic of Korea, Saudi Arabia, and Mexico, each producing between 48–67 Mt annually (USGS, 2023). Although various low-carbon pathways exist, including replacing clinker with supplementary cementitious materials (SCMs) such as fly ash, slag, or natural pozzolans, the penetration of these alternatives has been modest and regionally constrained. The technologies underpinning this transition vary in maturity and readiness. Clinker substitution with supplementary cementitious materials (SCMs) is already technically mature and commercially viable but constrained by the limited availability of industrial by-products in some regions and by regulatory standards that favour ordinary Portland cement (CEMBUREAU, 2024). Energy efficiency upgrades are widely available and cost-effective even in developing economies,

representing the most immediately deployable mitigation option (GCCA, 2022). Fuel switching to biomass, waste-derived fuels, and in the longer term, green hydrogen, is feasible with a current TRL 5-6 but still limited by supply chain and cost barriers, particularly in low- and middle-income countries (GCCA, 2022; WEF, 2023). Carbon capture, utilization, and storage (CCUS) remains at the demonstration stage with a TRL 6-9, with a handful of pilot plants in Europe and North America, but high capital costs, infrastructure needs, and energy intensity currently limit near-term adoption in developing economies (GCCA, 2022; WEF, 2023).

The availability of industrial by-product SCMs is further declining in some markets, such as the United States, due to coal plant retirements and cleaner steelmaking processes, while technical and institutional barriers continue to slow wider adoption. Consequently, ordinary Portland cement (OPC) remains the dominant product globally, with clinker typically comprising 65–90% of cement blends, locking in high emissions (ClimeCo, 2022; IEA, 2018).

The socio-economic footprint of these industries is profound, as hard-to-abate industries support millions of jobs directly and indirectly, from mining and smelting to construction and manufacturing. They are deeply embedded in industrial strategies and are politically sensitive sectors in many economies. However, they are also significant sources of local health impacts, with particulate emissions, SO_2, and heavy metals affecting workers and communities near plants and mines. These industries are also highly vulnerable to economic volatility: overcapacity, often supported by subsidies, depresses prices, discourages investment in low-carbon technologies, and creates geopolitical tensions in trade (OECD, 2023).

For instance, health impacts of cement production are substantial. Dust emissions, particulate matter, and other pollutants from kilns and quarries affect air quality, often exposing workers and surrounding communities to elevated risks of respiratory and cardiovascular disease. Noise and heavy traffic associated with quarrying and transport further degrade local living conditions. These localized burdens frequently fall on vulnerable populations in peri-urban and rural areas, where regulatory oversight may be limited.

Cement is also a driver of structural economic vulnerabilities. The sector is highly exposed to energy prices, raw material availability, and tightening climate regulations. Producers in regions with ambitious climate policies, such as carbon pricing or low-carbon procurement standards, face risks of losing competitiveness against imports from jurisdictions with weaker rules. This “carbon leakage” risk creates pressure on governments to balance environmental ambition with industrial policy, sometimes resulting in diluted or delayed measures (ClimeCo, 2022; IEA, 2018).

Failing to decarbonize the industrial sector today risks undermining both national and global climate targets. Continued reliance on carbon-intensive production would lock countries into high-emission infrastructure and prolonged environmental degradation, while eroding the long-term competitiveness of developing economies. As global trade increasingly favours low-carbon products through mechanisms such as carbon border adjustments and green public procurement, delayed action could marginalize developing-country industries from emerging green markets and international investment flows.

Governance and policy challenges further exacerbate these risks. In many cases, public subsidies and state support have expanded production capacity in less efficient facilities rather than incentivizing technological innovation, contributing to higher global emissions and slowing the adoption of low-carbon technologies (OECD, 2023). At the same time, climate-related financial risks are becoming more prominent. Investors are increasingly scrutinizing exposure to carbon-intensive sectors, and industrial facilities that fail to transition face growing risks of asset stranding, reputational

damage, and rising operating costs as carbon pricing mechanisms expand across jurisdictions (UNEP, 2024).

This situation creates a structural paradox. Heavy industries are indispensable for the global transition to a low-carbon economy, providing essential materials for renewable energy infrastructure, electric vehicles, solar panels, and power grids. Yet without accelerated decarbonization, these same industries risk becoming major obstacles to achieving global climate objectives.

In response to these climate, economic, and competitiveness pressures, governments and regional blocs are increasingly adopting policy frameworks and investment programmes to accelerate industrial decarbonization. Several jurisdictions have introduced comprehensive strategies combining carbon pricing, regulatory standards, public investment, and trade measures across hard-to-abate sectors. In the cement sector, the United States has allocated USD 5.8 billion under the Inflation Reduction Act (2022) to support industrial decarbonization, alongside strengthened 45Q incentives and investments in CCUS and CO_2 transport infrastructure. The European Union's Green Deal Industrial Plan (2023) aims to reinforce net-zero competitiveness, while China's Carbon Peak Implementation Plan for the Building Materials Industry (2022) targets a peak in cement and lime emissions before 2030 through cleaner energy and low-carbon materials. In addition, countries such as the Netherlands, Sweden, Germany, France, the United Kingdom, and the United States are recognized for advancing low-carbon concrete standards and green public procurement policies (IEA, 2025).

Baseline In the Absence of GDIA

In the absence of the GDIA, support for the decarbonization of hard-to-abate industries would continue to be delivered through fragmented, project-by-project interventions rather than through integrated, sector-wide investment planning. Existing initiatives, including LeadIT's Industry Transition Partnerships, the IDDI, the CIF Industry Decarbonization Program, and the Mission Possible Partnership, would continue to advance valuable but partial agendas across cement, steel, aluminum, and other heavy industries, covering specific dimensions such as procurement standards, technology roadmaps, or concessional finance, without a common analytical backbone connecting them. Under this baseline, industrial decarbonization in developing economies would risk remain a series of isolated pilots rather than evolving into financeable, programmatic pipelines (UNIDO, 2026).

Four mutually reinforcing gaps would persist across the hard-to-abate industrial base. First, asset-level emissions data would remain limited and reporting systems fragmented, preventing governments and financiers from establishing credible baselines, estimating abatement potential, or monitoring performance at plant and sector level. Second, methodologies for emissions measurement, technology foresight, and impact estimation would remain non-standardized across countries, sectors, and institutions, raising transaction costs and undermining the comparability that investors and offtakers require, whether for near-zero emissions cement, steel, or aluminium. Third, enabling policy frameworks would remain weak and inconsistent, with regulatory uncertainty deterring the long-term offtake agreements and credible corporate transition plans on which bankability depends (UNIDO, 2025; IEA, 2025). Fourth, the financial architecture would remain insufficient: de-risking instruments, demand-side signals, and MRV-linked financing mechanisms would not be systematically connected to national investment planning, leaving the structurally elevated cost of capital in EMDEs unaddressed. This financing constraint weighs on all capital-intensive industrial transitions alike; misaligned sovereign credit assessments alone have been estimated to cost sixteen African countries up to USD 74.5 billion in lost investment opportunities and excess interest payments (UNDP, 2023).

The consequences are material and time-sensitive, because the hard-to-abate sectors are entering a decisive reinvestment cycle. Roughly 40 percent of the global cement production fleet will face a reinvestment decision around 2030, and approximately 15 percent of the global steel fleet around 2035, while over 200 Mt of high-emissions conventional steelmaking capacity is already planned or set to come online, virtually all in emerging economies (IEA, 2025). In aluminium, fossil-based production routes continue to offer higher short-term returns than low-carbon alternatives, discouraging early retirement of carbon-intensive assets without external support (Mission Possible Partnership, 2022). Without harmonized data, credible sectoral investment plans, and an enabling financial architecture in place before these windows close, reinvestment across the pilot countries and the wider developing world would default to conventional, emissions-intensive technologies, locking in carbon-intensive capacity for multi-decade asset lives. Overcapacity and subsidized expansion of inefficient facilities would continue to depress prices and crowd out low-carbon investment (OECD, 2023), while developing-country producers would face progressive marginalization from green markets as carbon border adjustments and low-carbon procurement expand (OECD, 2023; UNEP, 2024). The global environmental benefits in GHG mitigation, together with the associated co-benefits for water, land, air quality, and public health described above, would remain unrealized, and the methodological public goods that GDIA is designed to deliver through its cement-sector entry point, and to extend to steel, aluminium, and other hard-to-abate sectors under GEF-9, would not materialize under business as usual.

Global Decarbonization Investment Accelerator (GDIA)

The GDIA has been selected in preference to other potential interventions because it uniquely addresses the systemic fragmentation that currently characterizes industrial decarbonization efforts. While existing initiatives such as LeadIT's Industry Transition Partnerships, the IDDI, the CIF Industry Decarbonization Program, and the Mission Possible Partnership all make important contributions, each focuses on specific dimensions of the transition (see Table 1), and few provide integrated analytical frameworks and planning tools that connect technology pathways, enabling policy frameworks, financial architecture, and investment planning in a coherent and operational approach for developing economies.

Rather than producing standalone studies or isolated technical assistance outputs, the Accelerator integrates plant-level data, technology pathways, supporting policies, enabling financial architecture and impact estimation into one coherent investment planning framework capable of supporting financing decisions. By linking global methodological development with country-level application and investment planning, the programme supports governments and industry in translating climate commitments into credible sectoral decarbonization investment plans aligned with global climate goals. This integration ensures that country engagements generate structured analytical outputs and enabling frameworks for investment-ready plans rather than isolated pilot interventions, thereby creating a foundation for future investment mobilization through CIF, MDBs, and other climate finance mechanisms.

The choice of sectors reflects a deliberate rationale. Cement is prioritized as the anchor sector on grounds of readiness and need: it accounts for around 7% of global CO_2 emissions, and it is central to infrastructure development in emerging economies, where the reinvestment cycle now under way determines whether carbon-intensive capacity is locked in for decades. Cement's emissions split roughly 60 to 70% process, from the calcination of limestone, and 30 to 40% thermal, from kiln fuel. Clinker-substitution technologies such as limestone calcined clay cement (LC3) already cut emissions by up to 40% at commercial scale, retrofitted into existing kilns, and thermal emissions fall further through fuel switching and electrification; only the calcination reaction in the remaining clinker still awaits a commercial technology, through carbon capture or novel binder chemistry. On this measure cement's abatement toolkit is more mature today than the primary-route technologies steel and

aluminium depend on, hydrogen-based direct reduction and inert anode smelting, both still at pilot stage. Under GEF-8 the direct scope of the programme is therefore limited to cement. The core methodologies developed under Component 1, covering plant-level data and scenario modelling, technology pathways, supporting policy frameworks, enabling financial architecture, and impact estimation and monitoring, are nevertheless designed to be sector-agnostic: their data schemas and assessment logic are independent of the sector to which they are applied, and cement is the first sector against which they are populated and tested. For this programme the hard-to-abate boundary comprises cement, iron and steel, and aluminum; chemicals, fertilisers and heavy transport sit outside it. This design preserves a long-term view across the hard-to-abate sectors and positions iron and steel and aluminum for extension in subsequent phases, including GEF-9.

Table 1: Baseline initiatives supporting industrial decarbonization

(1) UNIDO Driven Initiatives:

Initiative:	Description:	Delineation:	Role/Synergies with the programme:
Net Zero Partnership for Industrial Decarbonization (NZP-ID)	NZP-ID is a global programme led by UNIDO supporting the governments in Climate Club countries and beyond to enhance their ambition for industry decarbonization, focusing on heavy-emitting industries. The programme supports establishing enabling policy frameworks, building a pipeline of decarbonization projects, and capacity building among stakeholders. The NZP-ID is being implemented through country projects and collaborations in Brazil, Argentina, Egypt, Indonesia, Kenya, Morocco, and Colombia.	The NZP-ID targets Emerging Markets and Developing Economies (EMDEs) and is a global policy and ambition-raising platform for concrete and cement, and iron and steel. The initiative focusses on enabling frameworks, formulation of industry-specific targets and roadmaps, supporting the implementation of technological solutions, and knowledge sharing, while the proposed GEF-8 Accelerator is an operational facility that turns those ambitions into bankable, enabling frameworks for investment-ready plans for cement and concrete projects for financing under GEF 8 and GEF-9.	In the proposed GEF-8 Accelerator, the NZP-ID will serve as the policy and coalition driver, using its global platform to align national commitments with decarbonization pathways, convene key government and industry stakeholders, and embed enabling frameworks that stimulate demand and create market conditions for projects prepared for investment. This programme uniquely unlocks the full potential of the NZP-ID by embedding it within a holistic approach that addresses all elements required for effective implementation.
Industrial Deep Decarbonization Initiative (IDDI)	Coordinated by UNIDO, the Clean Energy Ministerial (CEM) IDDI is a global coalition of public and private organisations who are working to stimulate demand for low	IDDI has a technical and normative mandate, focussed on developing common measurement methodologies, product standards, and procurement models to	The IDDI acts as the standards and verification anchor for the GEF-8 Accelerator, ensuring that all pipeline projects meet internationally

	carbon industrial materials. In collaboration with national governments, the IDDI works to standardize carbon assessments, establish ambitious public and private sector procurement targets, incentivize investment into low-carbon product development and design industry guidelines.	create verifiable markets for low-carbon concrete, cement and steel.	recognized carbon accounting methods, harmonized specifications, and procurement criteria. Embedding IDDI ensures the programme's outputs are compatible with global buyers and can tap into emerging demand for low-carbon materials.
Breakthrough Agenda (BTA)	Launched at COP 26, the BTA aims at accelerating clean technology transition by strengthening international cooperation in key industrial sectors: power, road transport, steel, hydrogen, agriculture, buildings, and cement and concrete. The primary goal of the BTA is to make clean technologies the most attractive and option by 2030. UNIDO is actively part of the BTA and hosts the facilitator of the steel chapter.	The BTA is a high-level political cooperation and coordination platform across multiple sectors, aimed at aligning international actions and commitments to speed up technology adoption.	The BTA provides the political mandate and global visibility for sectoral decarbonization that the GEF-8 Accelerator will translate into concrete action. By engaging with the BTA, the Accelerator ensures that its outputs align with government-endorsed priority actions, thereby strengthening political support, fostering cross-border technology collaboration, and creating opportunities for international partnerships in the cement and steel sectors.
Industrial Decarbonization Hubs (ID-Hubs)	ID-Hubs is a UNIDO initiative implemented in collaboration with key international partners, including technical organizations and financial institutions. These hubs are embedded in-country to connect governments with the private sector and other stakeholders, foster the development of decarbonization investment pipelines, stimulate research and innovation, and help	ID-Hubs are national implementation platforms that operate on the ground, convening public and private actors to translate global commitments into country-specific investment opportunities. They function as place-based, continuous engagement mechanisms rather than time-bound programs.	ID-Hubs could serve as the delivery interface for the GEF-8 Accelerator in target countries by facilitating stakeholder coordination, identifying priority decarbonisation projects, supporting policy integration, and providing the institutional framework for sustained pipeline development beyond the Accelerator's duration.

	create an enabling policy environment.		
Accelerate-to-Demonstrate (A2D) Facility	A2D is a large-scale facility focused on accelerating the commercialization of innovative climate solutions in developing countries. It provides funding grants for transformative projects in the areas of industrial decarbonization, critical minerals, clean hydrogen and smart energy.	A2D is a technology-commercialization mechanism designed to de-risk and demonstrate emerging solutions at scale. It is primarily technology-driven, rather than policy- or market-driven, and does not encompass the development of full investment pipelines or national market frameworks.	A2D functions as a technology feeder for the GEF-8 Accelerator by delivering proven, commercially viable decarbonization solutions that can be scaled in the cement sector. The Accelerator can then integrate these A2D-validated technologies into its project preparation work, ensuring that investment pipelines are grounded in solutions with demonstrated performance in developing-country contexts.

(2) Further GEF & UNIDO Projects in the hard-to-abate sectors:

Greening of the Philippines cement and construction industry (GEF ID 11707)	UNIDO/GEF project (CEO Endorsement, under GEFSEC Review) with the Department of Trade and Industry to cut mercury releases from cement manufacturing, using energy efficiency, circular-economy measures, alternative low-carbon materials and concrete recovery from demolition.	Chemicals-and-waste project (mercury), with decarbonization as a co-benefit. Single country, no investment or finance component.	Builds UNIDO's cement footprint in Southeast Asia and generates material-substitution evidence for the Accelerator's technology foresight. Finance mobilization stays with the Accelerator.
Eliminating hazardous chemicals from the supply chain of the construction sector in Morocco (GEF ID 11428)	UNIDO/GEF project (CEO Endorsement Cleared) executed by AMEE, replacing hazardous construction chemicals with safer alternatives, embedding life-cycle assessment in policy and strengthening the regulatory framework for material safety.	Chemical-safety focus across the construction value chain, not cement GHG mitigation or investment. Country-specific and regulatory.	Complements the Accelerator on construction value chains and reinforces UNIDO's presence in Morocco, an NZP-ID country. No emissions baselines or pipelines, which remain the Accelerator's role.

Control and reduction of mercury emissions from the cement industry in Brazil (GEF ID 11574)	UNIDO/GEF project (CEO Endorsement Cleared) in China demonstrating best available techniques to cut unintentionally produced POPs in iron and steel plants.	Chemicals-and-waste project (POPs), in steel, not cement. No decarbonization or investment objective.	Limited overlap. Relevant as UNIDO heavy-industry experience and a possible source of plant-level data.
Environmentally Sustainable Development of the Iron and Steel Industry (GEF ID 10564)	UNIDO/GEF project (CEO Endorsement Cleared) with the Ministry of Environment under the Minamata Convention, applying best available techniques to control mercury from clinker production. Cement is Brazil's fourth-largest mercury source. Coordinated with the national Cement Technology Roadmap.	Chemicals-and-waste (mercury), single country. Pollution control, not GHG mitigation or investment mobilization.	Plant-level mercury measures interact with kiln operations and raw-material choices that also drive CO2. Shared engagement with the same producers keeps mercury and decarbonization tracks aligned.
Control and reduction of mercury emissions in the cement industry in the Small Island Developing States of the Caribbean region (GEF ID 11882)	UNIDO/GEF project (Council Approved) under the Minamata Convention applying the same best-available-technique approach to control mercury from cement production, adapted to Caribbean Small Island Developing States.	Chemicals-and-waste (mercury), regional SIDS scope. Pollution control only.	Builds UNIDO's cement footprint in the Caribbean and generates plant-level data. Distinct from the Accelerator's decarbonization and finance mandate

(3) Other relevant initiatives:

CIF Industry Decarbonization Program	A financing initiative under the CIF' Clean Technology Fund, providing up to USD 1 billion in concessional and blended finance to decarbonize heavy industries (cement, steel, aluminium, chemicals, pulp & paper, etc.) in an initial cohort of seven middle-income countries, including Brazil, Egypt, Mexico, Namibia, South Africa, Türkiye, and Uzbekistan. Delivered via	In contrast to the proposed GEF-8 Accelerator, which is readiness-oriented and focused on market creation, policy frameworks, and enabling conditions for decarbonization pipeline development, the CIF program serves as a financing engine that invests directly in implementation. It does not provide global policy, standards, or enabling-	The CIF could partner with the GEF-8 Accelerator by providing implementation finance for cement decarbonization projects prepared through the Accelerator. By focusing on enabling policy, market creation, and investment readiness, the Accelerator would de-risk and strengthen proposals for CIF funding, enabling CIF to channel capital into projects with strong policy

	MDBs (AfDB, ADB, EBRD, IDB, IFC), it funds large-scale investment projects and aims to achieve transformational change with significant co-financing leverage.	environment platforms. Furthermore, it maintains a broad, multi-sector scope; operates in a limited number of countries through competitive expressions of interest; and relies primarily on MDB delivery, without extensive multi-stakeholder networks or global knowledge-sharing mechanisms. Of the four pilot countries, none is yet in CIF-IDP's initial funded cohort; country-specific status and gaps are set out in Section A2.	alignment, stakeholder support, and demonstrated market demand. This collaboration would position the Accelerator as a feeder mechanism for CIF, ensuring that its work translates into high-impact, enabling frameworks for investment-ready plans while giving the GEF program a clear pathway for scaling.

The following table presents a selection of existing analytical and monitoring tools that complement the Accelerator's focus on industrial decarbonization. Each tool provides distinct but interrelated functions, ranging from emissions measurement and tracking to project pipeline mapping and scenario modelling, that together illustrate the growing ecosystem of open-access platforms supporting global efforts to reduce industrial GHG emissions. These tools demonstrate the technical maturity and data availability in key sectors but also highlight opportunities for the Accelerator to leverage and scale their methodologies within a cohesive global framework for low-carbon industrial transformation.

Table 2: Existing tools for Industrial Decarbonization

Organization/ initiative:	Name of the model:	Type of scenario:
International Finance Corporation (IFC)	IFC Cement Decarbonization Tool	The IFC Cement Decarbonization Tool helps cement manufacturers in emerging economies analyse the key operational sources of their GHG emissions and design customized strategies to reduce them. It assesses the potential impact and cost-effectiveness of measures such as alternative fuels, blended cement, renewable electricity, equipment upgrades, and waste-heat recovery to support investment planning toward net-zero goals.
Climate Trace	Track Global Emissions	Climate TRACE uses satellites, remote sensing, and artificial intelligence to independently track and quantify GHG emissions from over 660 million sources worldwide, creating a transparent and continuously improving global emissions inventory. Covering all major sectors, from power generation and manufacturing to agriculture and

		waste, it provides detailed, source-level data that enables faster and more effective decarbonization strategies across the global economy.
Mission Possible Partnership	MPP Global Project Tracker	The MPP Global Project Tracker compiles and maps industrial and transport projects worldwide that are aligned with net-zero objectives, presenting an overview of clean technology deployment and sectoral progress toward 2030 and 2050 targets. Using publicly available and partner-sourced data, it categorizes projects by sector, technology type, and development stage to provide a comprehensive view of the global pipeline for low-carbon industrial transformation.
Stockholm Environment Institute / Leadership Group for Industry Transition Industry	Transition Tracker	The Industry Transition Tracker is an online interactive database that allows users to find industry transition roadmaps in one place and compare, contrast and identify trends in the decarbonization plans of different countries, regions and industry sectors.
NewClimate Institute	PROSPECTS+	PROSPECTS is a sector-level, bottom-up Excel tool which uses decarbonisation relevant activity and intensity indicators to track and project overall and sectoral GHG emissions trends. A simplified tool derived from the CTI tools, PROSPECTS covers all emissions-generating sectors: electricity, heat, buildings, transport, various industrial sectors, waste, and agriculture. Users can construct their own emissions scenarios by adjusting policy-relevant indicators in this open-source, user-friendly tool.

GEF involvement is justified by its ability to deliver catalytic outcomes that existing initiatives alone cannot achieve. Rather than directly financing technology deployment, the GEF and UNIDO will support the development and application of integrated analytical methodologies, modelling tools, and planning frameworks that enable countries to identify viable decarbonization pathways and enable conditions for investment-ready sectoral plans for hard-to-abate industries. By strengthening investment readiness and developing robust analytical foundations for industrial decarbonization, the GEF can help bridge the gap between global climate ambitions and bankable investment pipelines, thereby mobilizing subsequent financing from CIF programmes, multilateral development banks, and other climate finance mechanisms. The GEF's convening power positions it to bridge global frameworks with in-country action, while UNIDO's Industry Decarbonization Hubs provide delivery channels to connect policy dialogue with analytical support, stakeholder engagement, and sectoral decarbonization investment planning at the country level. In this way, the programme not only amplifies the impact of existing initiatives but also ensures coherence, country ownership, and scalability.

Moreover, the design of the Accelerator ensures that its outcomes will endure even as drivers of industrial emissions evolve. Evolving international standards will be addressed by developing harmonized analytical methodologies, impact estimation approaches, and monitoring frameworks that strengthen transparency and comparability of decarbonization strategies. Technological uncertainty

will be mitigated by technology methodologies that assess alternative decarbonization pathways and their system implications, allowing countries to evaluate and prioritize viable options within their national contexts. By strengthening analytical capacity, institutional coordination, and investment planning processes, the programme ensures that its impacts remain resilient and scalable in the face of changing economic, policy, and technological conditions. This durability, coupled with strong South–South knowledge exchange and alignment with global agendas, makes the Accelerator a catalytic mechanism for strengthening national readiness and investment planning for industrial decarbonization in a way that is both impactful and sustainable.

The success of the GDIA rests on the active participation of a wide range of stakeholders, whose complementary roles are essential to delivering GEBs and enabling systemic transformation in hard-to-abate sectors. Building on UNIDO's strong convening power and network of partners, the programme will ensure that governments, private sector actors, financial institutions, research institutions, and civil society are meaningfully engaged in the development and application of analytical methodologies, the validation of decarbonization pathways, and the preparation of sectoral investment plans. Through structured consultation processes, training activities, and knowledge-sharing platforms, the Accelerator will foster collaboration among stakeholders involved in industrial decarbonization planning and investment mobilization, strengthening both national ownership and global learning. Civil society engagement is anchored in named counterparts rather than in generic categories. In each pilot country the project engages a women-led professional or enterprise association with a mandate relevant to the cement value chain (Women in Mining Colombia in Colombia, the Association for Women in Energy and Extractives in Kenya in Kenya, the Uganda Women Entrepreneurs Association Limited in Uganda, and the Center for Accelerated Women's Economic Empowerment together with the Ethiopian Women Entrepreneurs Association in Ethiopia) alongside the national banking industry association, which is the counterpart able to carry inclusive design features into member banks' lending practice. The identification and consultation schedule are recorded in the Stakeholder Engagement Plan. For more information, consult Annex K – Stakeholder Engagement Plan.

Geographic Focus

The geographical focus of the GDIA has been determined through a structured and evidence-based methodology designed to maximize both impact and replicability. The programme's selection process was guided by five key criteria:

- Mitigation potential: focused on high current and projected industrial emissions, identifying countries with significant cement, steel, and aluminium production and corresponding CO_2 footprints. These represent the world's largest mitigation opportunities, where even incremental efficiency gains or technology shifts can deliver measurable global benefits.
- Demand growth: targeting economies with strong infrastructure and urbanization trajectories, contexts where cement demand is expected to rise sharply in coming decades. Prioritizing these countries allows the Accelerator to intervene at a critical moment, helping them avoid long-term carbon lock-in and transition toward low-emission production systems.
- Policy and market readiness: identifying countries where government commitment to industrial decarbonization is evident, policy frameworks are evolving, and alignment exists with international initiatives such as the IDDI, the NZP-ID, and the Breakthrough Agenda. This ensures that national counterparts are ready to integrate project methodologies into their own planning and can leverage the Accelerator's outputs to unlock private investment.
- Regional balance: ensured regional representation and knowledge transfer potential, selecting countries across Africa, Asia, and Latin America to foster South–South learning and cross-regional collaboration.

- UNIDO's local expertise/capacity: UNIDO's pre-existing local presence and experience, provides the Organization with strong government relationships, technical expertise, and active industrial programmes. This guarantees efficient coordination, reduced transaction costs, and immediate engagement with relevant ministries, industry associations, and financial partners.

The aim of the criteria is to ensure that the chosen countries represent the most strategic opportunities for catalytic transformation in the cement and broader hard-to-abate industrial sectors. By applying this rigorous, multi-criteria selection methodology, the Accelerator ensures that its pilots not only deliver high national impact but also generate transferable lessons for broader scaling under GEF-9.

Colombia

The cement industry plays a strategic role in Colombia's economic development, supporting infrastructure expansion, urbanization, and housing programmes that underpin national growth. Demand for cement and concrete is closely linked to investments in transport infrastructure, energy systems, and urban development, making the sector a critical component of the country's construction value chain. Recognizing the sector's importance, Colombia's cement industry, coordinated through the Colombian Chamber of Cement and Concrete (PROCEMCO), has already begun developing a national roadmap toward carbon neutrality aligned with international initiatives such as those led by the Global Cement and Concrete Association (GCCA). This roadmap supports Colombia's broader climate commitments and provides a strategic framework for emission reductions in the sector (PROCEMCO, 2024).

Colombia has a well-established cement industry composed of several large producers operating integrated clinker and grinding facilities across the country. The sector produces around 13–14 million tonnes of cement annually, serving both domestic construction demand and regional export markets. Production has grown steadily over the past two decades in response to expanding infrastructure investment and urban development. The industry is relatively modern compared with many developing-country producers, but it remains heavily reliant on clinker-based cement production, which drives the majority of process emissions in the sector. As in most cement industries worldwide, emissions arise primarily from two sources: the calcination of limestone during clinker production and the combustion of fossil fuels required to reach kiln temperatures above 1400°C.

At the national level, GHG emissions have increased steadily over the past three decades, reaching approximately 280 million tCO_2e in 2021, compared with around 223 million tCO_2e in 1990, reflecting both economic growth and expanding energy and industrial demand (Government of Colombia, 2025). Within this profile, industrial processes and product use (IPPU) including cement and other mineral industries, represent a key source of emissions, particularly due to process emissions from clinker production and energy use in high-temperature kilns. Under current policy targets, the share of alternative fuels used in cement production is expected to reach around 15% of the energy mix by 2030 and 23% by 2035, generating an estimated mitigation potential of 0.73 $MtCO_2e$ and 1.16 $MtCO_2e$ respectively. These emissions are structurally difficult to abate because they arise from both chemical reactions during calcination and the combustion of fuels required for cement production, placing the sector among Colombia's hard-to-abate industries.

Colombia has established a comprehensive institutional and policy framework to address these emissions. Climate governance is coordinated through the National Climate Change System (SISCLIMA) and supported by multiple policy instruments, including the National Climate Change Policy, the Colombian Low Carbon Development Strategy, and the Long-Term Climate Strategy (E2050). These frameworks guide mitigation actions across sectors and are reinforced by Colombia's NDC 3.0, which establishes progressively more ambitious targets to reduce national emissions and sets a pathway toward carbon neutrality by mid-century. The NDC integrates mitigation measures across energy, industrial processes, agriculture, and waste sectors, ensuring that industrial

emissions, including those from cement production, are addressed within the national climate strategy.

Table 3: Key stakeholders in Colombia

Country:	Key Stakeholders:
Colombia	• Ministry of Environment and Sustainable Development • Ministry of Finance and Public Credit • Ministry of Mines and Energy; National Planning Department • Ministry of Commerce, Industry and Tourism • Colombian Institute of Technical Standards and Certification (ICONTEC) • Inter-American Cement Federation (FICEM); Argos Cement; Corona Group • Bancoldex; FINDETER • University of Los Andes; National University of Colombia • Asobancaria, Asociación Bancaria y de Entidades Financieras de Colombia (national banking and financial institutions association) • Women in Mining Colombia (WIM Colombia; women-led association working on gender equity across the mining and quarrying value chain that supplies limestone and other clinker raw materials)

Within this policy context, Colombia has already begun implementing mitigation actions relevant to industrial sectors. These include programmes promoting industrial energy efficiency, improved energy management practices, and the adoption of more efficient technologies and production processes, coordinated primarily by the Ministry of Commerce, Industry and Tourism in collaboration with the Ministry of Mines and Energy and the Ministry of Environment (Government of Colombia, 2024). Such measures aim to reduce emissions from manufacturing industries by improving the efficiency of energy use, encouraging fuel switching, and promoting cleaner production practices across industrial facilities.

Despite these advances, significant challenges remain for the deep decarbonization of Colombia's cement industry. Many low-carbon technologies, such as alternative fuels, clinker substitution, electrification of heat, carbon capture, and advanced materials, require substantial investment and supportive regulatory frameworks to achieve large-scale deployment. At the same time, the sector must continue expanding to meet infrastructure demand while aligning with increasingly ambitious climate commitments. Strengthening sector-specific decarbonization planning, improving data availability on industrial emissions, and mobilizing financing for innovative technologies will therefore be critical to ensure that the growth of Colombia's cement sector remains compatible with the country's long-term climate goals and low-carbon development pathway.

Colombia anchors the programme in Latin America, combining significant mitigation potential, with abatement estimated at 0.73 $MtCO_2e$ by 2030 and 1.16 $MtCO_2e$ by 2035 from alternative fuels alone, with sustained demand growth driven by infrastructure and urban development. Policy and market readiness is advanced, reflected in the SISCLIMA framework, the E2050 strategy, NDC 3.0, and an industry-led carbon neutrality roadmap coordinated by PROCEMCO in alignment with the GCCA. UNIDO's established relationships with the relevant ministries, Bancoldex, FINDETER, and leading producers ensure efficient coordination and immediate operational traction. Colombia's CIF-IDP expression of interest scored 79 (second tier); the assessment found no private investors beyond the state-linked Ecopetrol and no defined governance structure for the proposed Energy Transition Fund; Colombia is eligible for a CIF BRIDGE readiness grant to broaden private-sector participation and clarify fund governance.

Kenya

The cement industry is a key pillar of Kenya's economic and social development, supporting rapid urbanization, infrastructure expansion, and housing delivery across the country. As Kenya continues to invest in transport corridors, urban housing, and industrial development, demand for cement has increased steadily in recent years. Cement production reached approximately 9.49 Mt in 2025, representing a 17% increase compared to 2024, while domestic consumption rose by about 20%, from 7.79 Mt to 9.34 Mt, reflecting strong growth in the construction sector and a tightening supply–demand balance. These trends position Kenya among the fastest-growing cement markets in Sub-Saharan Africa and indicate that the sector will play a central role in supporting the country's long-term development agenda.

At the same time, the expansion of cement production contributes significantly to Kenya's industrial GHG emissions. Kenya's total GHG emissions reached 66.5 $MtCO_2e$ in 2022 (excluding LULUCF), with the IPPU sector accounting for approximately 3.67 $MtCO_2e$ annually. Cement manufacturing dominates this category, representing about 98% of process-related IPPU emissions (around 3.6 $MtCO_2e$ in 2022). These emissions are primarily associated with clinker production, where limestone calcination releases CO_2, as well as the use of fossil fuels such as coal to achieve the high temperatures required in cement kilns. When both process and energy-related emissions are considered, total emissions from Kenya's cement sector are estimated at approximately 5.1 $MtCO_2e$ in 2022, making it one of the most significant industrial emission sources in the country.

Although several technological pathways exist globally to reduce emissions in the cement sector, the adoption of these solutions in Kenya remains limited. While national regulations allow the production of blended cements and their uptake has increased in recent years, the average clinker-to-cement ratio remains relatively high at approximately 0.76, indicating continued reliance on carbon-intensive ordinary Portland cement formulations. This reflects both technical and market constraints, including the availability of suitable SCMs, existing production configurations, and regulatory standards that historically favoured higher-clinker cement compositions.

Table 4: Key stakeholders in Kenya

Country:	Key Stakeholders:
Kenya	• Ministry of Environment, Climate Change and Forestry • National Treasury and Economic Planning • Ministry of Energy • Ministry of Industry • Kenya Bureau of Standards (KEBS) • Kenya Association of Manufacturers; National Cement Company; Bamburi Cement • Kenya Development Bank; Trade and Development Bank, Kenya Commercial Bank (KCB); Equity Bank • University of Nairobi; Strathmore Energy Research Centre • Kenya Bankers Association (KBA; the national banking industry association, host of the Sustainable Finance Initiative) • Association for Women in Energy and Extractives in Kenya (AWEIK; women-led association running programmes in women in energy, women in extractives, capacity building, financial literacy, enterprise development and mentorship)

Regulatory reforms are beginning to create opportunities for reducing these emissions. Kenya is currently revising cement standards to allow the wider use of lower-clinker cement formulations with ratios below 0.45, which could significantly reduce both process emissions and fuel consumption. However, without targeted policy support, technical guidance, and investment planning, rising demand could instead be met through the expansion of conventional clinker production capacity. Such a trajectory would risk locking in high-emission infrastructure for decades, undermining both national climate commitments and long-term competitiveness as global markets increasingly favour low-carbon construction materials. In this context, Kenya's cement sector faces a strategic transition challenge similar to that experienced globally by hard-to-abate industries. While cement remains essential for economic development and infrastructure expansion, the sector must simultaneously reduce its carbon intensity to align with global climate goals and emerging international market standards. Strengthening analytical tools, policy frameworks, and investment planning mechanisms will therefore be critical to ensure that future growth in Kenya's cement sector is compatible with low-carbon development pathways.

Kenya offers substantial mitigation potential to be a pilot for GDIA, with cement sector emissions of approximately 5.1 $MtCO_2e$ in 2022 and a clinker-to-cement ratio of 0.76 that leaves considerable headroom for clinker substitution. As one of Sub-Saharan Africa's fastest-growing cement markets, with production up 17 percent in 2025, early intervention is critical to prevent demand from being met through conventional clinker expansion. The ongoing revision of national standards to permit clinker ratios below 0.45 demonstrates clear policy readiness, while UNIDO's in-country presence and engagement with KEBS, the Kenya Association of Manufacturers, and national financial institutions guarantee rapid mobilization. Kenya's CIF-IDP expression of interest scored 59 (third tier), as it spread its focus across hydrogen, e-mobility and geothermal rather than cement — which drives 97% of Kenya's industrial process emissions — and did not confirm Ministry of Finance budgetary commitment or a structured private-sector investment pipeline; this sectoral and institutional gap is what GDIA is designed to close.

Uganda

The cement industry occupies a strategic position within Uganda's industrialization agenda, supporting the rapid expansion of transport corridors, energy infrastructure, urban housing, and the emerging oil and gas sector. Demand for cement and concrete is structurally linked to the National Development Plan III, the East African Community regional infrastructure pipeline, and large-scale public investments such as the Karuma and Isimba hydroelectric projects, the Standard Gauge Railway, and the Tilenga and Kingfisher upstream developments. Recognising the sector's strategic relevance, Uganda's cement industry, in coordination with the GCCA, the United Nations Climate Technology Centre and Network (UN-CTCN), and the École Polytechnique Fédérale de Lausanne (EPFL), launched in 2025 the development of a national low-carbon roadmap targeting net-zero emissions by 2050 (Global Cement, 2024 and 2025; GCCA, 2025).

Uganda's cement industry comprises several integrated and grinding facilities. Installed capacity expanded substantially between 2017 and 2019 following new plant investments and expansions by major producers, and the Government of Uganda cited an operational production capacity of over 4.5 million tonnes per annum in 2023 (Office of the President of Uganda, 2023). Actual production reached approximately 4.6 million tonnes in 2022 (Uganda Bureau of Statistics, 2023), with surplus output exported to regional markets. Nameplate installed capacity is estimated by industry sources at approximately 6.5–7 million tonnes per annum (CemNet, 2026), the difference reflecting plants operating below rated capacity.

A structural feature of the sector is the country's persistent clinker deficit: Uganda produces approximately one million tonnes of clinker per annum against domestic demand estimated at around nine million tonnes, with the balance imported principally from Egypt, Pakistan, and China at an annual cost of approximately USD 154 to 380 million in recent years (The EastAfrican, 2023; Ecofin Agency, 2025; APT News, 2025). To address this gap, two large clinker projects are currently advancing: the Yaobai International Holding Cement plant in Moroto (USD 300 million, capacity of approximately 12,000 tonnes of clinker per day at full operation, expected commissioning in early 2026) and Tororo Cement's planned clinker plant in Katikekile, Moroto District (Global Cement, 2024; APT News, 2025).

At the national level, Uganda's GHG emissions rose from approximately 53.4 $MtCO_2e$ in 2005 to 90.1 $MtCO_2e$ in 2015, with land use change and forestry accounting for 59.5 percent, agriculture 26.9 percent, energy 10.7 percent, waste 2.3 percent, and IPPU representing the smallest share (Government of Uganda, Updated NDC, September 2022; Climate and Clean Air Coalition, 2024). Business-as-usual emissions are projected to reach approximately 148.9 $MtCO_2e$ by 2030. Within this profile, cement manufacturing constitutes the principal source of process emissions in the IPPU sector, arising from the calcination of limestone in clinker kilns and the combustion of fossil fuels, predominantly imported coal and heavy fuel oil, required to reach kiln temperatures above 1,400°C. These emissions are structurally difficult to abate and place the cement sector among Uganda's hard-to-abate industries.
Uganda has established a comprehensive institutional and policy framework to address these emissions. Climate governance is anchored in the National Climate Change Act (2021), the Climate Change Department within the Ministry of Water and Environment, and is supported by the Long-Term Low Emissions Development Strategy (LT-LEDS, 2022) and the NDC. Through its Updated NDC submitted in September 2022, Uganda commits to reducing net GHG emissions by 24.7 percent below business-as-usual by 2030, equivalent to an absolute reduction of 36.75 $MtCO_2e$, with mitigation measures spanning the energy, Agriculture, Forestry and Other Land Use (AFOLU), transport, waste, and IPPU sectors (Government of Uganda, Updated NDC, September 2022; UNDP Climate Promise, 2024; NDC Partnership, 2024). The estimated cost of full implementation is USD 28.1 billion through 2030, of which a substantial share is conditional on international support.

Table 5: Key stakeholders in Uganda

Country:	Key Stakeholders:
Uganda	• Ministry of Water and Environment (Climate Change Department, UNFCCC Focal Point and DNA) • Ministry of Finance, Planning and Economic Development • Ministry of Energy and Mineral Development • Ministry of Trade, Industry and Cooperatives, National Planning Authority • Uganda National Bureau of Standards (UNBS) • Uganda Manufacturers Association (UMA); Tororo Cement Limited; Hima Cement Limited (Sarrai Group); Simba Cement Uganda • Uganda Development Bank (UDB); Trade and Development Bank (TDB); Stanbic Bank Uganda; Centenary Bank • Makerere University (College of Engineering, Design, Art and Technology); Uganda Industrial Research Institute (UIRI) • Uganda Bankers' Association (UBA; the national banking industry association, which issued the Environmental, Social and Governance Framework for the Banking Industry)

- Uganda Women Entrepreneurs Association Limited (UWEAL; national association of women entrepreneurs, with an established partnership with the Uganda Manufacturers Association already named in this table)

Within this policy context, sectoral mitigation actions are gaining traction. Hima Cement reports that over 50 percent of its kiln fuel now comes from renewable biomass rather than heavy fuel oil, with feedstocks sourced from coffee husks, palm kernels, rice husks, and sawdust, complemented by the co-processing of hazardous and post-consumer plastic waste (Global Cement, 2024). The launch of the GCCA-supported national cement roadmap signals an emerging coordination platform for sector-wide decarbonization, although uptake of clinker substitution and lower clinker-to-cement ratios remains limited.

Despite these advances, significant challenges persist for the deep decarbonization of Uganda's cement sector. Heavy reliance on imported clinker and fossil fuels exposes producers to price volatility and constrains margins available for low-carbon investment. The pipeline of new clinker capacity, while strategically motivated by import substitution, risks locking in high-emission infrastructure for several decades unless designed with provisions for alternative fuels, clinker substitution, and future carbon capture readiness. Strengthening sector-specific decarbonization planning, expanding the use of supplementary cementitious materials, mobilizing concessional and blended finance for low-carbon technologies, and aligning national cement standards with lower clinker-to-cement ratios will therefore be critical to ensure that the projected expansion of Uganda's cement sector remains compatible with the country's NDC commitments and long-term low-carbon development pathway.

For GDIA, Uganda is positioned at a pivotal juncture, where a persistent clinker deficit of some eight million tonnes per annum and major new clinker investments create an imminent risk of carbon lock-in that the Accelerator can directly address. Demand growth is structurally anchored in the National Development Plan III and the East African Community infrastructure pipeline. Policy readiness is evidenced by the National Climate Change Act (2021), the Updated NDC, and the 2025 launch of a GCCA-supported national low-carbon cement roadmap, while UNIDO's operational presence and relationships with the Ministry of Water and Environment, UNBS, and the Uganda Development Bank ensure effective counterpart engagement. Uganda's CIF-IDP expression of interest scored 76 (second tier), with facility-level emissions baselines and market-demand analysis for the proposed ten-fold growth in mineral processing flagged as the main gaps; UNIDO is coordinating closely with the CIF BRIDGE readiness grant to close them.

Ethiopia

The cement industry constitutes a strategic pillar of Ethiopia's economic development, underpinning the country's ambitious infrastructure programme, including the Grand Ethiopian Renaissance Dam, industrial parks, sugar factories, and the expansion of highway, railway, and housing networks. As one of the fastest-growing economies in Africa during the past decade, Ethiopia has positioned the construction sector as a central driver of structural transformation. Demand for cement is closely linked to public capital expenditure and urbanization, both of which are projected to continue expanding over the medium term notwithstanding recent macroeconomic headwinds (Ethiopian News Agency, 2023; World Cement, 2025). To address the sector's environmental footprint, the Government of Ethiopia has prioritised cement within its national green economy strategy and identified clinker substitution, biomass co-firing, and energy efficiency as central decarbonization levers.

Ethiopia operates one of the largest cement industries in Sub-Saharan Africa, with installed production capacity having reached approximately 20 million tonnes per annum following the inauguration of Pioneer Cement's expansion in Dire Dawa (Ethiopian News Agency, as reported in Global Cement, 2024). The sector comprises several major integrated producers, including Dangote

Cement Ethiopia (Mugher plant, 2.5 Mtpa, with a USD 400 million expansion underway to double capacity to 5 Mtpa within approximately 30 months), the Lemi National Cement Factory (8 Mtpa, joint venture between East African Holding and West International Holding, inaugurated in 2024), Derba Cement (National Cement Share Company), Mugher Cement Enterprise, Habesha Cement, Ethio Cement, and Pioneer Cement (Dangote Cement Plc, Full Year 2024 Audited Results, March 2025; Global Cement, 2024; World Cement, 2025). According to government strategic projections, cement consumption was projected to reach 19.97 million tonnes by end-2025 with required capacity of 25.16 million tonnes, and per capita cement consumption was anticipated to rise from 62 to 179 kg over the same horizon (Asgedom et al., Discover Applied Sciences, 2024).

Cement production in Ethiopia is highly clinker-intensive, and the sector exhibits energy intensities markedly above international best practice. Benchmarking studies have found that average electricity intensity and fuel intensity at Ethiopian cement plants are approximately 34 to 36 percent higher than international benchmarks, indicating significant scope for energy efficiency improvement and associated CO_2 abatement (Hasanbeigi et al., Energy, 2015; ScienceDirect, 2023). Emissions arise primarily from two sources: the calcination of limestone during clinker production and the combustion of fossil fuels, predominantly imported coal and heavy fuel oil, required to reach kiln temperatures above 1,400°C, with the latter exacerbated by recurrent constraints on imported coal supply (Dangote Cement Plc, Full Year 2024 Audited Results, March 2025).

At the national level, Ethiopia's per capita GHG emissions remain among the lowest globally, with the country contributing approximately 0.04 percent of global emissions (World Bank, Supporting Ethiopia's NDC Update Technical Report, 2021). Under the foundational Climate-Resilient Green Economy (CRGE) Strategy, business-as-usual emissions were projected to rise from 150 $MtCO_2e$ to 400 $MtCO_2e$ by 2030 absent mitigation action (Federal Democratic Republic of Ethiopia, CRGE Strategy, 2011). Within the industrial and manufacturing sector, the cement industry was identified as the most significant source of emissions, accounting for approximately 50 percent of industry emissions, with the CRGE pointing to clinker substitution, biomass use, and energy efficiency as priority abatement levers (World Bank, Overview Report on Ethiopia's CRGE Strategy, 2020). The Ethiopian government's industrial sector mitigation interventions are projected to deliver a 13.4 percent reduction in GHG emissions, equivalent to approximately 3.5 $MtCO_2e$ relative to BAU (Asgedom et al., Discover Applied Sciences, 2025).

Ethiopia has established a robust institutional and policy framework to address these emissions. Climate governance is anchored in the CRGE Strategy (2011) and is operationalised through the CRGE Facility, which serves as the national climate finance vehicle, alongside the Long-Term Low Emission and Climate Resilient Development Strategy 2020 to 2050 (LT-LEDS) and successive NDCs. Ethiopia's Updated NDC, submitted in July 2021, raised the country's mitigation ambition to a 68.8 percent reduction in emissions below business-as-usual by 2030, of which 14 percent is unconditional (UNDP Climate Promise, 2024). Ethiopia subsequently submitted its NDC 3.0 in September 2025, committing to a 70.3 percent reduction in GHG emissions by 2035 compared to BAU, with an unconditional 40.7 percent reduction from domestic resources, and including methane capture and circular economy interventions in industrial processes among its mitigation priorities (NDC Partnership, 2025).

Table 6: Key stakeholders in Ethiopia

Country:	Key Stakeholders:
Ethiopia	• Ministry of Planning and Development (GEF Operational Focal Point and GCF National Designated Authority)

- Ministry of Finance (Climate Resilient Green Economy Facility, CRGE Facility)
- Ministry of Water and Energy;
- Ministry of Industry
- Ethiopian Environmental Protection Authority (EPA)
- Institute of Ethiopian Standards (IES, formerly Ethiopian Standards Agency, ESA); Ethiopia Conformity Assessment Enterprise (ECAE)
- Ethiopian Cement Industries Producers Association; Dangote Cement Ethiopia; Lemi National Cement; Derba Cement (National Cement Share Company); Habesha Cement
- Development Bank of Ethiopia (DBE); Commercial Bank of Ethiopia (CBE); Awash Bank; Dashen Bank
- Addis Ababa University (Addis Ababa Institute of Technology); Adama Science and Technology University
- Center for Accelerated Women's Economic Empowerment (CAWEE)
- Ethiopian Women Entrepreneurs Association (EWEA; women-led organization working on enterprise development and market access for women-owned businesses)

Within this policy context, Ethiopia has begun implementing mitigation actions relevant to the cement industry. These include partial substitution of fossil fuels with biomass alternatives, energy efficiency programmes, and engagement of cement producers in the dialogue framework established under the CRGE Facility. Dangote Cement Ethiopia, for instance, has intensified the deployment of alternative fuels and the optimisation of the cement-to-clinker ratio in response to coal supply constraints (Dangote Cement Plc, Full Year 2024 Audited Results, March 2025).
Despite these advances, significant challenges persist for the deep decarbonization of Ethiopia's cement industry. The sector continues to operate at energy intensities well above international benchmarks, exhibits a high clinker-to-cement ratio, and remains dependent on imported coal. The recent macroeconomic environment, characterised by sustained inflation, foreign exchange constraints, and a sovereign default on Eurobond obligations in 2023, further compounds the cost of mobilizing capital for low-carbon investment (World Cement, 2025). Strengthening sector-specific decarbonization planning, improving the granularity of asset-level emissions data and emission factors, expanding the use of supplementary cementitious materials and biomass co-processing, and mobilizing concessional finance for energy efficiency, alternative fuels, and emerging technologies such as carbon capture will therefore be critical to ensure that Ethiopia's cement sector growth remains compatible with the country's NDC 3.0, the CRGE 2050 net-zero vision, and the LT-LEDS pathway.

Ethiopia is a key pilot for GDIA, as it hosts one of Sub-Saharan Africa's largest cement industries, with installed capacity of approximately 20 million tonnes per annum, cement accounting for roughly half of industrial emissions, and energy intensities some 34 to 36 percent above international benchmarks, indicating substantial abatement potential. Demand is projected to grow strongly, with per capita consumption anticipated to nearly triple, driven by flagship infrastructure investments. Policy readiness is anchored in the CRGE Strategy and Facility, the LT-LEDS, and NDC 3.0, which targets a 70.3 percent emissions reduction by 2035, while UNIDO's longstanding presence and relationships with the Ministry of Industry, the CRGE Facility, and the Development Bank of Ethiopia provide the coordination capacity required for delivery. Ethiopia's CIF-IDP expression of interest scored 78 (second tier), with facility-level emissions data for the 10-plus cement plants generating roughly 60% of industrial GHG emissions flagged as the main gap, as the national MRV system is still in the design phase; UNIDO is coordinating closely with the CIF BRIDGE readiness grant alongside other cement-sector initiatives that will be active in the country at around the same time, including initiatives from UNEP/CTCN and UNDP, to close it.

A3. Barriers

The baseline confirms that while there is a strong international momentum to support industrial decarbonization, significant barriers continue to constrain the cement and concrete sector, particularly in developing countries. The following barriers illustrate the systemic challenges that must be addressed in order to accelerate the uptake of low-carbon technologies, mobilize investment, and align industrial production with global climate targets.

A3.1. Barrier 1 – Absence of coherent investment ecosystems, including integrated analytical tools, plant-level data, enabling policies, financing frameworks and investment-ready pipelines.

Despite growing global attention to industrial decarbonization, many countries lack the analytical frameworks and tools required to systematically plan sectoral transitions. Governments and industries often operate with fragmented datasets, inconsistent methodologies, and limited visibility on emissions sources, technology options, and investment requirements. Without integrated analytical tools, decision-makers struggle to identify priority decarbonization pathways, evaluate the impacts of alternative strategies, or prepare coherent investment plans aligned with climate targets.

A major challenge is the lack of standardized approaches for analysing industrial emissions and decarbonization opportunities at the sectoral and asset level. Existing analytical efforts are often developed in isolation by different institutions or initiatives, resulting in inconsistent assumptions, incompatible datasets, and limited comparability of results. This fragmentation makes it difficult for governments and investors to develop a shared understanding of the most effective decarbonization pathways for hard-to-abate sectors.

Another critical constraint relates to the lack of harmonized methodologies for carbon accounting and attribution at the product and sector level. In many developing countries, industrial emissions data are incomplete or outdated, and standardized approaches for estimating embedded emissions in industrial products remain underdeveloped. This creates uncertainty for policymakers attempting to design decarbonization strategies and for industries seeking to align their operations with emerging climate standards.

Finally, collaboration on analytical methods, data sharing, and technology assessment remains insufficient. While several international initiatives produce valuable knowledge and tools, access to these resources is uneven and often poorly coordinated across stakeholders. As a result, developing countries frequently lack the analytical capacity needed to translate global knowledge into practical planning frameworks for industrial decarbonization.

A3.2. Barrier 2 – Access to finance for industrial decarbonization is constrained by high capital costs, perceived investment risks, and a lack of demonstration projects.

While significant amounts of global capital are allocated for climate action, industrial decarbonization projects in developing countries struggle to access these funds. The main bottleneck lies not only in the high cost of finance but also in the lack of capacity to prepare robust, bankable project proposals that meet the technical, environmental, and financial requirements of international financiers. Local industries and even national development banks often lack familiarity with structuring projects to align with green finance criteria, international safeguards, or blended finance instruments.

The development of a credible project pipeline is further hampered by weak technical expertise in identifying, prioritizing, and packaging decarbonization opportunities. Many firms know that efficiency improvements, clinker substitution, or CCUS could reduce emissions, but they lack the in-house knowledge to evaluate costs and benefits, conduct feasibility studies, and prepare investment-grade proposals. This capacity gap leaves promising ideas at a conceptual stage, never advancing to the point where they can attract large-scale financing.

At the same time, the absence of large-scale demonstration projects compounds the problem. Without successful examples of bankable decarbonization projects in the cement sector, financiers perceive the sector as risky, and industries are discouraged from pursuing ambitious proposals. For instance, although pilot projects for alternative binders like Limestone Calcined Clay Cement (LC3) have been conducted, very few have been translated into full commercial ventures with structured financing plans. This creates a cycle where finance is available globally, but industries in developing countries cannot access it due to weak pipelines and lack of proof-of-concept. As a result, global finance flows for decarbonization remain concentrated in advanced economies or in sectors with more mature pipelines, leaving the cement and concrete sector in developing countries underfunded.

A3.3. Barrier 3 – Limited policy and regulatory incentives to support industrial decarbonization investments.

The transition to low-carbon industrial production depends heavily on enabling policy environments that create clear incentives for innovation and investment. In many developing countries, however, policy frameworks remain insufficiently aligned with the objectives of industrial decarbonization. Regulatory frameworks often continue to favour conventional industrial processes and products, while policies that promote low-carbon alternatives remain limited or poorly implemented. Building codes, product standards, and industrial regulations may not recognize or adequately support innovative materials or production processes, creating barriers to the adoption of low-carbon solutions.

At the same time, policy instruments designed to encourage industrial decarbonization, such as carbon pricing mechanisms, green public procurement policies, or targeted fiscal incentives, are often absent or underdeveloped. Without these enabling policies, industries have limited motivation to invest in low-carbon technologies that may involve higher upfront costs or uncertain returns. The absence of clear policy signals also creates uncertainty for investors and financial institutions. Without predictable regulatory frameworks and long-term decarbonization strategies, it becomes difficult to evaluate the viability of industrial transition investments or to mobilize private capital at scale.

A3.4. Barrier 4 – Technical capacity to redesign and implement solutions in industrial processes is limited, with insufficient knowledge and awareness of available solutions, their costs, risks, and potential benefits.

Industrial decarbonization requires more than the simple replacement of equipment, it often entails comprehensive redesign of production processes, integration of new materials, and adoption of complex digital and operational practices. Yet, in many developing countries, technical expertise to undertake such transformations remains limited. Plant operators, engineers, and managers frequently lack exposure to the latest technologies or training in how to adapt them to local industrial contexts.

Awareness of the full range of available solutions, from clinker substitution and energy efficiency measures to CCUS and alternative fuels, is uneven across the sector. Information on the relative costs, risks, and benefits of these options is not systematically collected or shared, leaving decision-makers without the data needed to make informed investments. This knowledge gap is particularly acute among small- and medium-sized producers, who often lack access to advisory services, research institutions, or industry associations that could support capacity building. Moreover, vocational training and higher education programs in many countries have yet to integrate low-carbon technologies into their curricula. This creates a skills mismatch in the labour market, where industries in transition struggle to recruit workers trained in modern, low-emission practices.

A3.5. Barrier 5 – Limited clarity on viable technology pathways for industrial decarbonization.

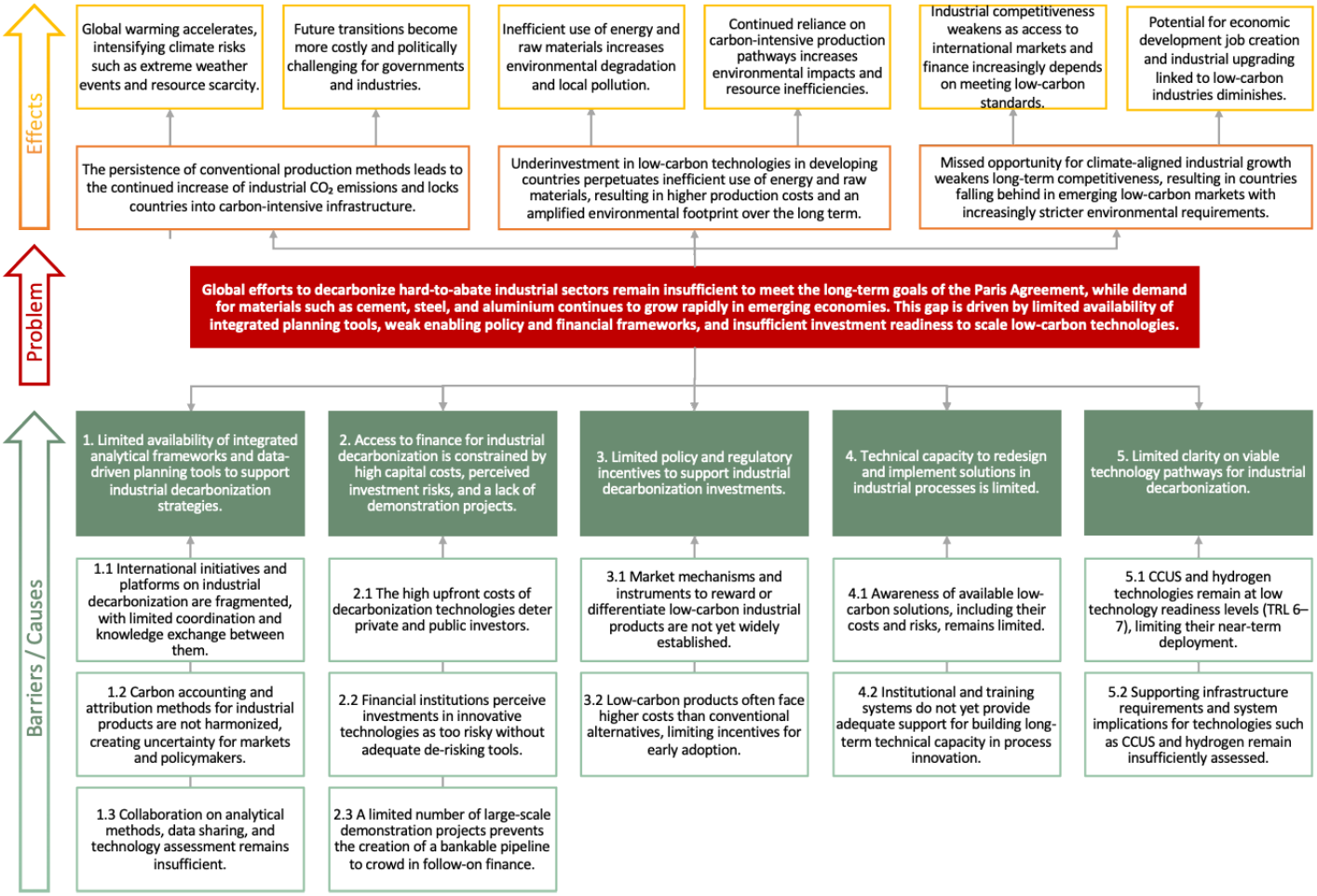
While a range of technological options exists for reducing emissions in hard-to-abate sectors, there is still considerable uncertainty regarding which combinations of technologies will be most viable across different national and industrial contexts. Governments and industries often lack clear guidance on how to prioritize among multiple decarbonization pathways. Many emerging solutions, including carbon capture, hydrogen-based processes, and advanced material substitution

technologies, remain at relatively early stages of development or demonstration. Their long-term costs, performance characteristics, and infrastructure requirements are still evolving, creating uncertainty for companies considering major investments.
Furthermore, the system-level implications of these technologies are not yet fully understood. For example, solutions such as carbon capture or hydrogen substitution require significant supporting infrastructure, including transport networks, storage systems, and reliable energy supply. In many developing economies, the planning requirements and institutional coordination needed to enable such infrastructure to remain insufficiently assessed. Without clearer analysis of technology pathways and their associated system implications, industries may delay investment decisions or continue relying on conventional production processes. This uncertainty contributes to the persistence of carbon-intensive industrial pathways and slows the transition toward low-emission production systems.

A4. Problem tree

Countries often lack the integrated analytical tools, institutional frameworks, and enabling conditions required to plan and implement the decarbonization of hard-to-abate industries such as cement, steel, and aluminium in line with the goals of the Paris Agreement. Despite growing global momentum for industrial decarbonization, many developing and emerging economies face persistent challenges related to limited availability of data-driven planning tools, insufficient policy and regulatory incentives, constrained access to finance, limited technical capacity, and uncertainty around viable technology pathways. As a result, industrial emissions continue to rise, particularly in emerging economies where increasing demand for materials risks locking in carbon-intensive infrastructure for decades.
The barriers and root causes that prevent the effective planning, investment, and scale-up of low-carbon industrial technologies in developing countries are deeply interconnected and mutually reinforcing. Limitations in analytical frameworks and planning tools hinder the identification of viable decarbonization pathways; weak policy and regulatory environments reduce incentives for investment; financial constraints limit the deployment of innovative technologies; and gaps in technical capacity and technology assessment slow the adoption of emerging solutions. Addressing these challenges in isolation would limit the effectiveness and sustainability of decarbonization efforts. These interdependencies, which operate across global, national, and industry levels, are illustrated in the Problem Tree below.

Figure 3: Problem tree



A5. Project objective

The GDIA main objective is to materialize its vision, of a 'world where every hard-to-abate industrial sector operates on a data-driven, country-owned decarbonization pathway aligned with global climate goals, investable at scale, and independently tracked at asset, sector and country level" by performing its strategic mission of "accelerating the decarbonization of hard-to-abate industries in emerging and developing economies by using data and grounded methodologies to identify the highest-impact, most cost-efficient interventions across technology, policy, and finance, and packaging them into detailed decarbonization investment plans and pipelines.

The Accelerator is committed to enable systemic transformation of hard-to-abate industries by transforming decarbonization projects into investment opportunities via the strengthening of the analytical, technology, policy, and coherent financial foundations required to plan and mobilize investments for industrial decarbonization in emerging and developing economies. It will act as a catalytic global platform that provides the methodologies and tools for emerging market countries to develop detailed sectoral decarbonization investment plans and the coherent investment ecosystem to enable its materialization. The project will produce harmonized methodologies for technology assessment, supporting policy, enabling financial architecture and impact estimation and monitoring, as well as asset-level data modelling and monitoring tools, so countries can bridge international climate commitments with national priorities of industrial growth. The Accelerator under GEF-8 will initially prioritize the cement sector, given its high readiness and dominant share of emissions, while

developing analytical frameworks and tools that, as defined in Section A, are built sector-agnostic across cement, iron and steel, and aluminum. Cement offers a strategic entry point: it accounts for around 7% of global CO_2 emissions, faces surging demand in developing economies, and shares many decarbonization levers and enabling conditions with the other two sectors.

Participating countries will participate in the design and validation of integrated analytical methodologies, a plant-level-data based modelling and monitoring platform, and capacity-building activities designed to support country ownership and evidence-based planning for industrial decarbonization. The Accelerator will mobilize coalitions of ministries, industry associations, financial institutions, and research organizations to co-develop decarbonization pathways, enabling policy frameworks, and financial architecture that can mobilize investments in low-carbon technologies. Through pilot-country involvement in enhancing the methodologies, the programme will ensure the methodologies and tool reflect needs and expectations of various countries in developing sectoral decarbonization investment plans and strengthening national readiness for industrial transition. Knowledge and lessons generated will be treated as a global public good, available to all countries beyond those directly participating. UNIDO, leveraging its pre-existent in-country presence and leadership in industrial decarbonization, will ensure strong coordination, technical oversight, policy coherence, and the integration of just transition principles, as well as gender and youth. By linking global initiatives such as IDDI, the Breakthrough Agenda, and NZP-ID with country-level inputs, the Accelerator will help create enduring conditions for climate-aligned industrialization.

The project might face challenges in ensuring its resilience to future drivers. These include:

- Rising material demand in emerging economies, which may accelerate industrial growth and increase pressure to expand production capacity in conventional, high-emission ways;
- Evolving international standards and regulations, which could shift requirements for carbon accounting, trade, and procurement, creating both opportunities and compliance challenges for partner countries;
- Technological uncertainty, as key solutions such as carbon capture, utilization and storage (CCUS), electrification, and hydrogen-based processes remain at different stages of maturity and enabling infrastructure may evolve more slowly than expected.

On the first driver, the Accelerator will work with governments and industry to support data-driven planning and integrated decarbonization investment strategies that enable industrial growth while reducing emissions intensity, thereby mitigating the risk of carbon lock-in. Regarding the second driver, the programme will build resilience by fostering harmonized analytical methodologies and monitoring frameworks that help countries adapt to increasingly stringent international requirements. On the third driver, it is recognized that technological uncertainty may persist; the Accelerator will mitigate this by supporting diversified technology pathways and embedding technology and impact assessment within its analytical frameworks, to be applicable to each country's specific context. While some broader economic or geopolitical shocks may go beyond the project's direct influence, the design incorporates safeguards, adaptive learning mechanisms, and knowledge-sharing platforms that will help countries sustain progress despite such uncertainties (see risk section).

B. 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 guidance document. (Approximately 3-5 pages) see guidance here

B1. Overview

The GDIA is designed to address a critical gap in industrial decarbonization: while ambition, international initiatives, and emerging technologies are increasing, many developing and emerging economies still lack the analytical tools, supporting policy frameworks, enabling financial architecture, institutional capacity, and enabling conditions for investment-ready plans needed to translate climate commitments into actionable industrial transition pathways. The programme responds to this gap by combining global methodological development with country-level application and ownership, focusing initially on the cement sector as a strategic entry point for broader transformation in hard-to-abate industries.

The project is structured around three complementary components:

- Component 1 develops the global methodological backbone of the Accelerator, including a plant-level-data modelling tool and standardized methodologies for technology pathways, supporting policy, financial architecture, impact estimation and monitoring, and frameworks for implementation planning in the four pilot countries. It also enhances the methodologies with data from pilot countries, and with feedback and inputs from Component 2 activities.
- Component 2 engages stakeholders and validates these methodologies in four pilot countries through national design clinics, validation workshops, and capacity-building activities, ensuring they are adapted to national contexts and aligned with national priorities.
- Component 3 establishes the Monitoring, Evaluation and Learning (MEL) system to support accountability, adaptive management, and continuous improvement.

Together, these components are intended to generate catalytic rather than direct technology impacts. By reducing knowledge fragmentation, improving policy coherence, and strengthening financial readiness, the project will enable countries to move from fragmented planning and limited investment pipelines toward coordinated decarbonization strategies that result in investment opportunities throughout the sector value chain. In doing so, the Accelerator is expected to generate significant GEBs, strengthen national competitiveness in emerging low-carbon markets, and lay the foundation for scaling the approach across additional countries and sectors in future phases.

B2. Theory of Change

The GDIA is designed to catalyse a systemic transformation by addressing the fundamental readiness gap that prevents capital from flowing into industrial decarbonization investments. The Theory of Change (ToC) recognizes that industrial decarbonization is constrained by several interconnected barriers, including limited availability of integrated analytical and planning tools, restricted access to finance and investment-ready project pipelines, weak enabling policy and regulatory frameworks, limited technical and institutional capacity, and uncertainty regarding viable technology pathways for industrial decarbonization. By addressing these barriers through globally consistent methodologies, country-level analytical applications, stakeholder validation, and continuous learning, the programme enables governments, industry, and financial institutions to identify and prioritize the highest-impact decarbonization opportunities and translate them into coherent sectoral strategies and future investment pipelines.

Component 1 addresses knowledge, analytical, policy, and financing barriers by establishing the global methodological backbone of the Accelerator. It develops standardized methodologies, modelling tools, implementation guidance, and global coordination mechanisms and enhances these methodologies with data

from four pilot countries while producing plant-level databases, sectoral decarbonization scenarios, technology pathways assessments, supporting policy frameworks, enabling financial architecture, impact estimation and monitoring assessments, and knowledge products. Together, these outputs provide the analytical evidence required for sector-wide industrial decarbonization planning.

Component 2 strengthens national ownership and institutional capacity by convening design clinics, validation workshops, and capacity-building activities around the analytical outputs developed under Component 1. Through structured engagement with governments, industry, financial institutions, technology providers, academia, and other stakeholders, the programme validates analytical findings, incorporates country-specific knowledge, strengthens stakeholder consensus, and builds the capacity required to apply the GDIA methodologies and implementation framework.

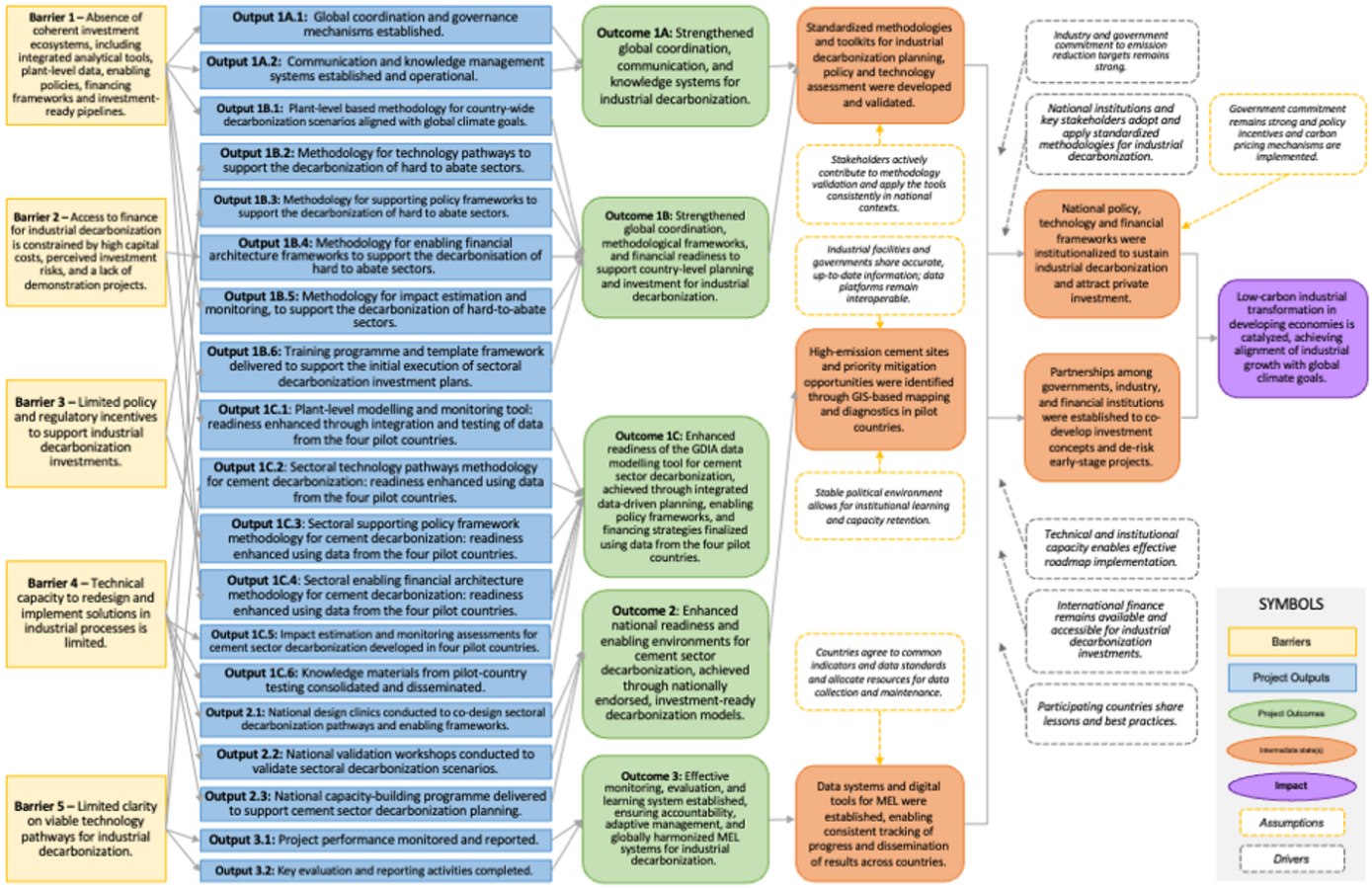
Component 3 addresses barriers related to fragmented monitoring and organizational learning by establishing a robust Monitoring, Evaluation and Learning (MEL) system. Through harmonized reporting, independent evaluations, and systematic capture of lessons learned, the programme supports adaptive management and continuously improves the methodologies, modelling tools, and implementation guidance developed under the Accelerator.

The causal pathway is reinforced by several enabling drivers, including continued international financing for industrial decarbonization, growing global demand for low-carbon materials, increasing policy ambition to reduce industrial emissions, and the gradual maturation of low-carbon technologies. The ToC also relies on key assumptions, including political and institutional stability in participating countries, sustained collaboration from industry stakeholders and data providers, coordination across relevant ministries, and continued support from international initiatives such as the IDDI, the NZP-ID, and the Breakthrough Agenda.

Through this integrated approach, the programme links improved analytical capacity, coordinated policy frameworks, and strengthened financial readiness to enable developing countries to move from fragmented planning and limited investment pipelines toward coordinated decarbonization strategies and investment-ready plans. Ultimately, the Accelerator aims to catalyse low-carbon industrial transformation in developing economies, contributing directly to global climate mitigation and the achievement of GEBs.

This integrated approach is illustrated in Figure 2, which presents the project's ToC and the relationships among barriers, outputs, outcomes, intermediate results, and impact.

Figure 4: Theory of Change graphic



B3. Project Elements

The programme will provide comprehensive technical assistance to accelerate industrial decarbonization in developing and emerging economies, focusing initially on the cement sector. It will strengthen the link between global knowledge and country implementation by developing harmonized methodologies, analytical tools, and enabling financial readiness for bankable and investment-ready decarbonization plans.

Component 1. Define the Technology, Policy, Financial Architecture and Investment Assessment Methodologies to Form the Methodological Backbone of the Global Investment Accelerator

Barrier addressed: Barrier 1 – Limited availability of integrated analytical frameworks and data-driven planning tools; Barrier 2 – Constrained access to finance; Barrier 3 – Limited policy and regulatory incentives; Barrier 4 – Limited technical and institutional capacity; Barrier 5 – Limited clarity on viable technology pathways.

Component 1 seeks to establish the global analytical, methodological, and institutional foundations of the GDIA, which are then enhanced with data from the four-pilot countries, and further contextualised via design clinics and validation workshops at the country level under Component 2. It addresses key barriers to industrial decarbonization by developing harmonized methodologies for plant-level-data modelling of decarbonization scenarios, technology pathways, supporting policy frameworks, financial architecture, and impact estimation and monitoring, integrated within a unified modelling platform to support evidence-based sectoral decarbonization investment planning. In parallel, the component establishes governance, communication, and knowledge management mechanisms, together with implementation guidance and training, to strengthen global coordination, build national capacity, and facilitate the preparation of bankable and investment-ready decarbonization plans.

Outcome 1A – Strengthened global coordination, communication, and knowledge systems for industrial decarbonization.

This outcome strengthens global coordination, communication, and knowledge exchange among governments, industry stakeholders, development finance institutions, international organizations, academia, and other partners involved in industrial decarbonization. Although numerous initiatives currently support different aspects of industrial transition, collaboration remains fragmented and lessons learned are often not systematically shared across institutions or countries. The outcome addresses these challenges by establishing formal governance mechanisms, structured communication processes, and a centralized knowledge management system that supports continuous collaboration throughout project implementation. Together, these mechanisms will improve coordination across partners, facilitate dissemination of methodologies and lessons learned, strengthen stakeholder engagement, and promote consistent application of the Accelerator's analytical frameworks. Outputs 1A.1 and 1A.2 are sector-agnostic, e.g. covering global coordination and knowledge dissemination across GDIA's three-sector subset as defined under Section 1A.

Output 1A.1 – Global coordination and governance mechanisms established.

This output establishes the institutional arrangements required for the effective implementation and strategic oversight of the GDIA. Together with the knowledge platform established under Output 1A.2, these arrangements constitute the GDIA Global Coordination Platform, the central structure through which global partners align methodologies, share evidence, and steer the Accelerator. Strong governance and coordination are essential to ensure that methodological development, pilot-country implementation, and knowledge generation remain aligned across implementing partners and contribute to a coherent global approach to industrial decarbonization.

A Global Coordination Mechanism will be established and maintained throughout project implementation. During the inception phase, the project will prepare the governance arrangements required to operationalize the mechanism, including terms of reference, rules of procedure, coordination protocols, and a rolling workplan covering the initial implementation period. These arrangements will define institutional responsibilities, reporting procedures, coordination processes, and decision-making mechanisms to support effective implementation across all components. The coordination mechanism will facilitate regular interaction among UNIDO, technical partners, participating countries, multilateral development banks, the Climate Investment Funds (CIF), and other strategic stakeholders. A minimum of six coordination meetings will be convened throughout project implementation, including at least two meetings annually (one in-person and one virtual), to review implementation progress, monitor coordination across components, identify implementation challenges, and agree on strategic priorities.

Complementing the Global Coordination Mechanism, an Advisory Board will be established comprising representatives from UNIDO, CIF, participating MDBs, and other relevant technical institutions. Terms of reference, governance arrangements, and a dedicated workplan will define its mandate, coordination procedures, and decision-making processes. The Advisory Board will meet regularly throughout implementation, with a minimum of six meetings organised during the project, including one in-person and one virtual meeting each year. Efforts will be made to promote gender-balanced representation and inclusive participation across all governance bodies.

Output 1A.2 – Communication and knowledge management systems established and operational.

This output establishes the communication, stakeholder engagement, and knowledge management systems required to ensure that the methodologies, analytical tools, and lessons generated through the Accelerator are effectively disseminated and continuously improved throughout project implementation.

A comprehensive Communication and Knowledge Sharing Strategy will be developed during project inception to guide engagement with governments, industry associations, financial institutions, civil society organizations, academia, development partners, and other stakeholders. The strategy will define communication objectives, stakeholder engagement approaches, outreach activities, communication channels, and mechanisms to support

inclusive participation throughout project implementation. It will also establish harmonized communication approaches for pilot-country activities while integrating Gender Equality and Social Inclusion (GESI) and Just Transition principles across all communication and engagement efforts.
Implementation of the strategy will include annual thematic communication campaigns highlighting the benefits of industrial decarbonization and promoting alignment with national industrial strategies and NDCs. Communication activities will also support the dissemination of technical knowledge products, methodological guidance documents, country case studies, lessons learned, and annual communication reports. To support long-term knowledge management, a dedicated global knowledge platform will be established and hosted within the UNIDO domain, forming the digital backbone of the GDIA Global Coordination Platform. The platform will serve as the central global repository for all methodologies, analytical tools, guidance documents, communication materials, technical reports, country case studies, and other knowledge products generated throughout the programme.
The programme will further strengthen global visibility and collaboration by participating in one to two major international events each year, including events such as the Conference of the Parties (COP), the Clean Energy Ministerial, G20 meetings, and international industrial decarbonization conferences. These events will provide opportunities to disseminate project results, strengthen partnerships, promote the Accelerator's methodologies, and facilitate dialogue on emerging approaches to industrial decarbonization.

Outcome 1B – Strengthened global coordination, methodological frameworks, and financial readiness to support country-level planning and investment for industrial decarbonization.

This outcome establishes a coherent suite of analytical methodologies and tools to support countries in planning industrial decarbonization using standardized, evidence-based approaches. By developing harmonized methodologies covering plant-level modelling, technology pathways, supporting policy frameworks, enabling financial architecture, and impact estimation, the outcome addresses critical gaps in analytical capacity, policy design, investment planning, and technical knowledge. These methodologies will be integrated within a unified modelling platform to enable governments and stakeholders to assess emissions, identify priority decarbonization pathways, estimate investment needs, evaluate enabling conditions, and prepare credible, investment-ready sectoral decarbonization plans. The anticipated scope behind the development of methodologies of outputs 1B.1 to 1B.6 will be sector-agnostic. Hence, in future phases following the GEF-8 GDIA, these methodologies can be applied to adjacent sectors including iron and steel, and aluminum.

Gender responsiveness is a methodological requirement here. The people-counting variables are sex-disaggregated by design, so disaggregation cannot be omitted in a country application. Each methodology also carries a gender-responsive element suited to its subject (an occupational and skills profile for technology, a gender-differentiated effects screen for policy, as applicable, or sex-disaggregated impact variables and estimation) and produces actionable, institution-specific recommendations that convert the analysis into implementable measures.

Output 1B.1 - Plant-level-data based methodology for country-wide decarbonization scenarios aligned with global climate goals.

This output establishes the core analytical framework and digital modelling platform underpinning the GDIA. A plant-level based methodological framework and modelling tool will be developed to support country-wide planning for industrial decarbonization, enabling governments and stakeholders to analyse emissions patterns, identify technological opportunities, and develop decarbonization scenarios consistent with global climate goals.

Two of these impact-related metrics are mandatory gender-responsive variables in the tool's data dictionary, each applied at the value-chain level where it is measurable: employment, captured sex-disaggregated by occupational band and senior management, since the documented barrier is occupational segregation rather than

absence from the workforce; and access to finance, assessed by enterprise ownership for the supply-chain segment, where enterprises are typically small and medium-sized.

The modelling framework will build on granular asset-level datasets compiled from public sources and sectoral databases. It will cover Scope 1 and Scope 2 emissions and incorporate enabling environment indicators to assess ownership structures and conglomerate linkages. In addition, the platform will integrate impact-related metrics, including employment, environmental footprint, social co-benefits, and industrial waste management, while ensuring compatibility with the impact estimation and monitoring methodology developed under the project. The modelling tool will combine the methodologies developed under GDIA into a unified digital platform, integrating technology pathways, supporting policy frameworks, enabling financial architecture, and impact estimation and monitoring. At the country level, the modelling process will generate sector-wide decarbonization scenarios and support the preparation of sectoral decarbonization investment plans outlining priority investments, enabling policies, financing strategies, and expected impacts. The methodology and modelling tool will be finalized through structured pilot-country testing and refinement under Outcome 1C, and a methodological framework document, including user guidance and case examples, will be prepared to support consistent future implementation across countries.

Output 1B.2 – Methodology for technology pathways to support the decarbonization of hard-to-abate sectors.

This output develops a technology methodological framework to identify and assess decarbonization technology pathways for hard-to-abate sectors, beginning with cement. The output will be led by Imperial College London – Centre for Climate Finance & Investment (CCFI), and the methodology will provide a structured approach for assessing technology readiness, deployment pathways, mitigation potential, costs, infrastructure requirements, and implementation barriers to inform national decarbonization scenarios and investment planning.

The framework will build on a review of global best practices in industrial decarbonization technologies, including considerations relevant for emerging markets and developing economies (EMDEs). It will define the criteria, indicators, and analytical approaches required to assess technology options and specify how technology-related inputs should be incorporated into the plant-level modelling tool.

The assessment criteria include an occupational and skills profile for each prioritized technology pathway: job families created, displaced or changed; qualification and certification requirements; and the current sex composition of those occupations. Where women are absent or marginally represented, the methodology records the operative barrier (access to technical and vocational education and training, shift and mobility constraints, plant-level safety and sanitary infrastructure, or recruitment practice) and states whether it can be addressed within the investment or requires an accompanying measure. This gives the technology assessment evidentiary weight for the workforce and skills measures a decarbonization investment plan must carry.

The methodology will define a structured approach for undertaking baseline assessments, technology gap analyses, and prioritization of decarbonization pathways, to be applied and tested in pilot countries under Output 1C.2. Country-level testing and stakeholder validation, conducted under Component 2, will ensure that the framework reflects national priorities while remaining technically robust and consistent across countries. The finalized technology methodology will be integrated into the modelling tool developed under Output 1B.1, enabling consistent assessment of technology pathways within national decarbonization scenarios and sectoral investment plans.

Output 1B.3 – Methodology for supporting policy frameworks to support the decarbonization of hard-to-abate sectors.

This output develops a methodological framework for analysing and designing the supporting policy environments required to enable industrial decarbonization. The output will be led by Imperial College London – CCFI, and the framework will provide guidance for assessing policy gaps, institutional constraints, and

enabling regulatory conditions, while supporting the design of policy instruments that facilitate the deployment of decarbonization technologies and associated investments.
The methodology will be informed by a review of international policy practices and regulatory approaches relevant to industrial decarbonization, including experiences from both advanced economies and EMDEs. It will also define the criteria, indicators, and analytical approaches for assessing policy readiness and designing enabling policy packages, including carbon pricing, public procurement, industrial standards, permitting processes, fiscal incentives, and measures supporting inclusive industrial transitions. The criteria include a gender-differentiated effects screen applied to every candidate policy instrument, establishing who bears the cost and who benefits; whether eligibility conditions (collateral, formal registration, minimum contract size, certification, tax status) can be met on equal terms by women-led and men-led enterprises; and whether an accompanying measure is needed to avoid exclusion. Green public procurement rules, industrial standards, permitting procedures and fiscal incentives are all screened on this basis, since eligibility thresholds are typically where small and women-led suppliers are excluded from an otherwise well-designed policy. The result feeds into the policy gap analysis and the instrument design recommendation.

The methodology will provide guidance for undertaking policy baseline assessments, policy gap analyses, and institutional assessments, to be applied and validated in pilot countries under Output 1C.3. The resulting policy framework methodology will be embedded within the modelling platform (Output 1B.1) to ensure that decarbonization scenarios and sectoral investment plans reflect realistic enabling policy conditions.

Output 1B.4 – Methodology for the financial architecture to support the decarbonization of hard-to-abate sectors.

This output develops a methodological framework to analyse and design enabling financial architecture for the financing of industrial decarbonization projects. The output will be led by Columbia University's Center on Sustainable Investment (CCSI), and the framework will support the identification of financing structures, risk-sharing mechanisms, and investment strategies required to mobilize public and private capital for decarbonization investments in hard-to-abate sectors.
The methodology will draw on global experience with climate finance mechanisms and industrial transition financing, including blended finance approaches, concessional instruments, and innovative financing models relevant to EMDE contexts. It will define the criteria, indicators, and analytical approaches required to assess financial ecosystems, identify financing barriers and opportunities, design enabling financial architecture frameworks, and specify how financing variables should be incorporated into the modelling tool to support the preparation of realistic sectoral decarbonization investment plans. The financial architecture framework will highlight at least one inclusive design feature responding to the binding constraint identified in each country, developed in consultation with the national banking industry associations named in the Stakeholder Engagement Plan, which can carry such features into member banks' lending practice.
The methodology will provide guidance for assessing financial ecosystems, identifying financing barriers and opportunities, and designing enabling financial architecture frameworks that can subsequently be applied in pilot countries. The financial architecture methodology will be integrated into the modelling platform, allowing the analysis of investment needs and financing structures associated with alternative decarbonization scenarios.

Output 1B.5 – Methodology for impact estimation and monitoring, to support the decarbonization of hard-to-abate sectors.

This output develops a methodological framework for impact estimation and monitoring, enabling the consistent assessment of the environmental, social, and economic impacts of industrial decarbonization pathways. The methodology will support the quantification and monitoring of key outcomes associated with decarbonization scenarios, including GHG emission reductions, health benefits, job creation, gender-related outcomes where relevant, biodiversity impacts, and other positive externalities.
The framework will be designed to ensure interoperability with the reporting and monitoring requirements of development finance institutions (DFIs), the CIF, and private investors, including alignment with ESG reporting standards and KPI targets. It will include indicators, calculation approaches, reporting templates, and guidance

for integrating impact-related data into the modelling tool to estimate the benefits of alternative decarbonization scenarios. In addition, the output will develop a harmonised Environmental and Social Safeguards (ESS) impact assessment framework, incorporating GESI considerations. This framework will include standardized screening criteria, safeguards requirements, risk assessment procedures, and guidance for integrating environmental, social, gender equality, social inclusion, and Just Transition considerations into industrial decarbonization planning and investment processes. All people-counting impact variables in the framework (jobs created, displaced or changed; training and certification completed; enterprises engaged in the supply chain; occupational health and safety exposure), where applicable and viable, will be sex-disaggregated by default in the indicator definitions and reporting templates, not left to the country application. The safeguards screening criteria will include gender-specific provisions addressing risks to women workers.

The methodology will be finalized through baseline assessments and structured testing under Outcome 1C, with stakeholder validation conducted under Component 2. Once finalized, the impact estimation and monitoring framework will be embedded in the modelling tool to support scenario analysis, reporting, and monitoring of sectoral decarbonization investment plans.

Output 1B.6 – Training curriculum and template framework developed to support execution of sectoral decarbonization investment plans.

This output develops a structured training curriculum and practical implementation framework to support countries in applying the methodologies and modelling tools developed under the Accelerator and initiating the execution of sectoral decarbonization investment plans. The objective is to ensure that national stakeholders have the technical understanding and practical guidance required to translate modelling outputs and analytical results into coherent planning and implementation processes.

A comprehensive training programme will be developed, including a curriculum, handbook, training materials, case studies, and facilitation resources covering the GDIA methodologies, modelling tool, and the implementation of sectoral decarbonization investment plans. These materials will be made available in English and structured to support both training delivery and independent use by stakeholders. The training programme will be delivered under Component 2 (Output 2.3) during the pilot-country phase and will involve key actors relevant to the decarbonization of the target sector in each national context. The curriculum will include a dedicated module on gender-responsive industrial decarbonization planning, covering the workforce and supply-chain.

In parallel, the project will develop a template framework to support the initial execution of sectoral decarbonization investment plans. This framework will provide practical guidance for translating modelling outputs into implementation-ready investment plans, covering technology priorities, enabling policy measures, financing mechanisms, monitoring systems, stakeholder engagement, and implementation sequencing. In addition, an integrated methodological guidance document will be prepared to ensure coherence, consistency, and interoperability across all GDIA methodologies, modelling modules, indicators, assumptions, and implementation frameworks prior to pilot-country application. The template requires a section on workforce transition and inclusive supply-chain participation, so an investment plan is incomplete without addressing the occupational, skills and supplier-access findings the methodologies generate.

Outcome 1C – Enhanced readiness of the global GDIA data modelling tool and methodologies for cement sector decarbonization, achieved through integrated data-driven planning, enabling policy frameworks, and financing strategies finalized using data from the four pilot countries.

This outcome supports the final operationalization and refinement of the GDIA analytical tools and methodologies. By combining plant-level-data modelling of decarbonization scenarios, technology pathways, supporting policy, financial architecture, and impact estimation and monitoring, informed by stakeholder feedback and data gathered through Component 2's national engagement, the project will support countries in preparing evidence-based sectoral decarbonization investment plans tailored to their national contexts. The

outcome will also generate practical experience and lessons learned to refine the methodologies developed under the Accelerator and facilitate their future replication in additional countries and industrial sectors. The scope of outputs 1C.1 to 1C.6 under GEF-8 will be limited to the cement sector only.

The ownership of Outcome 1C outputs by the national governments is secured through a defined validation, input-provision and transmittal sequence, alongside ongoing consultations. To ensure political ownership and commitment, the pilot countries have identified these priorities within their Nationally Determined Contributions (NDCs), reflecting an existing government commitment to advancing cement decarbonization. Each pilot country establishes a National Steering Committee chaired at ministerial level in the counterpart ministry. Through this mechanism, all country-specific outputs under Outcome 1C are closely reviewed and discussed by relevant stakeholders and government representatives. Outputs are formally validated by the NSC before being considered finalized and reported as delivered. The validation process ensures that all recommendations are fully aligned with national development, industrial, and climate priorities. Where necessary, recommendations are refined through consultations with the NSC and relevant stakeholders to maximize their relevance, feasibility, and impact within the national context. In addition, signed NSC-minutes will guarantee traceability and acknowledgement of this process. The validation and endorsement status of every country output is reported in each Project Implementation Report, at mid-term review and at terminal evaluation.

Output 1C.1 – Plant-level-data modelling and monitoring tool: readiness enhanced through integration and testing of data from the four pilot countries.

This output finalizes the global Plant-level-data modelling and monitoring tool developed under Output 1B.1, using evidence from the four pilot countries to test its functionality, integrate representative datasets, and refine its analytical framework prior to wider deployment. Beyond generating outputs, this process serves as the final stage in the development and operationalization of the modelling tool, enabling its refinement and validation through real-world datasets, stakeholder feedback, and practical experience before broader replication.

Testing with pilot-country data covers the two gender-responsive variables specified under Output 1B.1: plant workforce composition by occupational band, from company or national labour statistics, and supply-chain credit access by enterprise ownership, from banking association, central bank or financial-inclusion data. Where a pilot country cannot supply either, the gap and the proxy applied are recorded, and closing it becomes a data-readiness recommendation in that country's report. Establishing the actual cost and source of these data across the four national systems is itself part of what makes the tool ready for wider deployment.

The modelling tool will generate decarbonization scenarios aligned with national climate objectives and carbon budgets. These scenarios will identify priority technology options, investment needs, enabling conditions, implementation milestones, and expected environmental and socio-economic impacts. The various databases, scenarios, and their validation will be prepared under Component 2 through stakeholder consultations and country workshops. The country-specific parameters and datasets integrated into the modelling tool are not considered final until the National Steering Committee has formally validated them and the counterpart ministry has acknowledged ist final scope and status.

The experience gained through finalizing the tool using diverse national datasets and contexts will be systematically captured to strengthen its analytical robustness, usability, interoperability with the complementary methodologies developed under Outputs 1B.2–1B.6, and overall operational readiness. Lessons learned from this refinement process will be used to further improve the modelling methodology and analytical framework prior to its wider dissemination and deployment in additional countries and sectors.

Output 1C.2 – Technology pathways for cement decarbonization: readiness enhanced using data from the four pilot countries.

This output finalizes the global technology pathways methodology developed under Output 1B.2, using evidence from the four pilot countries to test and validate it. The work will be supported by the Global Cement

and Concrete Association (GCCA) and the Foreign Environmental Cooperation Center (FECO), drawing on their technical expertise in cement-sector decarbonization, technology roadmaps, and industrial transition planning. The assessments will analyse existing production technologies, emissions profiles, infrastructure requirements, technology gaps, and opportunities for deploying low-carbon cement technologies, while considering global technology developments and their interlinkages with national energy systems.

Building on these baseline assessments, Technology Pathways Reports will identify prioritized Best Available Technologies (BAT) options, implementation barriers and enablers, expected emission reduction potential, and recommendations for integration into national sectoral decarbonization investment plans. The reports will then be presented, validated, and refined through stakeholder consultations and country workshops organized under Component 2 to ensure that the proposed technology pathways reflect local priorities and implementation conditions. These Technology Pathway Reports are not considered final until the National Steering Committee has formally validated it and the counterpart ministry has acknowledged its final scope and status.
Each Technology Pathways Report applies the occupational and skills profile under Output 1B.2 to the country's prioritized pathways, with at least two actionable gender-responsive recommendations addressed to named institutions. Draft findings are consulted with the women-led professional or enterprise association named for that country in the Stakeholder Engagement Plan.

Recommendations and briefing packages will be prepared and disseminated under Component 2 to support decision-making by governments, industry stakeholders, financial institutions, and development partners. Evidence and stakeholder feedback generated during the process will be used to refine the technology pathways methodology developed under Output 1B.2, ensuring that it reflects practical needs and diverse country contexts.

Output 1C.3 – Supporting policy framework for cement decarbonization: readiness enhanced using data from the four pilot countries.

This output finalizes the global supporting policy methodology developed under Output 1B.3, using evidence from the four pilot countries. Policy baseline assessments will review existing regulations, standards, fiscal instruments, procurement frameworks, institutional arrangements, and other enabling measures relevant to industrial decarbonization, while considering international experience and interactions with national energy systems.

The assessments will incorporate feedback from Component 2 activities. Based on these assessments, Supporting Policy Framework Reports will be prepared, identifying priority policy instruments, institutional arrangements, implementation responsibilities, and regulatory reforms required to accelerate sectoral decarbonization.
Each Supporting Policy Framework Report applies the gender-differentiated effects screen under Output 1B.3 instrument by instrument, closing with at least two actionable gender-responsive recommendations. The proposed policy frameworks will then be presented, validated, and refined through stakeholder consultations and country workshops organized under Component 2 to ensure that the proposed policy frameworks reflect local priorities and implementation conditions.

The Supporting Policy Framework Reports are not considered final until the National Steering Committee has formally validated it and the counterpart ministry has acknowledged its final scope and status. They will capture stakeholder feedback and final recommendations for incorporation into national decarbonization plans and investment activities. Final Recommendations Reports and Briefing Packages will subsequently be prepared and disseminated to support implementation by governments, development partners, and industry stakeholders. Lessons emerging from the development process will be systematically incorporated into the supporting policy methodology developed under Output 1B.3, strengthening its applicability, practicality, and relevance for future use in additional countries.

Output 1C.4 – Financial architecture for cement decarbonization: readiness enhanced using data from the four pilot countries.

This output finalizes the global financial architecture methodology developed under Output 1B.4, using evidence from the four pilot countries. Financial baseline assessments will analyse financing ecosystems, regulatory frameworks, investment barriers, financing gaps, and opportunities for mobilizing public and private capital for low-carbon cement investments, while considering international financing mechanisms, factors outside a country's control that affect access to finance, and interlinkages with energy systems and other sectors. The assessments will be complemented by consultations with financial institutions, government agencies, financial regulatory bodies, fiscal authorities, industry representatives, development partners, and other relevant stakeholders to validate financing barriers and identify opportunities for strengthening investment conditions. Based on these assessments, Enabling Financial Architecture Reports will be prepared, identifying financing needs, capital mobilization mechanisms, incentives, coherent financial and fiscal regulation, de-risking instruments, and investment strategies, including gender-responsive financing considerations where relevant.

In order to discuss and define at least two actionable gender-responsive recommendations and at least one inclusive design feature, the consultations related to the financial architecture will include the national banking industry association named for that country in the Stakeholder Engagement Plan (Asobancaria in Colombia, the Kenya Bankers Association in Kenya, the Uganda Bankers' Association in Uganda, and the named banks in Ethiopia) alongside the development and commercial banks already identified, since these associations set the sustainable-finance and environmental, social and governance frameworks their members apply.

The proposed financial architecture will then be presented, validated, and refined through stakeholder consultations and country workshops organized under Component 2 to ensure that the proposed financial architecture reflects local priorities and implementation conditions. The Enabling Financial Architecture Report is not considered final until the National Steering Committee has formally validated it and the counterpart ministry has acknowledged its final scope and status. The resulting validation documents will capture stakeholder feedback and final recommendations for incorporation into national decarbonization plans and investment activities. Final Recommendations Reports and Briefing Packages will subsequently be prepared and disseminated to support governments, development partners, financial institutions, and industry stakeholders in mobilizing investment for cement sector decarbonization. This process will also provide practical evidence to refine the enabling financial architecture methodology developed under Output 1B.4, ensuring that it reflects the realities of financing ecosystems, investment barriers, and stakeholder needs across different national contexts.

Output 1C.5 – Impact estimation and monitoring for cement sector decarbonization: readiness enhanced using data from the four pilot countries.

This output finalizes the global impact estimation and monitoring methodology developed under Output 1B.5, using evidence from the four pilot countries. Impact estimation and monitoring assessments will estimate the expected mitigation, environmental, social, economic, and development impacts associated with proposed cement decarbonization pathways, while refining indicators, baselines, assumptions, data sources, reporting templates, and monitoring arrangements required for the Global GDIA analytical framework.
Impact Estimation and Monitoring Reports will be prepared, validated, and disseminated to each pilot country. These reports are not considered final until the National Steering Committee has formally validated it and the counterpart ministry has acknowledged its final scope and status. The evidence and lessons generated will be systematically incorporated into the final refinement of the impact estimation and monitoring methodology developed under 1B.5 and into its integration within the GDIA modelling tool, strengthening its readiness for broader deployment in additional countries and sectors.

Output 1C.6 – Knowledge materials consolidated and disseminated.

This output consolidates and disseminates, as a global knowledge output, the evidence generated by the methodologies and their enhancement with data from the four pilot countries in order to strengthen learning, facilitate replication, and support the continuous improvement of the GDIA methodologies. It also consolidates the evidence generated through the pilot-country Component 2 activities, such as the refinement process to support the finalization of the integrated GDIA analytical framework and modelling tool before wider deployment. The GDIA Global coordination will prepare knowledge products highlighting practical applications, bundle country experiences, lessons learned, technical guidance, and recommendations for industrial decarbonization planning.
Knowledge products will include country case studies, technical briefs, lessons learned, and practical guidance materials, and will be disseminated through the GDIA global communication and knowledge-sharing platform established under Output 1A.2. By making these materials widely accessible, the project will promote knowledge exchange among governments, industry, financial institutions, and development partners, while supporting the replication and scaling-up of the Accelerator's methodologies in additional countries and hard-to-abate sectors.
The consolidated lessons will include a cross-country note on how the gender-responsive elements performed in practice: which data proved available and at what cost, which recommendations were taken up and by whom, and which barriers proved binding, so the next countries and sectors inherit the experience.

Component 2. National Readiness for Cement Sector Decarbonization.
Barrier addressed: Barrier 2 – Constrained access to finance; Barrier 3 – Limited policy and regulatory incentives; Barrier 4 – Insufficient technical and institutional capacity; Barrier 5 – Limited clarity on viable technology pathways.

The boundary between the two components is defined by the type of work, not by the origin of the data. All development, analysis, testing, and finalization of the global methodologies and modelling tool, including the technology, policy, financial, and impact assessments that calibrate them using data from the four pilot countries, are performed centrally by UNIDO under Component 1 as global public goods. Component 2 comprises the national engagement, namely the design clinics, validation workshops, and capacity-building activities through which national stakeholders review, co-design, validate, and take ownership of those global outputs. Component 2 supports the country-level validation, refinement, and uptake of the methodologies, analytical tools, and frameworks developed under Component 1. Running in parallel with the finalization of the GDIA methodologies under Outcome 1C, it provides timely stakeholder feedback and country-specific evidence to strengthen their operational applicability and robustness, while ensuring an efficient and iterative development process. Its primary objective is to strengthen national ownership of cement sector decarbonization pathways by engaging governments, industry, financial institutions, and other stakeholders in the review, co-design, validation, and implementation of sectoral decarbonization strategies. Through structured stakeholder engagement and targeted capacity building, the component will facilitate the preparation of nationally owned, evidence-based sectoral decarbonization investment plans.

Outcome 2 – Enhanced national readiness and enabling environments for cement sector decarbonization, achieved through nationally endorsed, investment-ready decarbonization models.

This outcome aims to ensure that the analytical outputs developed under Component 1 are reviewed, validated, and refined through structured stakeholder engagement processes in the four pilot countries. By bringing together key stakeholders, the project will strengthen national ownership of the proposed decarbonization pathways while ensuring that country-specific priorities, institutional realities, and implementation considerations are fully reflected in the final analytical outputs.
The outcome also strengthens national capacity to apply the GDIA methodologies and implementation framework through targeted training activities, enabling stakeholders to interpret modelling results and support the implementation of sectoral decarbonization investment plans. Outputs 2.1 to 2.3 apply Component 1's methodologies to the cement sector, delivered by national executing entities.

Output 2.1 – National design clinics conducted to review, co-design, and validate sectoral decarbonization pathways and enabling frameworks.

This output establishes structured National Design Clinics in each pilot country to review, validate, and strengthen the analytical work undertaken under Outcome 1C. The clinics will engage representatives from relevant ministries, cement associations, private companies, technology providers, financial institutions, statistical agencies, research institutions, and other stakeholders to improve data quality, strengthen national ownership, and ensure that the proposed sectoral decarbonization pathways reflect country-specific priorities.

The Design Clinics will support the review and refinement of plant-level databases, the prioritization of technology pathways, the assessment of supporting policy options, and the identification of enabling financial architecture and the review of impact indicators, assumptions, data availability, and monitoring arrangements, required to accelerate cement sector decarbonization. Feedback generated through these consultations will be incorporated into the analytical outputs developed under Component 1 before their validation.

Output 2.2 – National validation workshops conducted to validate sectoral decarbonization scenarios.

This output organizes National Validation Workshops in each pilot country to review and validate the analytical outputs developed through the Global GDIA methodologies. The workshops will bring key sectoral stakeholders to review the proposed decarbonization scenarios, technology pathways, supporting policy frameworks, and enabling financial architecture and impact estimates and monitoring arrangements.

The validation process will ensure that the proposed recommendations are technically robust, consistent with national priorities, and supported by key stakeholders. Feedback collected during the workshops will be incorporated into the final reports, validation documents, global methodologies and sectoral decarbonization investment plans developed under Component 1.

Output 2.3 – National capacity-building programme delivered to support cement sector decarbonization planning.

This output delivers the national capacity-building programme required to support the application of the GDIA methodologies and implementation framework. Training programmes will be organized in each pilot country to familiarize stakeholders with the modelling tool, analytical methodologies, implementation framework, and gender-responsive and inclusive approaches to cement sector decarbonization planning.

The training sessions will involve representatives from government ministries, industry, financial institutions, regulators, research organizations, and relevant service and technology providers. Through these activities, national stakeholders will strengthen their capacity to interpret modelling results, apply the analytical methodologies, and support the implementation of evidence-based sectoral decarbonization investment plans.

<u>Component 3. Progress and impact tracking</u>

Barrier addressed: Barrier 1- Fragmented global coordination and limited knowledge sharing; Barrier 4 – Insufficient technical and institutional capacity.

Component 3 aims to ensure that all interventions under the programme are guided by robust data, transparent methodologies, and measurable outcomes, allowing decision-makers to track progress, verify impacts, and continuously refine strategies for industrial decarbonization.

Outcome 3 - Effective monitoring, evaluation, and learning system established, ensuring accountability, adaptive management, and globally harmonized MEL systems for industrial decarbonization.

This outcome aims to establish a robust MEL system that ensures transparent reporting, accountability, and continuous improvement of the GDIA. The outcome focuses on creating a standardized framework for monitoring and reporting project performance while supporting the systematic assessment of the Accelerator's effectiveness and impact. Through regular reporting and independent evaluations, the project will generate reliable information on implementation progress, methodological performance, and stakeholder engagement

outcomes. This information will support adaptive management by enabling project partners to identify challenges, adjust implementation approaches, and strengthen the effectiveness of the project's analytical tools and support mechanisms.

Output 3.1 - Project performance monitored and reported.

This output establishes the monitoring, reporting, and learning systems required to track the implementation and results of the GDIA. It ensures that project activities are systematically monitored, progress is regularly assessed, and lessons learned are captured to support adaptive management throughout implementation.

Regular project performance monitoring and reporting will be carried out through annual progress reports and Project Implementation Reports (PIRs) submitted in accordance with UNIDO and GEF reporting requirements. These reports will document implementation progress, key results achieved, challenges encountered, and corrective actions undertaken, providing a transparent and structured overview of project performance over time.

In addition, the project will develop a MEL framework tailored to industrial decarbonization initiatives. The framework will include standardized indicators, gender-disaggregated participation data, reporting templates, and monitoring tools aligned with GEF monitoring requirements and designed to support both project-level reporting and future industrial decarbonization initiatives. By establishing a structured MEL system, the project will strengthen the consistency and comparability of monitoring approaches across decarbonization programmes while facilitating the systematic tracking of results and impacts.

The MEL framework will also support adaptive management by enabling project partners to review implementation progress, identify lessons learned, and incorporate improvements into ongoing activities and future programming.

Output 3.2 – Key evaluation and reporting activities completed.

This output ensures the independent evaluation of the project's performance, effectiveness, and impact, in line with the UNIDO-GEF Monitoring and Evaluation Policies and Guidelines. These evaluations will provide an objective assessment of the project's progress toward its objectives and generate recommendations to strengthen implementation and inform future industrial decarbonization initiatives.

An independent mid-term review will be conducted during the implementation period to assess project performance, identify implementation challenges, and recommend adjustments to improve effectiveness and efficiency. The mid-term evaluation will examine the progress of technical activities, stakeholder engagement processes, and the application of the project's analytical tools and methodologies.

At the conclusion of the project, a terminal evaluation will be carried out to assess the overall results and impacts achieved, including the effectiveness of the methodologies, tools, and institutional mechanisms developed under the Accelerator. The evaluation will also assess the sustainability and replicability of the project's approaches, as well as the contribution of the programme to advancing industrial decarbonization planning and investment readiness.

Findings and recommendations from these evaluations will be shared with project partners and stakeholders to support learning, improve future programme design, and strengthen the scaling and replication of the Accelerator's methodologies and tools.

Monitoring, Evaluation and Learning Plan

The project's Monitoring, Evaluation and Learning (MEL) system is established under Component 3 and is designed to ensure accountability, evidence-based decision-making, adaptive management, and continuous improvement throughout the project's 36-month duration. The MEL approach will track delivery of activities and outputs, progress toward expected outcomes, stakeholder participation, gender-responsive results, and the contribution of the GDIA to improved readiness for industrial decarbonization planning and investment.

At project inception, UNIDO will convene an Inception Workshop involving the Project Management Unit (PMU), executing partners, pilot-country counterparts, technical partners, and other key stakeholders. The workshop will confirm institutional responsibilities, reporting arrangements, the detailed workplan, indicator definitions, data sources, baselines, targets, and data-collection responsibilities. The agreed arrangements will be documented in an Inception Report and reflected in the project's MEL framework.

A dedicated MEL framework for industrial decarbonization will be developed under Activity 3.1.4. It will include standardized indicators, reporting templates, data-collection protocols, gender-disaggregated monitoring requirements, quality-assurance procedures, learning mechanisms, and alignment with applicable GEF and UNIDO reporting requirements. Where relevant, the framework will also seek compatibility with CIF Industrial Transition Metrics and other recognized industrial decarbonization monitoring approaches. The MEL framework will support both monitoring of the GDIA project and the future replication of its approaches in additional countries and hard-to-abate sectors.
Project performance will be monitored against the approved results framework, workplan, budget, Gender Action Plan, Stakeholder Engagement Plan, and Environmental and Social Safeguards requirements. Monitoring will combine quantitative information, such as delivery of methodologies, country datasets, workshops, training participation, gender balance, and use of knowledge products, with qualitative evidence on institutional ownership, stakeholder feedback, methodological robustness, and lessons generated through country-level testing.
Three Annual Progress Reports will document achievements, challenges, corrective actions, lessons learned, and priorities for the following reporting period. Three annual Project Implementation Reports (PIRs) will provide the formal assessment of performance against GEF indicators, implementation progress, risks, safeguards, stakeholder engagement, gender results, financial delivery, and sustainability prospects. A Final Project Report will consolidate overall results, partnerships, lessons learned, and recommendations for scaling the GDIA approach.

The PMU will maintain an internal monitoring system and results tracker, updated regularly using information from technical partners, national entities, consultants, and UNIDO Country Offices. Progress will be reviewed through the project's governance arrangements, including the Global Coordination Mechanism and Advisory Board. Meeting records will document decisions, follow-up actions, and any required adjustments to implementation.
An independent Mid-Term Review will be undertaken around the midpoint of the project. It will assess relevance, effectiveness, efficiency, progress toward outcomes, quality of stakeholder engagement, gender responsiveness, safeguards performance, coordination arrangements, and the likelihood of achieving expected results. The review will use a participatory approach, including consultations with the PMU, UNIDO, pilot-country governments, technical partners, industry representatives, financial institutions, and other stakeholders. Its recommendations will be presented to the project governance bodies, and the PMU will prepare a management response and time-bound action plan.

An independent Terminal Evaluation will be initiated toward project completion in accordance with UNIDO-GEF evaluation policies and guidelines. It will assess project relevance, coherence, effectiveness, efficiency, impact, sustainability, country ownership, scalability, and replication potential. Particular attention will be given to the readiness and usability of the GDIA modelling tool and methodologies, the quality of country analytical outputs, stakeholder ownership, capacity development, and prospects for translating sectoral decarbonization plans into investment pipelines.
Evaluation findings and recommendations will be shared with project partners and incorporated into future GDIA programming.
Learning will be integrated across the MEL system. Evidence generated through technical work, country design clinics, validation workshops, training activities, progress reporting, and independent

evaluations will be used to refine methodologies and tools, support adaptive management, and inform knowledge products developed under Outputs 1A.2 and 1C.6.

Table 7: MEL activities and budget

Type of MEL activity:	Description:	Responsible parties:	Indicative budget:	Time frame:
Inception Workshop and Inception Report	Confirm the results framework, workplan, institutional responsibilities, indicators, baselines, targets, data sources and risk-management procedures; elaborate the M&E plan, including monitoring of the Gender Action Plan, ESS strategy and Stakeholder Engagement Plan.	UNIDO, PMU, executing partners, pilot-country counterparts	8,000	Within two months of project start (M1 to M2); report within four weeks
Tracking and measurement of project indicators and MEL framework	Track progress, outcome and performance indicators against the results framework and GEF Core Indicators 6 and 11; update the GEF core indicator worksheets at mid-term and completion; develop and maintain the MEL framework (standardized indicators, reporting templates, data protocols, gender-disaggregated monitoring, quality assurance).	PMU and UNIDO	52,000	Continuous; MEL framework developed in Year 1 and updated as needed (M4 to M36)
Preparation of Annual Progress Reports and Project Implementation Reports (PIRs)	Prepare three Annual Progress Reports and three annual PIRs documenting progress against GEF objectives and indicators, risks, safeguards, gender results, financial delivery and sustainability prospects.	PMU and UNIDO	40,000	Annually, per the GEF reporting cycle (end of each year: M10 to M12, M22 to M24, M34 to M36)
Independent Mid-Term Review	Independently assess relevance, effectiveness, efficiency, stakeholder engagement, gender responsiveness, safeguards, risks and progress toward outcomes; recommend corrective actions.	Independent evaluator, managed in accordance with UNIDO-GEF policies and requirements	30,000	Around the project midpoint (M18 to M20)
Independent Terminal Evaluation	Independently assess achievements, effectiveness, efficiency, impact, sustainability, ownership, scalability and replication potential, in accordance with UNIDO-GEF evaluation requirements.	Independent evaluator, managed in accordance with UNIDO-GEF policies and requirements	30,000	Toward operational completion (M33 to M36)
Final Project Report	Consolidate project outcomes, outputs, partnerships, financial delivery, lessons learned, sustainability prospects and	PMU and UNIDO	8,000	Within two months of technical

recommendations for replication and scaling.			completion (M34 to M36)
Monitor implementation of the Gender Action Plan and Environmental and Social Safeguards (Category C) compliance, including gender-disaggregated tracking and recording of stakeholder participation to avoid double counting.	PMU and UNIDO (Gender Expert)	8,000	Continuous; summarized annually (M1 to M36)
	TOTAL	**176,000**	

The dedicated USD 176,000 under Component 3 comprises USD 116,000 for project monitoring, reporting, and development of the MEL framework and USD 60,000 for the Mid-Term Review and Terminal Evaluation. Additional monitoring functions, including collection of technical data, gender and stakeholder-engagement tracking, financial monitoring, governance review, and quality assurance, are financed through the relevant component, PMU, and project-management budget lines. The Inception Workshop and Inception Report are financed from the M&E budget. Activities financed through the project components and project management are excluded from this plan to avoid double counting between monitoring functions and technical delivery.

B4. Knowledge Management

The project will function as both a global and national platform for knowledge generation, coordination, and application on industrial decarbonization. Its KM approach is designed to ensure that existing knowledge is effectively leveraged, new knowledge generated through implementation is systematically captured, and lessons learned are widely disseminated to inform future initiatives. By linking global methodological development with country-level implementation, the project will create a continuous learning cycle that supports replication, scaling, and long-term impact across hard-to-abate sectors.

The project will build on a substantial base of existing knowledge and analytical tools developed by international initiatives, research institutions, and industry platforms working on industrial decarbonization. This includes methodologies, datasets, and analytical approaches from initiatives such as the NZP-ID, the IDDI, the Mission Possible Partnership, and the GCCA roadmap for net-zero cement. These resources will inform the development of the project's analytical frameworks, ensuring that the Accelerator builds on the latest scientific evidence, sectoral best practices, and international standards rather than duplicating existing efforts.
At the same time, the project will generate new knowledge through the development and application of integrated analytical frameworks for industrial decarbonization planning. Under Component 1, the project will produce standardized methodologies and digital tools, including the plant-level based modelling platform, technology frameworks, policy and financial architecture methodologies, and impact estimation approaches, that can be applied by countries to design decarbonization pathways and investment strategies. These methodologies will represent a new integrated planning toolkit specifically designed for developing and emerging economies, addressing current gaps in industrial decarbonization planning. These methodologies will be applied in the four pilot countries to generate country-specific analytical products, translating the global methodologies into practical country applications while generating evidence on their effectiveness under different national contexts. Component 2 complements this process by creating structured mechanisms for stakeholder engagement, validation, and capacity development. Through National Design Clinics, National Validation Workshops, and national training programmes, governments, industry, financial institutions, academia, and other stakeholders will review analytical outputs, validate assumptions and recommendations, strengthen country ownership, and build the capacity required to apply the

GDIA methodologies and implementation framework. These participatory processes will also generate valuable feedback that will be incorporated into the continuous refinement of the methodologies and analytical tools.
All knowledge generated through the project will be systematically captured and stored through a dedicated UNIDO-hosted online platform integrated within the Industrial Decarbonization portal. This platform will serve as the central repository for project outputs, including methodologies, modelling tools, training materials, case studies, analytical reports, and communication products. The platform will ensure open access to the project's knowledge products and will facilitate their use by governments, development partners, industry stakeholders, and future projects.
Finally, Component 3 will ensure that knowledge generated through the project is continuously refined through MEL. By systematically documenting implementation progress, stakeholder feedback, and analytical results, the MEL system will enable adaptive management and contribute to the development of improved methodologies and planning tools. Lessons learned will be translated into global knowledge products that inform future industrial decarbonization initiatives and support the scaling of the Accelerator's approach in additional countries and sectors under future GEF programming.

Table 8: Changes from the PIF

Area:	PIF:	CEO Endorsement:	Justification for changes:
Core Indicators	700 people benefiting from GEF-financed investments, including 280 women and 420 men.	800 people, including 320 women and 480 men; GHG mitigation target of 12.6 million tonnes of CO_2e over 20 years.	The CEO targets reflect the expanded implementation scope, including four pilot countries, additional stakeholder engagement, national validation activities and a more developed monitoring, evaluation and learning framework.
Barriers	The PIF identifies challenges related to coordination and knowledge sharing, access to finance, market demand for low-carbon products, technical and institutional capacity, and the maturity of technologies and infrastructure.	The CEO document organizes the barriers into five areas: (1) absence of integrated data, analytical tools and investment-ready pipelines; (2) limited access to finance due to capital costs, perceived risks and limited demonstration; (3) insufficient policy and regulatory incentives; (4) limited technical capacity and knowledge; and (5) limited clarity regarding viable technology pathways.	The barriers were restructured to correspond directly with the project's theory of change, methodologies, country activities and financing-related outputs.
Outcomes	The PIF includes outcomes on global coordination and knowledge systems; global methodologies for planning, policy, technology and finance; national readiness in two pilot countries; a Just-in-Time Country Support	The CEO document specifies outcomes on global coordination and knowledge systems; methodological frameworks and financial readiness; enhanced readiness of the global GDIA modelling tool and methodologies using data from four pilot	The outcome structure was updated to reflect the progression from global methodological development to country-level testing, stakeholder ownership, validation and application. The CEO version also identifies the

	Facility; and monitoring, evaluation and learning.	countries; national stakeholder engagement and validation; and a harmonized MEL system.	use of data from the four pilot countries as a distinct outcome.
Outputs	The PIF includes outputs for GIS-based planning, policy and technology assessment, financing solutions, national application in two pilot countries, the Just-in-Time Country Support Facility, knowledge sharing, and project monitoring and evaluation.	The CEO document provides separate outputs for plant-level data modelling, technology pathways, supporting policy frameworks, financial architecture, impact estimation and monitoring, training curricula, knowledge materials, country design clinics, validation workshops, national capacity building, performance monitoring and evaluations.	The outputs were separated into more specific deliverables to clarify responsibilities, budgets, implementation sequencing and verification at CEO endorsement. The additional country-level outputs support stakeholder participation and validation of the global methodologies.
Co-financing	The PIF reports approximately USD 12.55 million.	The CEO document reports approximately USD 15.77 million in co-financing.	The increase reflects additional or strengthened partner commitments identified during project development.

B5. Environmental Benefits, Sustainability, and Scalability

B5.1. Global Environmental Benefits and Co-Benefits

The GDIA will generate significant GEBs by enabling developing and emerging economies to plan and accelerate the decarbonization of hard-to-abate industries, beginning with the cement sector. Without targeted interventions to support low-carbon industrial planning and investment readiness, this growth risks locking countries into carbon-intensive production pathways for decades. By addressing structural barriers that currently limit industrial decarbonization the project will create the conditions necessary for sustained emissions reductions over time.

The project will deliver these benefits primarily through catalytic and enabling impacts rather than direct technology deployment. It will develop standardized methodologies, a unified plant-level modelling platform, and integrated frameworks for technology pathways, supporting policy frameworks, enabling financial architecture, and impact estimation and monitoring. These tools will enable countries to identify priority mitigation opportunities and prepare sectoral decarbonization investment plans aligned with global climate goals, facilitating the development of investment pipelines for low-carbon cement production.

As a result of these enabling interventions, the project is expected to catalyse significant indirect emission reductions over time. Preliminary estimates indicate that follow-on investments and mitigation actions triggered by the programme could lead to approximately 12.6 million tonnes of CO_2 emission reductions over a 20-year period. These reductions will result from the accelerated implementation of low-carbon technologies and practices in the cement sector, supported by improved policy frameworks, strengthened institutional capacity, and enabling frameworks for investment-ready plans developed through the Accelerator.

Beyond GHG mitigation, the project will generate several additional environmental and socio-economic co-benefits. By supporting the transition toward low-carbon industrial production and more efficient use of energy and raw materials, the programme will contribute to improved air quality, reduced local pollution from industrial processes, and more sustainable management of natural resources. Reduced mercury emissions are one such co-benefit. Cement clinker production is a listed point source under Annex D of the Minamata Convention, and the clinker substitution, fuel substitution and kiln efficiency measures assessed under the project's technology pathways methodology reduce mercury releases alongside CO_2; this is reported as a co-benefit only, with no

mercury reduction target and no additional core indicator introduced. At the same time, the project will help strengthen the long-term competitiveness of developing economies by preparing their industrial sectors to meet increasingly stringent low-carbon standards in global markets and access climate-aligned finance.
The Accelerator will also contribute to social and institutional co-benefits by embedding GESI and just transition considerations into industrial decarbonization planning processes. Through stakeholder engagement, training programmes, and knowledge dissemination activities, the project will strengthen national capacities and promote inclusive participation in industrial transition planning. ESS will be integrated across project activities to ensure that decarbonization pathways support improved occupational safety, reduced environmental impacts, and equitable participation of affected communities.
The engagement of the GEF is critical to enabling this transformation. Through concessional financing and global coordination, the GEF supports the development of shared methodologies, strengthens national planning capacity, and connects global industrial decarbonization initiatives with country-level implementation. These enabling conditions, and the associated long-term mitigation impacts, would not materialize without GEF support.

B5.2. Long-term sustainability
The project is designed to ensure that its outcomes remain enduring and resilient beyond the implementation period by embedding analytical tools, policy frameworks, and institutional capacities within national decision-making processes. Rather than focusing on short-term technology deployment, the Accelerator strengthens the structural enabling conditions required for long-term industrial decarbonization. By developing standardized methodologies, digital modelling tools, and sectoral planning frameworks, the project will establish permanent analytical capabilities that governments and stakeholders can continue using to guide industrial transition strategies and investment planning. These tools will remain accessible through the UNIDO industrial decarbonization knowledge platform, ensuring continued dissemination, replication, and adaptation across countries.
The project will also strengthen policy coherence and institutional alignment for industrial decarbonization. Through the development of sector-specific policy frameworks in pilot countries, the programme will support governments in reviewing and aligning existing policies across industry, energy, climate, and investment domains. The resulting policy recommendations and sectoral decarbonization investment plans will provide structured guidance for integrating industrial mitigation pathways into national development strategies, climate commitments, and sectoral policies. By improving coordination among ministries responsible for industry, energy, finance, and environment, the project will help ensure that policy incentives, regulatory frameworks, and public investment strategies are mutually reinforcing and aligned with long-term decarbonization objectives.
Long-term sustainability will also depend on strengthening human, institutional, and technical capacities at the national level. The project addresses this need through targeted training programmes, stakeholder consultations, and technical assistance activities delivered to government institutions, industry representatives, financial institutions, and other relevant actors. These activities will build national expertise in areas such as industrial decarbonization planning, technology assessment, financial structuring, and impact monitoring. The capacity-building activities financed by the GEF will be complemented by co-financing contributions supporting technical expertise, stakeholder engagement, and knowledge dissemination activities. By strengthening the ability of national institutions to analyse decarbonization pathways, mobilize investment, and monitor progress, the project will ensure that countries can continue advancing industrial decarbonization strategies beyond the project's lifetime.

B5.3. Project cost-effectiveness and scaling up
The project demonstrates strong cost-effectiveness by focusing on catalytic interventions that unlock large-scale mitigation impacts through relatively modest upfront investment. Rather than financing individual technology deployments, the GDIA addresses systemic barriers that currently prevent countries from mobilizing finance and implementing decarbonization measures in hard-to-abate sectors. This approach allows GEF resources to

generate a high leverage effect, supporting the development of enabling policy frameworks, investment concepts, and financial architectures that de-risk early-stage decarbonization initiatives in the cement sector. These enabling conditions are expected to catalyse follow-on investments that substantially exceed the initial project funding, contributing to an estimated 12.6 million tonnes of CO_2 emission reductions over 20 years through the accelerated adoption of mitigation measures such as clinker substitution, alternative fuels, and energy efficiency improvements.

Cost-effectiveness is further strengthened by the development of harmonized methodologies and digital analytical tools that can be applied across multiple countries and sectors. The plant-level based modelling platform, technology frameworks, and policy and financial architecture methodologies developed under the project are designed to be replicable and adaptable beyond the initial pilot countries. By making these tools publicly accessible through UNIDO's industrial decarbonization knowledge platform, the project will enable additional countries and development partners to apply the same analytical frameworks to design sectoral decarbonization strategies and enable decarbonization investment pipelines.

The project is also designed to support scaling and transformational impact beyond the GEF-8 cycle. The initial focus on the cement sector provides a strategic entry point to test and refine the analytical frameworks and investment preparation approaches developed under the Accelerator. Lessons learned and methodologies validated during this phase will inform the potential expansion of the programme under GEF-9, where the approach could be scaled to additional countries and extended to iron and steel and aluminum, the other two sectors within GDIA's boundary. By establishing common analytical frameworks, policy guidance, and investment preparation tools during GEF-8, the project will lay the foundation for a broader industrial decarbonization programme capable of mobilizing significantly larger investments in subsequent phases.

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this project, including financial management and procurement. If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

B6. Institutional Arrangement and Coordination with Ongoing Initatives and Project.

The GDIA combines the central development of harmonized methodologies and modelling tools with their validation and application in four pilot countries. The structure separates two execution roles. UNIDO is the GEF Implementing Agency for the Global project and the Executing Agency for the global and analytical work under Components 1 and 3, and will administratively support the execution of these components while providing technical leadership, fiduciary management, procurement, quality assurance, and coordination across global and national partners (Figure 3). The national engagement and validation work under Component 2 is executed in each pilot country by an individual national entity, selected as an Implementing Partner under an Implementing Partner Agreement (IPA) with UNIDO. This split places the in-country activities with national institutions to ensure national ownership and long term sustainability and application, while UNIDO maintains methodological consistency and cross-country comparability through Components 1 and 3.

A Project Steering Committee (PSC), including representatives from UNIDO, CIF, IFC, and the GCCA, will provide high-level strategic guidance and advice to ensure alignment with global industrial decarbonization initiatives, investment priorities, and financing opportunities.

An Advisory Board, comprising partner universities, multilateral and national development banks, industry associations, and representatives from pilot-country governments, will provide technical advice and strategic support to the project. These stakeholders will contribute data, analytical expertise, policy insight, and sectoral knowledge to ensure that the methodologies and tools

developed under the project are scientifically robust, operationally relevant, and grounded in national realities.

At the national level, each participating country establishes a National Steering Committee (NSC) comprising the relevant ministries (industry, environment, energy, and finance), national development banks, industry associations, and local stakeholder organizations, including youth and gender associations. The NSC coordinates country-level implementation, guides stakeholder engagement, validates technical outputs, and ensures alignment with national priorities and industrial transition pathways. It works alongside the national executing entity, which executes Component 2 activities under its Agreement with UNIDO.

The project includes private sector participation at the centre of its design, as industrial decarbonization depends on the engagement of cement producers, financial institutions, industry associations, and technology partners. Industries will provide operational data, participate in pilots, and test the methodologies developed under the Accelerator, benefiting from reduced investment risks, clearer policy signals, and improved access to technical and financial support for transition planning. Industry associations such as GCCA and FICEM, which were actively consulted during preparation, will help mobilize producers, validate approaches, and disseminate best practices across their networks. Financial institutions, most notably CIF and national development banks, have expressed strong interest in aligning the project's financial methodologies with existing de-risking instruments and will support efforts to strengthen the bankability of industrial decarbonization projects. Technical and research partners, including FECO and Columbia University, will contribute analytical tools and technology assessment to guide private-sector decision-making.

Under Component 1, UNIDO develops the harmonized methodologies and the modelling tool once, centrally, at the global level. Specialized academic and research institutions support the methodologies for plant-level screening, decarbonization scenarios, enabling policy frameworks, environmental and social safeguards, and technology assessment. Selection of Partners will follow applicable UNIDO Procurement policies, requirements and procedures.

Under Component 2, each pilot country's activities are executed by one national entity acting as Implementing Partner under an Implementing Partner Agreement with UNIDO. The Selection of Implementing Partners will follow applicable UNIDO Procurement policies, requirements and procedures. The national Implementing Partner coordinates with national stakeholders to review and validate the GDIA assessments for its cement sector through national design clinics (Output 2.1) and validation workshops (Output 2.2) and hosts the related capacity-building programme (Output 2.3). The underlying country-level technical analysis is carried out under Component 2, applying the global methodologies and modelling tool developed under Component 1, in close coordination with the national Implementing Partner. Each national Implementing Partner manages its own resources and procures its own services, consultancies, and workshop logistics under its administrative systems.

Under Component 3, UNIDO headquarter is expected to lead MEL, aligned with GEF and UNIDO, with independent evaluators conducting the mid-term and terminal evaluations. Knowledge products and cross-programme learning activities are envisaged to be jointly produced with CIF and MDBs.

Figure 5: Institutional arrangement

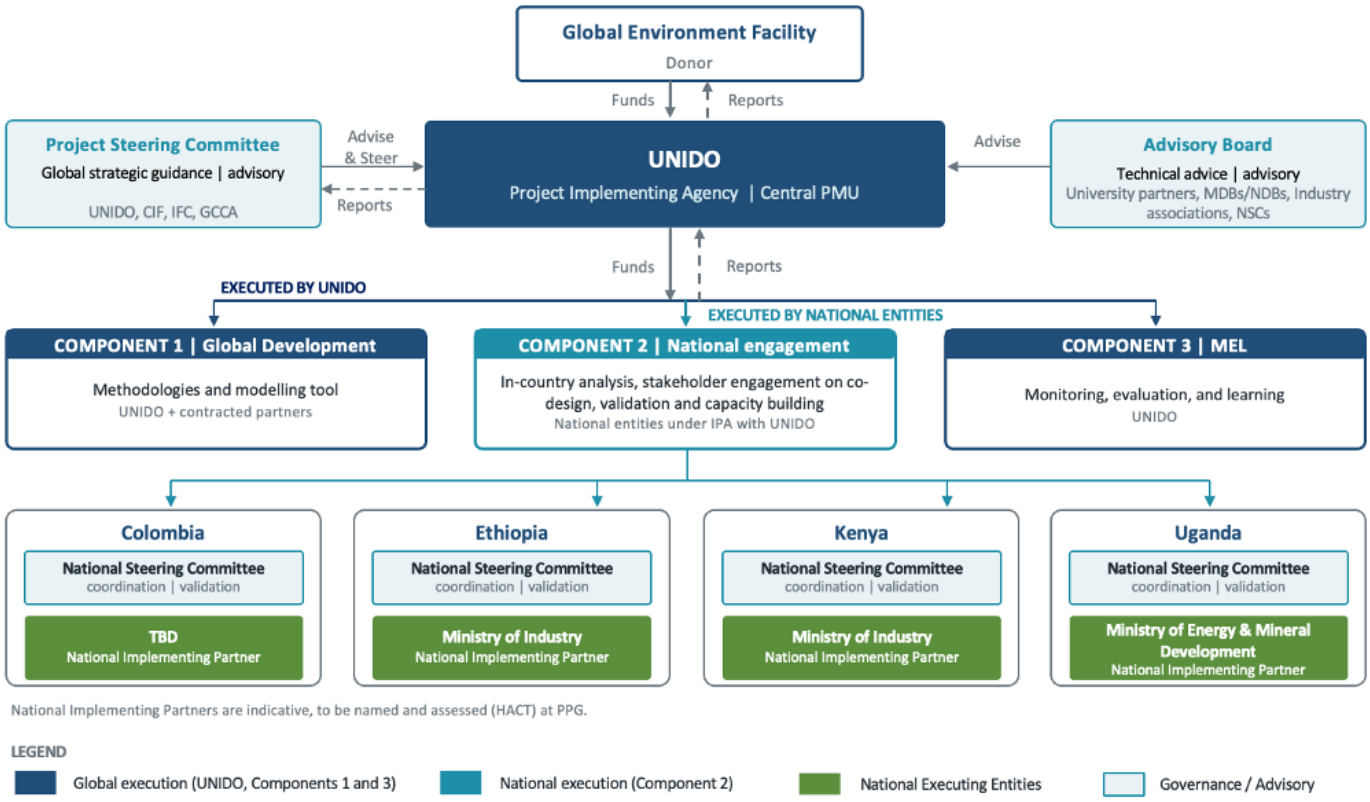


Table 9 summarises the main stakeholder groups, outlining their contributions to programme development, implementation, and decision-making.

Table 9: Key stakeholders and their roles

Stakeholder:	Role:
UNIDO and allied global platforms (NZP-ID, IDDI, Breakthrough Agenda)	UNIDO and allied global platforms provide the overarching coordination framework for the Accelerator, ensuring alignment with global decarbonization initiatives and political commitments. They contribute to demand-side mechanisms, sectoral roadmaps, and procurement standards, while supporting the integration of these elements into GDIA methodologies and their application in country-level planning (Component 2) and monitoring and reporting the project performance (Component 3). UNIDO ensures overall programme implementation, governance, and linkage between global frameworks and national investment pipelines.
Industry associations (GCCA, FICEM, AFCM)	Industry associations provide sector-specific expertise and act as key partners for industry engagement and validation. GCCA leads the development of sectoral technology pathways assessment for cement decarbonization (Output 1C.2), while FICEM and AFCM support regional dissemination and engagement with producers. They ensure that methodologies and

	investment plans are grounded in industry realities and facilitate uptake across markets.
Academic and research institutions (Columbia Climate School - CCSI, Imperial College London - CCFI)	Research partners lead the development and application of core methodological frameworks and analytical tools under Component 1. Columbia CCSI leads the enabling financial architecture methodology (Output 1B.4) and its application in the four pilot countries (Output 1C.4), while Imperial and other partners contribute to technology assessment, supporting policy, impact estimation and monitoring, scenario modelling, and technical validation. They ensure robustness, consistency, and scientific credibility of GDIA outputs.
Data and technology partners	Provide asset-level emissions data, support interoperability of emission standards, and contribute to plant-level based modelling and impact quantification (Output 1B.1 and related methodologies). Their role is critical for enabling data-driven planning, strengthening MEL systems, and ensuring consistency between global datasets and country-level applications.
International financial institutions (IFC, CIF, EBRD, ADB, AfDB)	Columbia CCSI will be sub-contracted to operationalize the implementation of enabling financial architecture frameworks (Output 1C.4) with support of international financial institutions in the pilot countries. CIF is part of the PSC, as GDIA's work contributes to the countries' investment readiness to receive funds from the CIF under their Industrial Decarbonization program. EBRD, ADB and AfDB have also been engaged to ensure GDIA's work is aligned with their work in the relevant countries (now and in future GDIA expansion). Close coordination with DFIs is a priority to support future mobilization of concessional and private finance, investor matchmaking, and contribute to the investment ecosystem that enables decarbonization pipelines.
Investor community (MDBs, national development banks, commercial banks, private investment funds)	The broader investor community supports capital mobilization and co-financing at the project level, particularly during implementation. They participate in the development of sectoral investment decarbonization plans, investment structuring, and scaling of validated solutions emerging from GDIA outputs.
Government and bilateral partners (FECO / Ministry of Ecology and Environment of China and other bilateral actors)	Government and bilateral partners contribute to technology transfer, policy development, and capacity building, particularly in areas such as CCUS, alternative fuels, and industrial decarbonization technologies. They support implementation of sectoral methodologies (Component 1), country-level

	engagement and validation (Component 2) and facilitate knowledge exchange across countries.
Pilot-country governments and national agencies (Kenya, Colombia, Ethiopia, Uganda)	National governments provide country ownership, ensure alignment with NDCs and national strategies, and participate in governance through NSCs. They validate methodologies and outputs, support stakeholder coordination, and facilitate the co-development of national decarbonization investment plans (Component 2).
Vulnerable groups, gender and youth, civil society, and SMEs (Women-led organizations, civil society and small and medium-sized enterprises (WIM Colombia; AWEIK, Kenya; UWEAL, Uganda; CAWEE and EWEA, Ethiopia), and national banking industry associations (Asobancaria; Kenya Bankers Association; Uganda Bankers' Association, and named banks in Ethiopia)	These stakeholders are engaged through consultations and capacity-building activities to ensure that GDIA outputs incorporate social and gender considerations. They contribute to validation processes, benefit from training and knowledge-sharing activities (Component 2), and support inclusive and equitable decarbonization pathways. These organizations are the named national counterparts for gender-responsive and inclusive engagement. The women-led associations provide the route to women professionals and women-led enterprises in the cement value chain and its supply chains. The national banking associations are consulted in the financial baseline assessments under Output 1C.4, and the national youth counterpart in each pilot country is identified during inception through the National Steering Committee and recorded in the Stakeholder Engagement Plan.
Other knowledge and communication partners (e.g., knowledge platforms and technical communication partners)	Additional partners contribute to KM, dissemination, and communication of results through the global knowledge platform (Output 1A.2), supporting replication, learning, and scaling across region

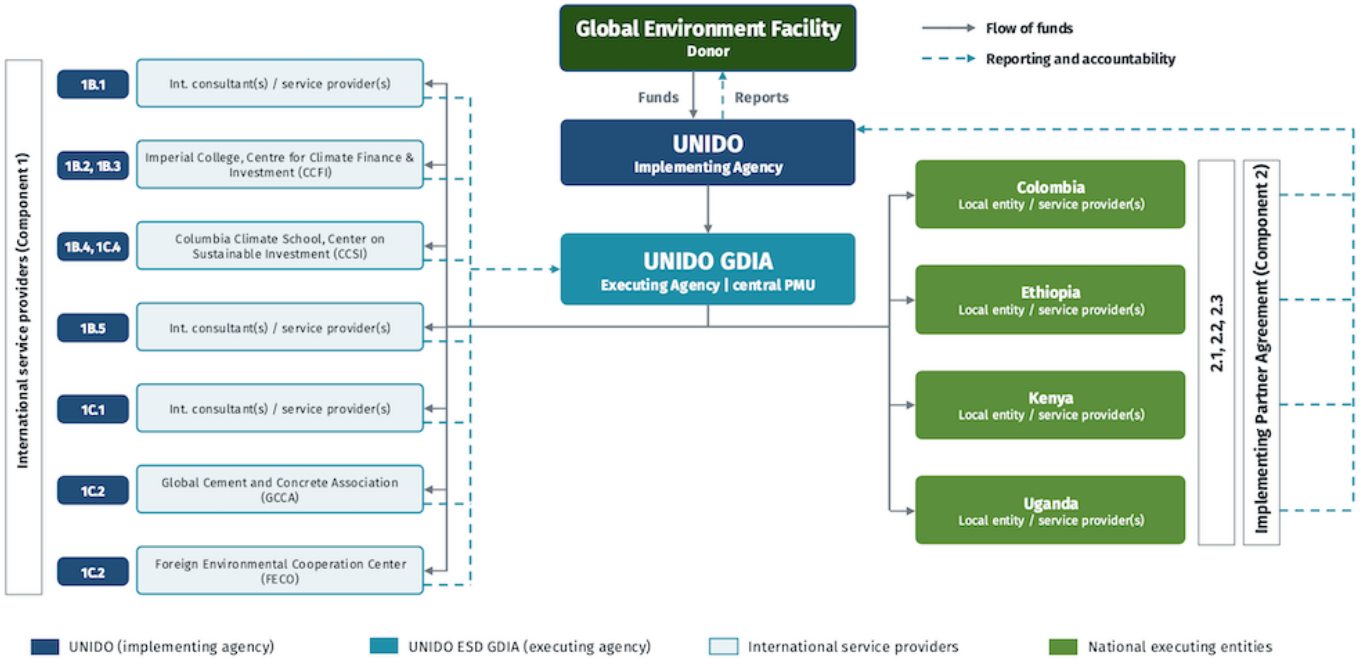
“The Government of the Republic of Colombia agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 29 May 1974 and entered into force on 23 January 1975.

”The Government of the Federal Democratic Republic of Ethiopia agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 26 February 1981 and entered into force on 5 November 1984.

“The Government of the Republic of Kenya agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed and entered into force on 17 January 1991.”B5.1.

“The present project is governed by the provisions of the Standard Basic Cooperation Agreement between the Government of the Republic of Uganda and UNIDO, signed on 27 May 1994.”

Figure 6: Micro-institutional arrangement



Will the GEF Agency play an execution role on this project?

Yes

If so, please describe that role here and the justification.

UNIDO acts as GEF Implementing Agency for the whole project and as Executing Agency for the global and analytical work under Components 1 and 3. The national activities under Component 2 are executed by national executing entities (i.e. Implementing Partners under IPAs in UNIDO terminology). This arrangement places national ownership at the center of the in-country work and meets GEF policy expectations on national execution. In its execution role for Components 1 and 3, UNIDO hosts the central PMU, oversees day-to-day execution, manages procurement and fiduciary responsibilities, coordinates technical experts and consultancies, and ensures delivery of outputs, monitoring, reporting, safeguards compliance, and knowledge management. UNIDO's execution role for the global components is justified by the highly technical, globally coordinated, and methodology-driven nature of that work, which requires strong integration between global analytical workstreams, country implementation support, industrial decarbonization expertise, and engagement with international financial and industry partners. Moreover, administrative cost efficiency is ensured with this central approach.

The Global Decarbonization Investment Accelerator (GDIA) develops a global methodology, modelling and monitoring tool for industrial decarbonization, built once and applied globally. The benefits of the harmonized tool and methodology are shared globally. Hence, exception waiver D “global or regional platforms for knowledge sharing” is applied.

The agency execution activities are limited to the global coordination activities and the development of the global tool, which entails building the methodology, running the modelling and monitoring platform, and

coordinating the partners that feed it, while the validation activities of the tool at country level will be executed nationally through national executing entities.

The Accelerator builds a global methodology and modelling tool with specific technical scope. Execution of such a project at global level entails established partnerships, consortium arrangements, convening power and institutional standing to bring together diverse public and private stakeholders, and technical expertise in coordinating and facilitating global initiatives. Therefore, execution of global activities by alternative entities is not feasible.

The project governance structure is outlined in the section above, institutional arrangements will be in compliance with minimum fiduciary standards, implementation and execution roles duties be segregated with a firewall between these two functions.

Agency execution services will come at no cost to GEF Financing.

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 (max. 500 words, approximately 1 page)

The GDIA has been intentionally designed as the analytical, methodological, and investment-readiness backbone within a broader ecosystem of industrial decarbonization initiatives. Rather than duplicating existing programmes, the project fills a critical gap between global policy commitments, technical standards, and large-scale financing initiatives by translating them into country-level investment planning frameworks and finance-ready decarbonization pipelines. The project has been designed to complement and operationalize existing initiatives led by UNIDO, CIF and other project partners, Table 10 below outlines key baseline initiatives and clarifies their relationship with the proposed project.

Table 10: Baseline initiatives supporting industrial decarbonization

(1) UNIDO Driven Initiatives:

Initiative:	Description:	Delineation:	Role/Synergies with the programme:
Net Zero Partnership for Industrial Decarbonization (NZP-ID)	NZP-ID is a global programme led by UNIDO supporting the governments in Climate Club countries and beyond to enhance their ambition for industry decarbonization, focusing on heavy-emitting industries. The programme supports establishing enabling policy frameworks, building a pipeline of decarbonization projects,	The NZP-ID targets Emerging Markets and Developing Economies (EMDEs) and is a global policy and ambition-raising platform for concrete and cement, and iron and steel. The initiative focusses on enabling frameworks, formulation of industry-specific targets and roadmaps, supporting the implementation of technological solutions, and knowledge sharing, while	In the proposed GEF-8 Accelerator, the NZP-ID will serve as the policy and coalition driver, using its global platform to align national commitments with decarbonization pathways, convene key government and industry stakeholders, and embed enabling frameworks that stimulate demand and create market conditions for projects prepared for investment. This

	and capacity building among stakeholders. The NZP-ID is being implemented through country projects and collaborations in Brazil, Argentina, Egypt, Indonesia, Kenya, Morocco, and Colombia.	the proposed GEF-8 Accelerator is an operational facility that turns those ambitions into bankable, enabling frameworks for investment-ready plans for cement and concrete projects for financing under GEF 8 and GEF-9.	programme uniquely unlocks the full potential of the NZP-ID by embedding it within a holistic approach that addresses all elements required for effective implementation.
Industrial Deep Decarbonization Initiative (IDDI)	Coordinated by UNIDO, the Clean Energy Ministerial (CEM) IDDI is a global coalition of public and private organisations who are working to stimulate demand for low carbon industrial materials. In collaboration with national governments, the IDDI works to standardize carbon assessments, establish ambitious public and private sector procurement targets, incentivize investment into low-carbon product development and design industry guidelines.	IDDI has a technical and normative mandate, focussed on developing common measurement methodologies, product standards, and procurement models to create verifiable markets for low-carbon concrete, cement and steel.	The IDDI acts as the standards and verification anchor for the GEF-8 Accelerator, ensuring that all pipeline projects meet internationally recognized carbon accounting methods, harmonized specifications, and procurement criteria. Embedding IDDI ensures the programme's outputs are compatible with global buyers and can tap into emerging demand for low-carbon materials.
Breakthrough Agenda (BTA)	Launched at COP 26, the BTA aims at accelerating clean technology transition by strengthening international cooperation in key industrial sectors: power, road transport, steel, hydrogen, agriculture, buildings, and cement and concrete. The primary goal of the BTA is to make clean technologies the most attractive and option by 2030. UNIDO is actively part of the BTA and hosts the facilitator of the steel chapter.	The BTA is a high-level political cooperation and coordination platform across multiple sectors, aimed at aligning international actions and commitments to speed up technology adoption.	The BTA provides the political mandate and global visibility for sectoral decarbonization that the GEF-8 Accelerator will translate into concrete action. By engaging with the BTA, the Accelerator ensures that its outputs align with government-endorsed priority actions, thereby strengthening political support, fostering cross-border technology collaboration, and creating opportunities for international partnerships in the cement and steel sectors.

Industrial Decarbonization Hubs (ID-Hubs)	ID-Hubs is a UNIDO initiative implemented in collaboration with key international partners, including technical organizations and financial institutions. These hubs are embedded in-country to connect governments with the private sector and other stakeholders, foster the development of decarbonization investment pipelines, stimulate research and innovation, and help create an enabling policy environment.	ID-Hubs are national implementation platforms that operate on the ground, convening public and private actors to translate global commitments into country-specific investment opportunities. They function as place-based, continuous engagement mechanisms rather than time-bound programs.	ID-Hubs could serve as the delivery interface for the GEF-8 Accelerator in target countries by facilitating stakeholder coordination, identifying priority decarbonisation projects, supporting policy integration, and providing the institutional framework for sustained pipeline development beyond the Accelerator's duration.
Accelerate-to-Demonstrate (A2D) Facility	A2D is a large-scale facility focused on accelerating the commercialization of innovative climate solutions in developing countries. It provides funding grants for transformative projects in the areas of industrial decarbonization, critical minerals, clean hydrogen and smart energy.	A2D is a technology-commercialization mechanism designed to de-risk and demonstrate emerging solutions at scale. It is primarily technology-driven, rather than policy- or market-driven, and does not encompass the development of full investment pipelines or national market frameworks.	A2D functions as a technology feeder for the GEF-8 Accelerator by delivering proven, commercially viable decarbonization solutions that can be scaled in the cement sector. The Accelerator can then integrate these A2D-validated technologies into its project preparation work, ensuring that investment pipelines are grounded in solutions with demonstrated performance in developing-country contexts.

(2) Further GEF & UNIDO Projects in the hard-to-abate sectors:

Greening of the Philippines cement and construction industry (GEF ID 11707)	UNIDO/GEF project (CEO Endorsement, under GEFSEC Review) with the Department of Trade and Industry to cut mercury releases from cement manufacturing, using energy efficiency, circular-economy measures, alternative low-carbon	Chemicals-and-waste project (mercury), with decarbonization as a co-benefit. Single country, no investment or	Builds UNIDO's cement footprint in Southeast Asia and generates material-substitution evidence for the Accelerator's technology foresight. Finance

	materials and concrete recovery from demolition.	finance component.	mobilization stays with the Accelerator.
Eliminating hazardous chemicals from the supply chain of the construction sector in Morocco (GEF ID 11428)	UNIDO/GEF project (CEO Endorsement Cleared) executed by AMEE, replacing hazardous construction chemicals with safer alternatives, embedding life-cycle assessment in policy and strengthening the regulatory framework for material safety.	Chemical-safety focus across the construction value chain, not cement GHG mitigation or investment. Country-specific and regulatory.	Complements the Accelerator on construction value chains and reinforces UNIDO's presence in Morocco, an NZP-ID country. No emissions baselines or pipelines, which remain the Accelerator's role.
Control and reduction of mercury emissions from the cement industry in Brazil (GEF ID 11574)	UNIDO/GEF project (CEO Endorsement Cleared) in China demonstrating best available techniques to cut unintentionally produced POPs in iron and steel plants.	Chemicals-and-waste project (POPs), in steel, not cement. No decarbonization or investment objective.	Limited overlap. Relevant as UNIDO heavy-industry experience and a possible source of plant-level data.
Environmentally Sustainable Development of the Iron and Steel Industry (GEF ID 10564)	UNIDO/GEF project (CEO Endorsement Cleared) with the Ministry of Environment under the Minamata Convention, applying best available techniques to control mercury from clinker production. Cement is Brazil's fourth-largest mercury source. Coordinated with the national Cement Technology Roadmap.	Chemicals-and-waste (mercury), single country. Pollution control, not GHG mitigation or investment mobilization.	Plant-level mercury measures interact with kiln operations and raw-material choices that also drive CO2. Shared engagement with the same producers keeps mercury and decarbonization tracks aligned.
Control and reduction of mercury emissions in the cement industry in the Small Island Developing States of the Caribbean region (GEF ID 11882)	UNIDO/GEF project (Council Approved) under the Minamata Convention applying the same best-available-technique approach to control mercury from cement production, adapted to Caribbean Small Island Developing States.	Chemicals-and-waste (mercury), regional SIDS scope. Pollution control only.	Builds UNIDO's cement footprint in the Caribbean and generates plant-level data. Distinct from the Accelerator's decarbonization and finance mandate

(3) Other relevant initiatives:

CIF Industry Decarbonization Program	A financing initiative under the CIF' Clean Technology Fund, providing up to USD 1 billion in	In contrast to the proposed GEF-8 Accelerator, which is readiness-oriented and focused on market creation, policy frameworks, and	The CIF could partner with the GEF-8 Accelerator by providing implementation finance for cement decarbonization projects

concessional and blended finance to decarbonize heavy industries (cement, steel, aluminium, chemicals, pulp & paper, etc.) in an initial cohort of seven middle-income countries, including Brazil, Egypt, Mexico, Namibia, South Africa, Türkiye, and Uzbekistan. Delivered via MDBs (AfDB, ADB, EBRD, IDB, IFC), it funds large-scale investment projects and aims to achieve transformational change with significant co-financing leverage.	enabling conditions for decarbonization pipeline development, the CIF program serves as a financing engine that invests directly in implementation. It does not provide global policy, standards, or enabling-environment platforms. Furthermore, it maintains a broad, multi-sector scope; operates in a limited number of countries through competitive expressions of interest; and relies primarily on MDB delivery, without extensive multi-stakeholder networks or global knowledge-sharing mechanisms. Of the four pilot countries, none is yet in CIF-IDP's initial funded cohort; country-specific status and gaps are set out in Section A2.	prepared through the Accelerator. By focusing on enabling policy, market creation, and investment readiness, the Accelerator would de-risk and strengthen proposals for CIF funding, enabling CIF to channel capital into projects with strong policy alignment, stakeholder support, and demonstrated market demand. This collaboration would position the Accelerator as a feeder mechanism for CIF, ensuring that its work translates into high-impact, enabling frameworks for investment-ready plans while giving the GEF program a clear pathway for scaling.

Core Indicators

Indicate expected results in each relevant indicator using methodologies indicated in the GEF-8 Results Measurement Framework Guidelines. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

Indicator 6 Greenhouse Gas Emissions Mitigated

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

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

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

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

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

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

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

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

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

Indicator 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	280	320		
Male	420	480		
Total	**700**	**800**	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)

People benefiting from GEF-financed investments (disaggregated by sex):

Based on the number and type of planned trainings, design clinics, and country support activities included in the project design, the programme is expected to directly benefit approximately 800 individuals across global, regional, and national levels. These beneficiaries will include government officials, cement industry stakeholders, financial-sector representatives, MEL experts, labour organisations, civil society actors, and representatives of women's and youth organisations in the four pilot cement countries.

Through participation in capacity-building events, stakeholders will strengthen their technical and institutional capacities to apply the modelling tools, analytical frameworks, and planning methodologies developed under the Accelerator. This will enhance their ability to design sectoral decarbonization pathways, develop enabling policy and financial frameworks, and enable conditions for investment-ready plans for low-carbon industrial transitions.

Applying a conservative but gender-responsive participation target, at least 800 beneficiaries, 320 women (40%) and 480 men (60%), are expected to directly benefit from GEF-financed activities. For further details on the specific activities contributing to this indicator, please refer to the Results Framework.

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Low	Risk: extreme weather events (e.g., flooding, storms, heat waves) could disrupt in-person workshops, consultations, and stakeholder engagement activities in pilot countries. Since the project includes several training and design clinic workshops, such disruptions could affect participation

		or scheduling. Mitigation strategy: The project design incorporates flexible implementation arrangements, including hybrid and virtual engagement formats, flexible scheduling of workshops, and the possibility of shifting meetings online when necessary.
Environmental and Social	Low	Risk: The project does not finance physical infrastructure or technology deployment; therefore environmental and social risks are minimal. Potential risks relate mainly to inclusiveness of stakeholder consultations and equitable participation in capacity-building activities. Mitigation strategy: ESS and GESI considerations are integrated across the project design. Stakeholder engagement activities will ensure balanced participation of government institutions, industry representatives, civil society, and labour organizations. Targeted outreach will promote participation of women's and youth organizations, and consultation processes will follow UNIDO safeguards requirements.
Political and Governance	Moderate	Risk: Changes in government priorities, political transitions, or institutional fragmentation may affect engagement of national stakeholders or delay validation of sectoral decarbonization plans and policy frameworks in pilot countries. Exposure is higher in Ethiopia, where the counterpart structure is split across three institutions, and in Uganda, where the cement policy framework is still being formed. Mitigation strategy: The project will engage multiple national institutions to strengthen policy coherence and reduce reliance on a single counterpart. UNIDO country offices and partnerships with MDBs and CIF focal points will help maintain continuity of engagement. Each pilot establishes a National Steering Committee chaired at ministerial level which validates each country output, and the global outputs under Outcomes 1A and 1B do not depend on country validation, so a delay in one pilot does not block global delivery.
INNOVATION		
Institutional and Policy	High	Risk: Industrial decarbonization policies recommended by the project (e.g., enabling policy frameworks, investment strategies, or procurement approaches) may face delays if they are not fully aligned with existing national policies or industrial strategies. There is also a risk of overlap with other global initiatives addressing industrial decarbonization. Mitigation strategy: The project design builds on existing initiatives such as IDDI, NZP-ID, and CIF programmes. Policy assessments and design workshops will be conducted in close collaboration with national institutions and industry stakeholders to ensure alignment with national development priorities. Where a recommended instrument conflicts with a stated national industrial policy priority, the contingency is country-specific. Colombia: the industrial priority already includes cement decarbonization, since NDC 3.0 sets co-processing targets of 15 per cent by 2030 and 23 per cent by 2035. Recommendations are presented as means of meeting targets the government has already adopted, and the National Steering Committee decides which ministry takes each

		instrument forward. Kenya: the priority is industrial competitiveness and affordable cement. If a measure would raise the cost per tonne, the project advances clinker substitution instead, which lowers cost and is supported by the ongoing revision of national standards to permit clinker ratios below 0.45, or pairs the measure with public procurement demand for low-carbon cement. Ethiopia: the priority is expanding capacity to meet domestic demand. Recommendations are presented as ways to reduce the cost of production rather than as limits on output, since energy intensities run 34 to 36 per cent above international benchmarks and kilns depend on imported coal. Uganda: the priority is closing the clinker deficit, with roughly one million tonnes produced against nine million tonnes of demand and two new clinker plants advancing. The project does not question the new capacity and works instead on its emissions performance through alternative fuels, waste heat recovery, clinker substitution and co-processing, which is the mitigation measure Uganda's own Biennial Update Report identifies for the cement sector. In all four countries, where a conflict remains the National Steering Committee decides, the recommendation is reframed to the closest compatible instrument, and both the conflict and the reframing are recorded in the Project Implementation Report.
Technological	Low	Risk: The project relies on analytical tools and technology methodologies rather than deployment of physical technologies. Risks relate primarily to potential data gaps or uncertainty regarding the maturity of certain decarbonization technologies (e.g., CCUS, hydrogen). Mitigation strategy: Technology frameworks will draw on global datasets and expert input from research institutions and industry partners. The plant-level based modelling platform will be updated iteratively based on feedback from pilot country implementation, ensuring that technological assumptions remain aligned with evolving industry knowledge and international roadmaps.
Financial and Business Model	Moderate	Risk: Limited availability of financial data or low engagement from financial institutions could reduce the quality of financial architecture assessments and investment plans development. Mitigation strategy: The project includes early engagement with financial stakeholders, including development banks, commercial banks, and international finance institutions. The financial architecture framework will be developed in collaboration with partners such as CIF and MDBs to ensure alignment with existing financing instruments and investment programmes.
EXECUTION		
Capacity	Moderate	Risk: Some national institutions and stakeholders may have limited technical capacity to engage with advanced modelling tools or apply the methodologies developed under the project. Mitigation strategy: Capacity-building is embedded across Components 2 through training programmes, workshops, and technical assistance. The modelling tools

		and analytical frameworks will be designed with user-friendly interfaces and accompanied by training materials and guidance documents.
Fiduciary	Low	Risk: Financial management risks are limited due to the analytical and technical assistance nature of the project. However, multi-partner coordination may require clear financial management procedures. Mitigation strategy: UNIDO will apply its established financial management and procurement procedures in accordance with GEF requirements. Clear reporting structures and oversight mechanisms will be established through the PSC and project governance arrangements.
Stakeholder	Low	Risk: Limited engagement from industry actors or financial institutions could reduce ownership of analytical outputs and slow the uptake of project recommendations. Mitigation strategy: The project design places strong emphasis on stakeholder engagement, including participation of cement producers, industry associations, financial institutions, and policy-makers in design clinics, consultations, and training activities. Communication and knowledge-sharing activities under Component 1 will support continuous engagement and dissemination of results.
Other	Low	Data availability and quality Risk: Availability and quality of industrial data (e.g., plant-level emissions or production data) may vary across countries, potentially affecting modelling accuracy. Mitigation strategy: The project will combine multiple global and national datasets (e.g., GCCA, national statistics) and validate data through stakeholder consultations with industry and national authorities. The modelling platform is designed to operate with varying levels of data availability and will be refined iteratively through pilot implementation.
Overall Risk Rating	Moderate	The overall rating is Moderate. The aggregate is no longer set below the highest Context category: Political and Governance is rated Moderate, and the overall rating now matches it. Of the ten risk categories, six are rated Low, three Moderate, being Political and Governance, Financial and Business Model and Capacity for Implementation, and one High. The High rating is Institutional and Policy under the Innovation dimension, for which GEF/C.66/13 sets a high risk appetite, so it records the nature of the intervention rather than a weakness in design. Environment and Social and Fiduciary remain Low, as the project finances no physical infrastructure or investment and is classified ESS Category C. Moderate reflects the residual risk to achieving project outcomes after the mitigation measures set out above.

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

Explain 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.

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.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this. (max. 500 words, approximately 1 page)

C1. GEF-8 alignment

The Project is fully aligned with the GEF-8 Programming Directions (GEF, 2023), specially with the Climate Change Mitigation Focal Area, particularly under Pillar I – "Promote innovation, technology development and transfer, and enabling policies for mitigation options with systemic impacts." The project directly contributes to Objective 1.1: Accelerate the efficient use of energy and materials and Objective 1.2: Enable the transition to decarbonized power systems, by advancing data-driven planning, enabling policy reform, and enabling investment pipelines for the decarbonization of hard-to-abate industries, starting with cement and, in a future phase, extending to iron and steel and aluminum. Moreover, by strengthening national readiness, mobilizing finance, and mainstreaming industrial mitigation into sustainable development planning, the programme also supports Pillar II, on its Objective 2.1: capacity-building for transparency under the Paris Agreement, through globally harmonized MEL tools and standardized emission-tracking protocols at national and facility levels. Within the Chemicals and Waste Focal Area, the project supports Objective 3.1: Promote circular solutions for waste and pollution reduction by fostering resource-efficient industrial processes, clinker substitution, and waste valorisation in the cement sector. Activities promoting the use of alternative fuels, industrial by-products, and recycled construction materials will reduce hazardous emissions, including mercury, and minimize waste generation. These interventions directly contribute to cleaner production, improved environmental performance, and reduced lifecycle impacts from industrial operations.

Furthermore, the GDIA support the four GEF-8 strategy's specific levers for creating desired transformations in the target systems (GEF, 2021):

- Governance and Policies: The programme strengthens national enabling environments by embedding industrial decarbonization within climate and industrial policy frameworks aligned with the Paris Agreement, SDG 9, and the Kunming-Montreal Global Biodiversity Framework. Through Component 1, it develops harmonized policy and regulatory tools, supports measurable decarbonization targets, and promotes green public procurement and fiscal incentives to shift subsidies toward low-carbon and circular solutions.
- Financial Leverage: The Accelerator mobilizes both public and private capital by improving project readiness and de-risking early investments. It promotes blended-finance models, sustainability-linked instruments, and fiscal mechanisms that align financial flows with climate and pollution-reduction objectives. Confirmed co-financing of USD 15,765,300 supports the Accelerator, mobilized through partnerships with knowledge platforms, research institutions, industry associations, national development banks, CIF, and private financiers.
- Innovation and Learning: Innovation underpins all components, from new plant-level-based emission mapping and MEL methodologies to foresight systems and policy assessment frameworks. Pilot applications in selected countries will demonstrate scalable business models and technology solutions, with lessons consolidated through UNIDO's global knowledge platform for replication under GEF-9.
- Multi-Stakeholder Dialogues: Structured engagement platforms link governments, industry, financiers, civil society, and local actors, ensuring demand-driven, inclusive technical assistance, embedding Just Transition and gender considerations into national planning and investment decisions.

The programme also aligns with the COP 30 Presidency's Pillar 1 – Transitioning Energy, Industry, and Transport, by accelerating industrial decarbonization through integrated policy reform, technology transfer, and investment facilitation. It supports several GEF-8 Integrated Programmes, notably the Net Zero Nature-Positive Accelerator, the Sustainable Cities IP, and the Eliminating Hazardous Chemicals from Supply Chains IP, by promoting circularity, resource efficiency, and reduced industrial pollution. The initiative further creates a strong entry point for GEF-9, by developing a coherent investment ecosystem for industrial decarbonization for replication under the next programming cycle.

The GEF's concessional financing is instrumental in delivering additionality, de-risking first movers, bridging cost gaps for innovative technologies, and unlocking private and multilateral capital for industrial transformation. Without GEF support, these systemic linkages between policy, finance, and technology would remain fragmented, and emerging economies would lack the institutional and financial readiness to implement industrial mitigation at scale.

C2. Alignment with UNIDO mandate/programmes

GDIA is a direct expression of UNIDO's constitutional mandate to promote Inclusive and Sustainable Industrial Development (ISID). As the only UN specialized agency with an exclusive mandate on industry, custodian of six SDG 9 indicators, and present in 173 Member States through 49 field offices and 10 Investment and Technology Promotion Offices, UNIDO holds the sectoral, normative and operational mandate required to deliver a programme that integrates asset-level data, technology, policy and finance in hard-to-abate sectors.
The programme operationalizes UNIDO's current strategic framework: Medium-Term Programme Framework (MTPF) 2026–2029 'Building Future-Ready Industries' and Vision 2050, both adopted at the 21st UNIDO General Conference in November 2025. Under MTPF 2026–2029, renewable and clean energy, sustainable energy access and climate action constitute a core UNIDO priority, with industrial decarbonization explicitly identified as a flagship line of work. GDIA converts this mandate into measurable action in the sectors defined in Section A, cement, iron and steel, and aluminum, where industrial emissions concentrate and where UNIDO's comparative advantage is strongest.

C3. Alignment with country priorities

At the country level, the initiative is anchored in national industrial and climate frameworks, such as NDCs, long-term low-emission development strategies (LT-LEDS), and sectoral climate action plans, across its pilot countries (e.g., Colombia, Ethiopia, Kenya, Uganda). Most of these countries has prioritized industrial decarbonization or clean manufacturing as part of their Paris Agreement commitments and sustainable industrial policies. The project therefore serves as a catalytic platform linking global initiatives (GEF, CIF, UNIDO, and IDDI) with national implementation channels, ensuring coherence with regional development agendas such as the African Green Industrialization Initiative (AGII), Latin America's Circular Economy (PACE) Coalition, and Middle East Green Initiative (MGI). In doing so, the project fully aligns with the GEF KM Guidelines, the GEF Communication Policy, and the GEF Policy Coherence Strategy, ensuring that global methodologies, policy signals, and knowledge products are consistently translated into country-level action, widely shared, and integrated into national planning processes.

Table 11: Pilot countries decarbonization commitments

Country	Reference Document	Country targets on Industrial Decarbonization
Colombia	NDC 3.0 (2025)	Economy-wide 51% GHG reduction by 2030 vs 2015. Industrial mitigation focuses on energy efficiency (10–15% improvement), clinker substitution in cement (up to 25%), and electrification of industrial heat under the Productive and Energy Transformation axis.
Ethiopia	NDC 3.0 (2025)	Economy-wide target of 70.3% below BAU by 2035. Industrial measures include energy efficiency, circular economy approaches, cleaner industrial processes, clinker substitution, and low-carbon technology deployment for cement and manufacturing sectors.
Kenya	NDC 3.0 (2025)	Overall, 32% below BAU by 2030. Industrial goal to cut emissions 75 Mt CO_2e by 2035, of which 15 Mt CO_2e unconditional; rollout of Green Economy Strategy and Cleaner Production Centers to raise industrial efficiency 10–15%.
Uganda	Updated NDC (2022)	Economy-wide target of 24.7% below BAU by 2030. Industrial measures focus on energy efficiency, cleaner technologies, fuel switching, and low-carbon industrial development.

Alignment with Colombia's national priorities

At the highest level, GDIA directly supports the implementation of Colombia's enhanced climate ambition under its NDC 3.0 (Government of Colombia, 2025), which establishes a pathway to reduce GHG emissions by 51% by 2030 and achieve carbon neutrality by 2050. These targets require a structural transformation of emissions-intensive sectors, including industry and construction materials, which are recognized as critical sectors for mitigation action and low-carbon transition pathways.

The NDC 3.0 includes a dedicated portfolio of mitigation measures for the "Commerce, Industry and Tourism" sector focused on energy management, energy efficiency, fuel substitution, circular economy approaches, and industrial modernization. Within this framework, the cement sector is identified as a strategic mitigation subsector due to its relevance within industrial process emissions and its decarbonization potential. The NDC establishes concrete sectoral targets for the cement industry. By 2030, Colombia aims to increase the substitution of fossil fuels through co-processing to reach 15% of the energy matrix used in cement production (0.73 MtCO2eq). By 2035, this target increases to 23% substitution of fossil fuels through co-processing (1.16 MtCO2eq).

At the sectoral level, GDIA is closely aligned with Colombia's "Cement and Concrete Industry Roadmap to Carbon Neutrality in Concrete 2050" (PROCEM, 2023), which establishes a long-term vision for achieving carbon neutrality in the cement and concrete sector through technological modernization, energy efficiency, clinker substitution, circular economy approaches, and deployment of low-carbon technologies. The roadmap highlights the importance of strengthening MEL systems compatible with IPCC methodologies, scaling best available technologies, promoting co-processing and circularity, and facilitating collaboration for technology transfer and innovation.

The project is also fully consistent with Colombia's National Reindustrialization Policy (CONPES, 2023), which identifies the just energy transition as one of the country's main strategic pillars for economic transformation. The policy aims to increase productivity, diversify and sophisticate the productive matrix, strengthen industrial value chains, promote technological upgrading, and reduce dependence on extractive activities. Within this framework, industrial decarbonization is recognized not only as a climate necessity, but also as an opportunity to improve competitiveness, innovation, and long-term industrial resilience. GDIA contributes directly to these objectives by supporting modernization of the cement sector through low-carbon technologies and financial mechanisms that enable sustainable industrial transformation.

In addition, the project aligns with the National Energy Plan and the Strategic Industrialization Plan (UPME, 2025), which emphasize the integration of sustainability, energy diversification, circular economy principles, and industrial innovation into the country's future development model. These frameworks recognize the importance of developing new industrial value chains and deploying clean energy solutions to support industrial growth while ensuring environmental sustainability and energy security.

Overall, the GDIA project operationalizes Colombia's climate and industrial policy ambitions by developing and applying methodologies, analytical frameworks, and planning tools that strengthen the country's capacity to design and implement industrial decarbonization strategies based on asset-level data, technology assessments, financing approaches, and robust impact measurement systems. The project therefore represents an important enabling mechanism to support the transformation of Colombia's cement sector into a low-carbon, competitive, and resilient industry, while contributing to the achievement of national climate targets and broader sustainable development objectives.

Alignment with Ethiopia's national priorities

At the highest level, the GDIA project directly supports Ethiopia's climate and industrial transformation agenda as articulated in Ethiopia's NDC 3.0 (Government of Ethiopia,2025), the Long-Term Low Emission and Climate Resilient Development Strategy (Government of Ethiopia, 2023), and the Ten-Year Development Plan (DPG, 2024). Ethiopia's NDC 3.0 commits to reducing GHG emissions by 70.3% below the revised business-as-usual scenario by 2035, while the LT-LEDS establishes a pathway toward achieving net-zero emissions by 2050. Both frameworks recognize industrial transformation, low-carbon growth, and climate-resilient development as central pillars of Ethiopia's future economic strategy.

Ethiopia's LT-LEDS identifies the IPPU sector as a priority area for decarbonization and highlights the need to modernize industrial production systems through cleaner technologies, energy efficiency, and enhanced measurement, reporting, and verification systems. The strategy further emphasizes the importance of mobilizing climate finance, strengthening institutional coordination, and developing sectoral transition pathways consistent with national climate objectives.

At the sectoral level, the project is strongly aligned with Ethiopia's Cement Industry Development Strategy (Ministry of Industry, 2015), which identifies cement as a strategic industry supporting national infrastructure development, urbanization, industrialization, and economic growth. The strategy recognizes the need for improved energy efficiency, alternative fuels, technology upgrading, environmental standards, logistics optimization, and stronger institutional coordination to ensure the long-term sustainability and competitiveness of the cement sector. It also highlights the importance of knowledge transfer, research and development, and partnerships with international technical institutions.

The project also aligns with Ethiopia's broader industrial development agenda under the Ethiopian Industrial Development Strategic Plan (Ministry of Industry, 2013), which promotes accelerated industrialization, manufacturing expansion, infrastructure development, and climate-resilient economic transformation. The strategy identifies cement as one of the country's strategic industrial sectors and emphasizes the importance of industrial modernization, technology transfer, energy access, industrial efficiency, and institutional strengthening to support Ethiopia's transition toward middle-income status.

In addition, the project is fully consistent with Ethiopia's Climate Resilient Green Economy (Government of Ethiopia, 2019) approach and related climate governance frameworks referenced in the Third National Communication (Government of Ethiopia, 2024) and the First Biennial Update Report (Government of Ethiopia, 2025). These documents highlight Ethiopia's commitment to integrating climate action into national development planning, scaling renewable energy deployment, strengthening MEL systems, and mobilizing international climate finance for mitigation and adaptation action.

Overall, the GDIA project operationalizes Ethiopia's climate and industrial policy ambitions by providing the analytical tools, institutional coordination mechanisms, financing methodologies, and stakeholder platforms required to support the transition of Ethiopia's cement sector toward a low-carbon, competitive, and climate-resilient development pathway. The project therefore represents an enabling mechanism to strengthen industrial modernization, improve investment readiness, and support implementation of Ethiopia's long-term decarbonization and sustainable development objectives.

Alongside GDIA, three initiatives work on this sector in parallel. By the nature of the global project and the network already established by UNIDO, GDIA during the PPG phase has been leading the coordination effort agreed with the Ministry of Industry (MoI) as national lead, the Ministry of Planning and Development (MoPD, as the CTCN National Designated Entity) and the environment authority (EFCCC). GDIA leads the consultation activity to have a coordinated effort and to avoid duplication of intervention and less effective and efficient

resources allocation. GDIA therefore will applies its global methodology backbone to the Ethiopian cement sector and leads on methodology development, the supporting policy framework and impact monitoring. The response plan led by UNEP/CTCN (USD 275,000) focuses on the cement and concrete inventory, the GCCA GNR-based reporting and measurement, reporting and verification (MRV) platform, technology prioritisation and the national cement decarbonization roadmap. The CIF BRIDGE program for Ethiopia, delivered through the AfDB (USD 150,000), leads facility-level data collection and the investment framework, closing the readiness gaps the CIF Independent Expert Group flagged for a future Sectoral Transformation Investment Plan (s-TIP). UNDP extends the scope to steel, chemicals and eco-industrial parks, leads technical feasibility studies, and builds a facility-level MRV for those sectors that complement MoPD's integrated MRV and the CTCN cement MRV.

Alignment with Kenya's national priorities

The activities included in the GDIA align closely with Kenya's Second NDC (Government of Kenya, 2025), anchored in the commitment to reduce GHG emissions by 32% by 2030 relative to the business-as-usual scenario, while pursuing a long-term objective of achieving net zero emissions by 2050. These targets are supported by Kenya's broader transition agenda, which seeks to simultaneously strengthen industrial competitiveness, expand access to affordable clean energy, and promote climate-resilient economic growth. Kenya's NDC and long-term transition frameworks recognize that climate change already causes economic losses estimated at 3–5% of GDP annually and identify industrial modernization, green manufacturing, energy efficiency, and technological transformation as key pillars for achieving national climate and development objectives.

The project is also closely aligned with Kenya's National Climate Change Action Plan 2023–2027 (Ministry of Environment, Climate Change and Forestry, 2023), which provides the country's operational framework for implementing climate mitigation and resilience actions across sectors. The NCCAP explicitly identifies "Manufacturing" and "Energy and Transport" as priority climate change action areas and emphasizes the need for low-carbon industrial development, technology deployment, climate finance mobilization, institutional strengthening, and improved MEL systems. The NCCAP also highlights the importance of aligning climate actions with Kenya Vision 2030 (Government of Kenya, 2007) and the Bottom-Up Economic Transformation Agenda (Parliament of Kenya, 2023), while strengthening climate resilience and reducing emissions across productive sectors.

Kenya's Energy Transition and Investment Plan (Ministry of Energy and Petroleum, 2023) establishes a national pathway toward net zero emissions by 2050 while supporting economic growth, industrialization, and energy security. The ETIP emphasizes the importance of improving understanding of decarbonization technologies, assessing feasibility and impacts of mitigation pathways, evaluating investment requirements, and addressing uncertainties related to technology, infrastructure, policy, and markets. The project's activities related to asset-level data collection, emissions profiling, technology assessment, and industrial decarbonization modelling are strongly aligned with the analytical and planning approach promoted under the ETIP. GDIA supports these priorities by developing methodological approaches that improve the country's capacity to assess emissions reduction opportunities, technology deployment options, and long-term transition pathways within the cement sector based on robust industrial data and evidence-based analysis.

Overall, the GDIA project directly supports Kenya's climate and industrial policy priorities by strengthening the analytical, methodological, institutional, and financial foundations needed to plan and implement industrial decarbonization pathways for the cement sector. Through its focus on data-driven methodologies, the project contributes to the operationalization of Kenya's long-term transition toward a low-carbon, climate-resilient, and competitive industrial economy.

Alignment with Uganda's national priorities

At the highest level, GDIA supports the implementation of Uganda's Updated NDC (Government of Uganda, 2022), which establishes an economy-wide mitigation target of 24.7% below BAU by 2030, corresponding to an absolute reduction of 36.75 $MtCO_2e$ in 2030. Uganda's BAU emissions are projected to increase from 90.1 $MtCO_2e$ in 2015 to 148.8 $MtCO_2e$ by 2030 and 235.7 $MtCO_2e$ by 2050, underscoring the need for early action

to avoid locking in high-emission development pathways. The Updated NDC explicitly includes IPPU, mineral industry, product use, transport, waste, energy, and AFOLU within the mitigation scope, representing a broader and more integrated approach than the first NDC.
Within the IPPU sector, the cement industry is directly identified as the main source of emissions. The Second Biennial Update Report (Government of Uganda, 2025) note that cement production, particularly clinker production from limestone, accounts for most IPPU emissions. The principal mitigation measure identified for the sector is clinker substitution in cement production, replacing part of the clinker content with less carbon-intensive materials such as pozzolana, fly ash, or slag. This measure is expected to reduce emissions by approximately 0.14 $MtCO_2e$ by 2030. The BUR also describes progress in domestic MEL, including improved institutional capacity and data management, especially in the IPPU sector, while also identifying continuing gaps in tracking mitigation actions, climate finance, support needs, data systems, and institutional coordination. By strengthening industrial decarbonization methodologies, investment readiness, and MEL-compatible planning tools, GDIA can help address these gaps and support Uganda's transition toward a low-carbon and climate-resilient economy.
At the sectoral level, GDIA is highly consistent with emerging efforts to develop a national low-carbon transition pathway for Uganda's cement industry. In 2025, Uganda's cement sector, in collaboration with the GCCA, UN-CTCN, and international technical partners, initiated the preparation of a national "Net Zero Roadmap" for the cement industry targeting carbon neutrality by 2050. The roadmap process focuses on clinker substitution, alternative fuels, waste heat recovery, co-processing, circular economy approaches, and deployment of low-carbon cement technologies.
Furthermore, Uganda's National Development Plan III (National Planning Authority, 2023) recognizes climate change mitigation and adaptation as critical to increasing household incomes and improving quality of life, while emphasizing integration of climate change, gender, disaster risk reduction, planning, budgeting, reporting, GHG inventory development, and MRV systems.
Overall, GDIA operationalizes Uganda's climate and industrial priorities by supporting a more data-driven, investment-oriented, and sector-specific approach to industrial decarbonization. The project is particularly relevant to the cement sector, where national documents already identify clinker substitution, industrial energy efficiency, and improved mitigation planning as priority areas. It therefore provides an enabling mechanism to support Uganda's NDC implementation, improve the bankability of industrial mitigation measures, and strengthen the country's capacity to align cement-sector growth with low-carbon development objectives.
Alongside GDIA, one additional initiative works on this sector in parallel. By the nature of the global project and the network already established by UNIDO, in Uganda coordination activities have been carried out with the CIF BRIDGE programme through the AfDB (USD 150,000) which will support the national readiness for its cement decarbonization. Uganda scored 76 in the CIF Independent Expert Group Assessment, and under BRIDGE, the goal is to close the three gaps it identified: market demand analysis, cross-ministerial policy coherence, and technical specificity on measures such as co-processing in cement kilns. As a forward-looking assumption in how to coordinate between both initiatives, the GDIA is well positioned to lead on the cement sector while AfDB with CIF could help to expand to other sectors including steel. GDIA leads methodology, technology foresight, the supporting policy framework, the investment framework and impact monitoring, applying its global methodology backbone to the Ugandan cement sector. AfDB/BRIDGE leads facility-level data collection, the market demand and growth validation that closes the IEG's market gap, and the gap remediation roadmap toward s-TIP readiness. Here, the Ministry of Energy and Mineral Development leads the government side.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment

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

Yes

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

Yes

If the project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

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

Improving women's participation and decision-making; and/or

Yes

Generating socio-economic benefits or services for women.

Yes

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

Yes

Stakeholder Engagement

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

Yes

Select what role civil society will play in the Project

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

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

Executor or co-executor;

Other (Please explain)

Private Sector

Will there be private sector engagement in the project?

Yes

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

Yes

Environmental and Social Safeguards

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
Low	Low		

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted and an anticipated timeline for delivery of relevant outputs has been provided.

Yes

Socio-economic Benefits

We confirm that the project design has considered socio-economic benefits to be delivered by the project and these have been clearly described in the Project Description and will be monitored and reported on during project implementation (at MTR and TER).

Yes.

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	Low		

ANNEX A: FINANCING TABLES

GEF Financing Table

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 ($)
UNIDO	GET	Global	Climate Change	CC Global/Regional Set-Aside	Grant	3,000,000.00	285,000.00	3,285,000.00
Total GEF Resources ($)						**3,000,000.00**	**285,000.00**	**3,285,000.00**

Project Preparation Grant (PPG)

Was a Project Preparation Grant requested?

true

PPG Amount ($)

150000

PPG Agency Fee ($)

14250

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	PPG($)	Agency Fee($)	Total PPG Funding($)
UNIDO	GET	Global	Climate Change	CC Global/Regional Set-Aside	150,000.00	14,250.00	164,250.00
Total PPG Amount ($)					**150,000.00**	**14,250.00**	**164,250.00**

Please provide Justification

Sources of Funds for Country Star Allocation

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

Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing($)	Co-financing($)
CCM-1-1	GET	3,000,000.00	15465300
Total Project Cost		**3,000,000.00**	**15,465,300.00**

Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
GEF Agency	UNIDO	Grant	Investment mobilized	80300
GEF Agency	UNIDO Net Zero Partnership for Industrial Decarbonization (NZP)	Grant	Investment mobilized	1000000
GEF Agency	UNIDO Net Zero Partnership for Industrial Decarbonization (NZP)	In-kind	Recurrent expenditures	500000
GEF Agency	UNIDO Industrial Deep Decarbonization Initiative (IDDI)	In-kind	Recurrent expenditures	500000

Private Sector	Global Cement and Concrete Association (GCCA)	In-kind	Recurrent expenditures	3000000
Others	Columbia University – Center on Sustainable Investment (CCSI)	In-kind	Recurrent expenditures	4000000
Others	Imperial College Centre for Climate Finance & Investment	In-kind	Recurrent expenditures	2100000
Private Sector	Climate TRACE	In-kind	Recurrent expenditures	4000000
Others	Climate Technology Centre and Network (CTCN)	In-kind	Recurrent expenditures	285000
Total Co-financing				**15,465,300.00**

Please describe the investment mobilized portion of the co-financing

Of the total co-financing of USD 15,465,300, USD 1,080,300 is classified as Investment Mobilized and USD 14,385,000 as Recurrent Expenditures. The Investment Mobilized consists of UNIDO's cash contributions committed specifically to implement GDIA activities: USD 80,300 from UNIDO's own resources and USD 1,000,000 through the Net Zero Partnership for Industrial Decarbonization (NZP). These amounts were identified as Investment Mobilized because they represent new, additional financial resources leveraged by the project and dedicated to its analytical and capacity-building activities, as confirmed in the respective co-financing letters, rather than pre-existing recurrent institutional budgets. All remaining co-financing is in-kind technical expertise and staff time from partner organizations and is therefore reported as Recurrent Expenditures.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	7/20/2026	Ms. Ganna Onysko	00431260263647	g.onysko@unido.org
Project Coordinator	7/20/2026	Mr. Marco Gervasi	00431260263877	m.gervasi@unido.org

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

Please attach the Operational Focal Point endorsement letter(s) with this template.

Name of GEF OFP	Position	Ministry	Date (MM/DD/YYYY)
Ana Maria Garcia Rivera	Acting Head of the International Affairs Office	Ministry of Environment and Sustainable Development	5/8/2026
Mensur Dessie Nuri	Climate Institutional Development Advisor	Ministry of Planning and Development	5/22/2026
Festus K. Ng'eno	Principal Secretary of the State Department for Environment & Climate Change	Ministry of Environment, Climate Change & Forestry	5/13/2026
Patrick Ocailap	Deputy Secretary to the Treasury	Minister for Finance, Planning and Economic Development	5/26/2026

ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document.

1. Core indicators:

GEF core indicator	Indicator	Baseline	Mid-term target	End of project target	Means of verification	Risks (see section B6)
11	Number of direct beneficiaries disaggregated by gender	0	0	Total: 800 Women: 320 Men: 480	- Project progress reports and PIRs - Participant lists and attendance records - Training and capacity-building	Capacity for Implementation; Stakeholder; Climate

					reports - Monitoring data from the project MEL system capturing direct beneficiaries disaggregated by gender	

2. Outcome indicators:

Outcome	Indicator	Baseline	Mid-term target	End of project target	Means of verification	Risks
Outcome 1A: Strengthened global coordination, communication, and knowledge systems for industrial decarbonization	Gender-responsive global coordination mechanism operational and regularly convening key stakeholders for industrial decarbonization planning, with at least 40 per cent women participants and at least 30 per cent women speakers or panellists across Project Steering Committee, Advisory Board and global events	0	1	1	- Project progress reports and PIRs - PSC meeting minutes and attendance records	Political and Governance; Stakeholder
	# of unique users accessing knowledge products and tools, with sex-disaggregated reporting where registration data permits, from the Accelerator web platform	0	0	300	- Web platform analytics (unique users, sessions, downloads) - Knowledge repository usage statistics - Project progress reports and PIRs	Stakeholder; Institutional and Policy
Outcome 1B. Strengthened global coordination,	# of integrated GDIA methodological framework and modelling	0	1	1	- Methodology documents	Technological; Data availability and quality;

methodological frameworks, and financial readiness to support country-level planning and investment for industrial decarbonization.	platform developed and operational				- Integrated methodological guidance document - GDIA modelling tool documentation - Project progress reports and PIRs	Capacity for Implementation
Outcome 1C: Enhanced readiness of the global GDIA data modelling tool and methodologies for cement sector decarbonization, achieved through integrated data-driven planning, enabling policy frameworks, and financing strategies finalized using data from the four pilot countries.	# of pilot countries applying the integrated GDIA methodological framework and modelling platform for cement sector decarbonization planning	0	0	4	- GIS modelling outputs - National assessment reports - Validation workshop reports	Political and Governance; Capacity for Implementation; Data availability and quality
Outcome 2: Enhanced national readiness and enabling environments for cement sector decarbonization, achieved through nationally endorsed, investment-ready decarbonization models.	# of pilot countries completing national design clinics, validation workshops, and capacity-building programmes for cement sector decarbonization planning	0	0	4	- Design Clinic reports - Validation workshop reports - Training reports - Project progress reports and PIRs	Stakeholder; Capacity for Implementation; Political and Governance

3. Output indicators:

Output	Indicator	Baseline	Mid-term target	End of project target	Means of verification	Risks

Output 1A.1: Global coordination and governance mechanisms established.	# of PSC meetings convened to guide global coordination of the Accelerator	0	2	6; women ≥ 40%	- Project progress reports and PIRs - PSC meeting minutes and attendance records	Political and Governance; Stakeholder
	# of Advisory Board meetings convened, with at least 40 per cent women participants and at least 30 per cent women speakers or panellists across Project Steering Committee, Advisory Board and global events, with evidence of women's contributions reflected in the outputs	0	2	6; women ≥ 40%	- Advisory Board minutes and attendance records	Political and Governance; Stakeholder
Output 1A.2: Communication and knowledge management systems established and operational.	# of knowledge products and communication materials, of which at least 50 per cent include gender or just transition analysis, on industrial decarbonization disseminated through the global communication strategy	0	5	10; ≥ 5 with gender analysis	- Knowledge products and case studies - Web platform repository - Project progress reports and PIRs	Stakeholder; Institutional and Policy
	# of global dissemination events attended, with at least 40 per cent women participants and at least 30 per cent women speakers or panellists	0	0	2; women ≥ 40%	- Event reports - Project progress reports and PIRs	Stakeholder; Institutional and Policy
Output 1B.1: Plant-level-data based methodology for country-wide decarbonization scenarios aligned	GDIA modelling tool developed and operational	0	1	1	- Methodology documents - GIS modelling tool documentation	Technological; Data availability and quality

with global climate goals.					- Project reports and PIRs	
	# of methodological components integrated into the GDIA modelling tool, including at least two gender-responsive variables covering sex-disaggregated employment effects and access to finance by enterprise ownership and validated through pilot-country application	0	0	5; ≥ 2 gender-responsive	- Methodology documents - GIS modelling tool documentation - Project reports and PIRs	Technological; Data availability and quality; Capacity for Implementation
Output 1B.2: Methodology for technology pathways to support the decarbonization of hard-to-abate sectors.	# of technology methodology developed and integrated into the modelling tool, including a gender-responsive analytical element covering the occupational and skills profile of each prioritized pathway disaggregated by sex	0	1	1; gender element included	- Methodology documents - Technical documentation of modelling tool - Project progress reports and PIRs	Technological; Capacity for Implementation
Output 1B.3: Methodology for supporting policy frameworks to support the decarbonization of hard-to-abate sectors.	# of policy frameworks developed and integrated into the modelling tool, including a gender-responsive analytical element screening each candidate policy instrument for gender-differentiated effects	0	1	1; gender element included	- Methodology documents - Technical documentation of modelling tool - Project progress reports and PIRs	Institutional and Policy; Capacity for Implementation
Output 1B.4. Methodology for the financial architecture to support the decarbonization of	# of financial architecture frameworks developed and integrated into the modelling tool,	0	1	1; gender element and ≥ 1 inclusive feature	- Methodology documents -Technical documentation of	Financial and Business Model; Capacity for Implementation

hard-to-abate sectors.	including a gender-responsive analytical element and at least one inclusive design feature addressing access barriers for women-led medium and small enterprises (SMEs) in the value chain				modelling tool - Project progress reports and PIRs	
Output 1B.5. Methodology for impact estimation and monitoring to support the decarbonization of hard-to-abate sectors.	# of impact estimation and monitoring methodology developed and integrated into the modelling tool, including sex-disaggregated impact variables and GESI considerations in the harmonized safeguards screening framework	0	1	1; gender element included	- Methodology documents - Technical documentation of modelling tool - Project progress reports and PIRs	Institutional and Policy; Capacity for Implementation
Output 1B.6. Training curriculum and template framework developed to support execution of sectoral decarbonization investment plans.	# of training programme developed	0	1	1	- Training materials - Workshop documentation - Project progress reports and PIRs	Capacity for Implementation; Stakeholder
	# template framework for sectoral decarbonization investment plans developed	0	1	1	- Methodology documents - Project progress reports and PIRs	Institutional and Policy
	Integrated methodological guidance document developed	0	1	1	- Methodological guidance document - Project progress reports and PIRs	Institutional and Policy
Output 1C.1. Plant-level-data modelling and monitoring tool: readiness enhanced through integration	# of pilot-country plant-level cement sector databases developed	0	0	1 per pilot country	- Plant-Level Modelling Tool databases	Political and Governance; Data availability and quality; Capacity for Implementation

and testing of data from the four pilot countries.					- GIS modelling outputs - Project reports	
	# of pilot-country cement sector decarbonization scenarios developed and validated	0	0	1 per pilot country	- Decarbonization scenario reports - Validation workshop reports - Project reports	Political and Governance; Data availability and quality; Capacity for Implementation
Output 1C.2. Technology pathways for cement decarbonization: readiness enhanced using data from the four pilot countries.	# of technology pathways reports developed for pilot countries, each containing at least two actionable gender-responsive recommendations	0	0	1 per pilot country ; ≥ 2 gender recommendations each	- Technology pathway reports - Validation Document / Final Recommendations Report	Technological; Data availability and quality
Output 1C.3. Supporting policy framework for cement decarbonization: readiness enhanced using data from the four pilot countries.	# of supporting policy framework reports developed for pilot countries, each containing at least two actionable gender-responsive recommendations	0	0	1 per pilot country; ≥ 2 gender recommendations each	- Methodology documents - GIS modelling tool - Project reports and PIRs	Institutional and Policy; Political and Governance
Output 1C.4. Financial architecture for cement decarbonization: readiness enhanced using data from the four pilot countries.	# of enabling financial architecture framework reports developed for pilot countries, each containing at least two actionable gender-responsive recommendations and at least one inclusive design feature addressing an identified barrier for women-led medium and small enterprises	0	0	1 per pilot country; ≥ 2 gender recommendations, ≥ 1 inclusive feature	- Methodology documents - Financial architecture reports	Financial and Business Model; Stakeholder

	(SMEs) in the cement value chain, for pilot countries					
Output 1C.5: Impact estimation and monitoring for cement sector decarbonization: readiness enhanced using data from the four pilot countries.	# of pilot-country Impact Estimation and Monitoring Reports developed	0	0	1 per pilot country	- Impact Estimation and Monitoring Reports - National Validation Workshop reports - Project progress reports and PIRs	Data availability and quality; Capacity for Implementation; Stakeholder
Output 1C.6. Knowledge materials consolidated and disseminated.	# of knowledge products developed (case studies, technical briefs, lessons learned and guidance materials), of which at least 50 per cent include gender or just transition analysis	0	0	4 per pilot country; ≥ 50% with gender analysis	- Knowledge repository - Project reports	Institutional and Policy
Output 2.1. National design clinics conducted to review, co-design, and validate sectoral decarbonization pathways and enabling frameworks.	# of National Design Clinics conducted	0	0	1 per pilot country	- Workshop documentation	Stakeholder; Capacity for Implementation
	# of stakeholders participating in gender-responsive Design Clinics, of which at least 40 per cent women, reported sex-disaggregated, with documented gender-related inputs and how they influenced the outputs	0	0	160 (40 per country; at least 40% female)	- Workshop documentation - Project progress reports and PIRs	Stakeholder; Capacity for Implementation
Output 2.2. National validation workshops conducted to validate sectoral decarbonization scenarios.	# of National Validation Workshops conducted	0	0	1 per pilot country	- Workshop documentation	Stakeholder; Capacity for Implementation
	# of stakeholders participating in gender-responsive Validation workshops, of which at least 40 per cent women, reported sex-	0	0	160 (40 per country; at least 40% female)	- Workshop documentation	Stakeholder; Capacity for Implementation

	disaggregated, with documented gender-related inputs and how they influenced the outputs				- Project progress reports and PIRs	
Output 2.3. National capacity-building programme delivered to support cement sector decarbonization planning.	# of stakeholder training events conducted in pilot countries, with targeted outreach to women professionals and women-led SMEs documented	0	0	1 per pilot country	- Training documentation - Attendance reports	Stakeholder; Capacity for Implementation
	# of stakeholders trained on the GDIA methodologies and modelling tools, of which at least 40 per cent women, reported sex-disaggregated, with evidence of GESI integration in the national planning, modelling and policy processes supported	0	0	160 (40 per country) (at least 40% female)	- Training documentation - Project progress reports and PIRs	Stakeholder; Capacity for Implementation

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount ($)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Experts & International consultations, national hearings (e.g. for project preparation, technical baseline analysis, budget and workplan design, sectoral methodology design, stakeholder consultations)	101,640.00	71,308.00	30,332.00
Local Travel and subsistence costs for consultations and discussions (e.g. in-country consultations, and	15,000.00	6,486.59	8,513.41

pilot country missions, and Regional Dialogues with OFPs)			
Contractual Services (e.g. UN-HACT capacity assessments of executing partners, partner due diligence and specialised analytical inputs – planned to be done August & September 2026)	25,000.00	0.00	25,000.00
Other Direct Costs (validation workshop logistics, knowledge products, printing and dissemination materials, translation and communications support)	8,360.00	93.55	8,266.45
Total	**150,000.00**	**77,888.14**	**72,111.86**

ANNEX E: PROJECT MAP AND COORDINATES

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

Location Name	Latitude	Longitude	GeoName ID
Bogotá	4.6097	-74.0817	3,688,689

Location Description:

Capital of Colombia

Activity Description:

Pilot for cement decarbonization using GIS tools, policy, and finance assessments.

Location Name	Latitude	Longitude	GeoName ID
Addis Ababa	9.0373	38.8350	344,979

Location Description:

Capital of Ethiopia

Activity Description:

Pilot for cement decarbonization using GIS tools, policy, and finance assessments

Location Name	Latitude	Longitude	GeoName ID
Nairobi	-1.2833	36.8166	184,745

Location Description:

Capital of Kenya

Activity Description:

Pilot for cement decarbonization using GIS tools, policy, and finance assessments.

Location Name	Latitude	Longitude	GeoName ID
Kampala	0.313611	32.5811	232,422

Location Description:

Capital of Uganda

Activity Description:

Pilot for cement decarbonization using GIS tools, policy, and finance assessments

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.

Geographic Focus

The geographical focus of the GDIA has been determined through a structured and evidence-based methodology designed to maximize both impact and replicability. The programme's selection process was guided by five key criteria:

- **Mitigation potential:** focused on high current and projected industrial emissions, identifying countries with significant cement, steel, and aluminium production and corresponding CO_2 footprints. These represent the world's largest mitigation opportunities, where even incremental efficiency gains or technology shifts can deliver measurable global benefits.
- **Demand growth:** targeting economies with strong infrastructure and urbanization trajectories, contexts where cement demand is expected to rise sharply in coming decades. Prioritizing these countries allows the Accelerator to intervene at a critical moment, helping them avoid long-term carbon lock-in and transition toward low-emission production systems.
- **Policy and market readiness:** identifying countries where government commitment to industrial decarbonization is evident, policy frameworks are evolving, and alignment exists with international initiatives such as the IDDI, the NZP-ID, and the Breakthrough Agenda. This ensures that national counterparts are ready to integrate project methodologies into their own planning and can leverage the Accelerator's outputs to unlock private investment.
- **Regional balance:** CIF IEG score and the Group B Country Development Area Profiles represented a baseline analysis of the country's needs and areas of intervention targeted by the GDIA.
- **UNIDO's in-country capacity:** UNIDO's operational presence and experience, focusing on countries where the Organization maintains strong government relationships, technical expertise, and active

industrial programmes. This guarantees efficient coordination, reduced transaction costs, and immediate engagement with relevant ministries, industry associations, and financial partners.

The aim of the criteria is to ensure that the chosen countries represent the most strategic opportunities for catalytic transformation in the cement and broader hard-to-abate industrial sectors. Within this structured selection framework, some countries, such as Colombia, Ethiopia, Kenya, and Uganda, were identified as potential candidates for pilots during the GEF-8 phase, the project contemplates expanding the portfolio on GEF-9. They demonstrate a balanced combination of strong cement sector activity, clear policy commitment, and institutional readiness to apply the Accelerator's methodologies. By applying this rigorous, multi-criteria selection methodology, the Accelerator ensures that its pilots not only deliver high national impact but also generate transferable lessons for broader scaling under GEF-9.

ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

Attach agency safeguard datasheet/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts (as applicable).

Title

Annex F - E&S_Screening_GDIA

ANNEX G: BUDGET TABLE

Please upload the budget table here.

ANNEX G: Budget Table

Expenditure Category	Detailed Description	Component (USD eq.)				Total (USD eq.)	Responsible Entity
		Component 1	*Component 2*	*M&E*[1]	*PMC*		
Goods	Webpage and knowledge management/outreach products	50,000	0	0	0	50,000	UNIDO EE
Subtotal Goods		**50,000**	**0**	**0**	**0**	**50,000**	
Sub-contract to executing partner/entity (Colombia)	Training/workshop/meeting: convening stakeholders, validating the GDIA assessments and hosting the related capacity-building workshops	0	60,000	0	0	60,000	To be determined (once the new government is fully installed to ensure governmental ownership)
	Travel: in-country travel for these activities	0	20,000	0	0	20,000	

[1] included as Component 3 in the CEO Endorsement Request.

Sub-contract to executing partner/entity (Ethiopia)	Training/workshop/meeting: convening stakeholders, validating the GDIA assessments and hosting the related capacity-building workshops	0	60,000	0	0	60,000	Ministry of Industry
	Travel: in-country travel for these activities	0	20,000	0	0	20,000	
Sub-contract to executing partner/entity (Kenya)	Training/workshop/meeting: convening stakeholders, validating the GDIA assessments and hosting the related capacity-building workshops	0	60,000	0	0	60,000	Ministry of Industry
	Travel: in-country travel for these activities	0	20,000	0	0	20,000	
Sub-contract to executing partner/entity (Uganda)	Training/workshop/meeting: convening stakeholders, validating the GDIA assessments and hosting the related capacity-building workshops	0	60,000	0	0	60,000	Ministry of Energy and Mineral Development
	Travel: in-country travel for these activities	0	20,000	0	0	20,000	
Subtotal Sub-contract to executing partner/entity		**0**	**320,000**	**0**	**0**	**320,000***	
Contractual Services – Company	Consultancy for Developing Enabling Financial Architecture Frameworks for Cement Decarbonization	115,000	0	0	0	115,000	UNIDO EE
Contractual Services – Company	Consultancy for Financial Methodologies for Hard-to-Abate Sector Decarbonization	85,000	0	0	0	85,000	UNIDO EE
Contractual Services – Company	Consultancy for Impact Estimation, Monitoring, and Safeguards Methodology for Hard-to-Abate Sector Decarbonization	85,000	0	0	0	85,000	UNIDO EE
Contractual Services – Company	Consultancy for Policy Framework Methodologies for Hard-to-Abate Sector Decarbonization	85,000	0	0	0	85,000	UNIDO EE
Contractual Services – Company	Consultancy for Sectoral Technology assessment in pilot countries	320,000	0	0	0	320,000	UNIDO EE
Contractual Services – Company	Consultancy for Technology Methodologies for Hard-to-Abate Sector Decarbonization	80,000	0	0	0	80,000	UNIDO EE
Contractual Services – Company	Consultancy for Training Programme and Implementation Framework	165,000	0	0	0	165,000	UNIDO EE

Contractual Services – Company	Consultancy on plant level modelling and Decarbonization scenarios	85,000	0	0	0	85,000	UNIDO EE
Contractual Services – Company	Consultancy for Applying plant level-based Modelling in pilot countries	160,000	0	0	0	160,000	UNIDO EE
Contractual Services – Company	Consultancy for Applying the Impact Estimation, Monitoring and Safeguards Framework in Pilot Countries	115,000	0	0	0	115,000	UNIDO EE
Contractual Services – Company	Mid-term Evaluation	0	0	30,000	0	30,000	UNIDO IA
Contractual Services – Company	Terminal Evaluation	0	0	30,000	0	30,000	UNIDO IA
Contractual Services – Company	Audit checks	0	0	0	42,500	42,500	UNIDO IA
Subtotal Contractual Services – Company		**1,295,000**	**0**	**60,000**	**42,500**	**1,397,500**	
Salary and benefits / Staff costs	Administration and Financial Assistant	30,000	0	40,000	45,000	115,000	UNIDO EE
Staff costs	Communication, knowledge management and training expert	70,000	0	0	0	70,000	UNIDO EE
Staff costs	Financial Experts for Hard-to-Abate Sector Decarbonization	170,000	0	0	0	170,000	UNIDO EE
Staff costs	Gender Expert	55,200	0	8,000	0	63,200	UNIDO EE
Staff costs	Policy Expert for Hard-to-Abate Sector Decarbonization	143,000	0	0	0	143,000	UNIDO EE
Staff costs	Project Manager	124,943	0	68,000	47,857	240,800	UNIDO EE
Staff costs	Technology Expert for Hard-to-Abate Sector Decarbonization	143,000	0	0	0	143,000	UNIDO EE
Subtotal Salary and benefits / Staff costs		**736,143**	**0**	**116,000**	**92,857**	**945,000**	
Workshops	Global events, indicatively: 3 in-person annual Global Coordination Meetings convening the Project Steering Committee, Advisory Board and Global Coordination Mechanism (e.g., about 45 participants each, including 3 sponsored delegates per pilot country); 3 GDIA side events at major international fora such as COP, NYCW, and the others (about 60 to 100 participants each).	165,000	0	0	0	165,000	UNIDO EE

Subtotal Trainings, Workshops, Meetings		**165,000**	**0**	**0**	**0**	**165,000**	
Travel	Travel for Component 1 activities, indicatively: about 20 international trips over 36 months, of which about 16 long-haul. These comprise travel to the four pilot countries for knowledge sharing activities, technical workshops and stakeholder consultations under Component 1, and about 4 trips to global knowledge sharing events. Costs cover airfare, DSA at applicable UN rates and terminal expenses, plus local travel within the pilot countries where applicable.	115,000	0	0	0	115,000	UNIDO EE
Subtotal Travel		**115,000**	**0**	**0**	**0**	**115,000**	
Office Supplies	Office and IT equipment	0	0	0	7,500	7,500	UNIDO EE
Subtotal Office Supplies		**0**	**0**	**0**	**7,500**	**7,500**	
Grand Total		**2,361,143**	**320,000**	**176,000**	**142,857**	**3,000,000**	

Please explain any aspects of the budget as needed here

**Note on pilot country allocations:*

Each pilot country (Colombia, Ethiopia, Kenya, and Uganda) benefits from both project components. Under the global Component 1, the costs associated with plant-level modelling, technology pathway development, enabling policy frameworks, financial architecture design, impact monitoring, and knowledge generation (Outputs 1C.1 to 1C.6) are allocated proportionally across the four pilot countries, corresponding to approximately USD 315,800 per country, for a total of USD 1,263,200 under Outcome 1C. This work is developed once on a common methodology at UNIDO level for cost efficiency, replicability and comparable results across the pilots. Under Component 2, each country receives a sub-contract of USD 80,000, executed by a national implementing entity, to convene stakeholders, validate the GDIA assessments and host the related capacity building with full national ownership (Outputs 2.1 to 2.3), budgeted under the GEF expenditure category Sub-contract to executing partner/entity. Within this sub-contract, USD 60,000 covers convening stakeholders, validating the GDIA assessments and hosting the related capacity-building workshops (training/workshop/meeting), and USD 20,000 covers in-country travel for these activities. No part of the sub-contract funds individual personnel; the underlying analytical work is delivered under Component 1 through Contractual Services – Company.

Combined, approximately USD 395,800 supports each pilot country's cement sector decarbonization.

ANNEX I: RESPONSES TO PROJECT REVIEWS

From GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF.