

60th GEF Council Meeting
June 14–18, 2021
Virtual Meeting

Agenda Item 10

**EVALUATION OF GEF ENGAGEMENT WITH
MICRO, SMALL, AND MEDIUM ENTERPRISES**

(Prepared by the Independent Evaluation Office of the GEF)

Recommended Council Decision

The Council, having considered document GEF/E/C.60/05, Evaluation of GEF Engagement with Micro, Small, and Medium Enterprises, and the Management Response, takes note of the related evaluation recommendations and endorses the management response to address them.

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ABBREVIATIONS

ASGM	artisanal and small-scale gold mining
BEE	Bureau of Energy Efficiency of the Government of India
CEO	Chief Executive Officer of the GEF
CIP	carbon-in-pulp or cyanide method
CO ₂	carbon dioxide
COVID-19	novel coronavirus disease
DENR	Department of Environment and Natural Resources
EMC	energy management cell
FSP	full-sized project
GCM	gravity concentration method
GEBs	global environmental benefits
GEF	Global Environment Facility
IEO	Independent Evaluation Office of the GEF
GHG	greenhouse gas
IAP	Integrated Approach Pilot
IEG	Independent Evaluation Group of the World Bank
IFC	International Finance Corporation of the World Bank Group
ILO	International Labour Organization
INR	Indian rupee
IP	Impact Program
LDCs	least developed countries
LSP	local service provider
M&E	monitoring and evaluation
MICs	middle-income countries
MSMEs	micro, small, and medium enterprises
MSP	medium-sized project
NGO	nongovernmental organization
PCBs	polychlorinated biphenyls
PCG	Partial Credit Guarantee
SGP	Small Grants Programme implemented by UNDP
SIDS	Small Island Developing States
SME	small and medium sized enterprise
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

EXECUTIVE SUMMARY

1. Background and approach

1. The Global Environment Facility (GEF) has a long history of supporting micro, small, and medium enterprises (MSMEs). As early as 1994, the GEF invested in what would become a 20-year Small and Medium Scale Enterprise (SME) Program that aimed to make long-term, low-interest funding accessible to SMEs for high-risk, innovative projects that contributed to climate change and biodiversity targets. More recent GEF programs have gone beyond climate change and biodiversity as the main areas of SME support to also target MSMEs in other focal areas.

2. For the purpose of this evaluation and based on the literature, MSMEs include all micro, small, and medium-scale profit-oriented entities, including individuals, that earn income through the sale of goods and services. Alongside the GEF's targeted engagement of formal MSMEs is its equally long history of working with informal MSMEs. These MSMEs have typically been engaged by the GEF as community beneficiaries and de facto natural resource managers, recognizing how their behaviors in aggregate directly affect the fate of these resources.

3. As the GEF has shifted into more integrated approaches, it has also increasingly engaged MSMEs not only as a source of innovation and as beneficiaries, but also as a partner in scaling up the generation of global environmental benefits through a value-chain approach. The GEF's latest Private Sector Engagement Strategy, approved in 2020, for the first time specifically mentions micro and small entrepreneurs such as smallholders, sole traders, artisans, and primary producers to be included in the GEF's private sector engagement initiatives.

4. MSMEs are constrained by several issues. The heterogeneity of MSMEs across countries and sectors makes it challenging to provide effective support based on the particular needs of MSMEs versus larger enterprises. Lack of access to financial capital and business-related knowledge and skills are widely identified as impediments to MSME growth, particularly in developing countries.

5. Previous evaluations have demonstrated how GEF support to MSMEs has resulted in social and economic benefits in addition to environmental benefits. These social and economic benefits can address constraints and serve as an incentive for these MSMEs to adopt and sustain environment-friendly sustainable technologies or practices, eventually allowing environmental benefits to be scaled up. However, these benefits are not systematically tracked across the GEF portfolio because they are not core to the GEF's mandate.

6. This evaluation looks for the first time at the extent to which the GEF engages MSMEs, which constitute the larger part of the private sector in the countries that the GEF works in. Through portfolio reviews and case studies, the evaluation assessed the types of interventions that engage MSMEs, the extent to which they have been engaged, and the environmental, social, and economic outcomes of these interventions. It also assessed the factors that influence the extent of MSME engagement and provides lessons on how the GEF can more effectively engage MSMEs.

2. Main findings

Profile of MSME interventions

7. **About half of completed projects involving the private sector specifically involved MSMEs, mainly in the biodiversity and multifocal areas, as well as in climate change projects.** Likewise, more than half of CEO-endorsed Impact Program (IP) and Integrated Approach Pilot (IAP) projects involve MSMEs, particularly in the commodities, food security and land use, and sustainable forest management programs. The most common type of MSME involved in climate change projects were SMEs. In biodiversity projects, individual producers were most common, followed by community-based organizations that generated profit. IP child projects tended to involve community-based organizations rather than individual producers.
8. Cofinancing is one indicator of stakeholder interest in and commitment to generating global environmental benefits. Almost half of completed MSME projects received cofinancing from private sector actors, similar to the overall private sector portfolio. MSMEs provided cofinancing in 11 percent of projects where they were involved and could be identified. National corporations were the most common type of private sector cofinancier. Indicative private sector and beneficiary cofinancing for the 9 IP projects in GEF-7 is already more than double the amount for the 31 IAP projects in GEF-6.
9. **Completed MSME projects typically involved more types of private sector actors, suggesting that these projects engage a wider spectrum of private sector actors across the value chain.** More than half of MSME projects involved at least three types of private sector actors. Conversely, almost half of private sector projects that did not include MSMEs typically worked with only one actor type, mainly large companies.
10. **Projects involved MSMEs primarily to adopt more environmentally sustainable technologies and practices and to continue adopting these interventions using their own funds after project completion.** Innovation and scaling-up roles for the private sector were more common in the climate change focal area, and less common in chemicals and waste and biodiversity projects. In general, a higher percentage of MSME projects involved private sector actors to financially sustain interventions, compared to projects that excluded MSMEs, regardless of focal area.

The GEF's additionality and broader adoption of interventions

11. The GEF intervenes in economic markets in two distinct ways: as a catalyst working with market forces, or as a creator of change through a package of interventions that can create or transform markets. The most common GEF interventions that engaged MSMEs included technical knowledge and skills training, technologies or practices, awareness and education initiatives, and access to grants or financing for interventions that generate global environmental benefits. These activities address the most common constraints that MSMEs face, as noted in the literature. In the case studies, awareness and education initiatives

increased the willingness of MSMEs to engage in other project activities and ultimately to adopt new technologies, with sufficient financial and technical support.

12. Broader adoption of interventions by the end of the project indicates progress toward achieving long-term environmental impacts. In more than 80 percent of MSME projects, stakeholders trained to provide support for interventions continued to do so, introduced technologies or practices continued to be used without project funding or were in the process of doing so, and some behavior change as an effect of awareness and education initiatives was reported by project end. In the artisanal small-scale gold mining case study, mercury use had mostly stopped in one site five years after project completion, but no miners in either of the two project sites continued using the introduced technology, because of lack of follow-up financial and technical support.

Extent of engagement and outcomes

13. Private sector engagement in this evaluation refers to the participation of private sector actors in interventions that directly or indirectly generate global environmental benefits. Engagement was considered effective when private sector actors adapted their behavior, and ineffective when no private sector actors meaningfully participated in project activities even though they were invited to do so. Because projects in the portfolio most commonly intended for private sector actors to adopt and fund interventions that generate global environmental benefits, effective private sector engagement was key to achieving environmental targets in many projects.

14. MSME projects that effectively engaged the private sector were associated with successful project outcome ratings. In the overall private sector portfolio, a higher percentage of projects that effectively engaged the private sector were rated as likely to be sustainable. This suggests that effective private sector engagement in project activities, and not mere involvement as part of the project's design, is a key contributor to achieving outcomes both during and after the project.

15. **More than half the MSME projects effectively engaged private sector actors and generated environmental, social, and economic benefits.** The most common environmental targets were greenhouse gas emissions reductions and landscapes placed under improved practices. These targets were fully achieved or exceeded in the majority of projects. The most common social and economic targets were improved access to financing and increase in income, achieved to some extent in more than 60 percent of projects that aimed to generate these benefits. In the case studies, economic and social benefits such as reduced costs, higher savings or income, and healthier environmental conditions incentivized MSMEs to adopt environmentally sustainable technologies and practices.

16. **However, even within the MSME sector, different enterprises had very different needs and barriers arising from their size, subsector, and specific circumstances, leading to different degrees of engagement and magnitude of environmental benefits generated.** Micro and small enterprises tended not to economically benefit as much as medium enterprises do, because

they had a lower level of resources to begin with and inherent size constraints that limited the applicability of project support to their context. Increasing access to financing for this group of MSMEs was not always cost-effective, but lower-cost practices and technologies provided a viable option for addressing the need to generate both environmental and economic benefits.

Influencing factors

17. **Nearly 9 out of 10 MSME projects and private sector projects that effectively engaged the private sector without having major implementation issues had a relevant project design,** which included: the inclusion of diverse private sector actors in project activities beyond a cofinancing role, context-appropriate economic incentives and a business case for adopting or supporting GEF-supported interventions, follow-up support for broader adoption, and partnering with established support organizations.

18. **Project design became more relevant for engaging MSMEs and other private sector actors through good project preparation,** which involved consulting a wide range of stakeholders, and conducting sufficient assessment of the context as inputs to project design. Even more crucial was the understanding of barriers and motivations for both the supply and demand for a service or product, and not just having a business model.

19. **Involving diverse private sector partners in project activities beyond a cofinancing role and good project preparation most consistently predicted effective private sector engagement across all private sector projects.** Including key and diverse private sector actors in a project's intended reach creates the enabling environment for other private sector actors to engage in project activities. Key actors may be excluded when MSMEs are not linked with other private sector actors at different scales, or when interventions serve the needs of only a few target groups.

20. **Providing incentives that account for differences in target groups' needs, capacities, motivations, and barriers are crucial for creating a business case** for MSMEs and other private sector actors to participate in activities that generate global environmental benefits. Economic viability and support for removing logistical, administrative, and financial barriers to switching to introduced technologies ultimately determines the extent to which these technologies are adopted.

21. **MSMEs often do not continue participating in interventions introduced by the project when they do not receive sufficient follow-up technical and financial support.** A common shortcoming observed in projects without follow-up support for broader adoption was the absence of activities to put in place a policy, plan, or financing for sustainability, replication, or scaling of the interventions. Project delays, and limited capacity in the project team to engage MSMEs and the private sector in general and/or to implement business- and finance-related interventions contributed to ineffective private sector engagement.

22. **Engaging and building the capacity of well-established organizations is a way to enable long-term follow-up support.** Projects in the portfolio and case studies demonstrated the

advantages of partnering with established organizations with in-depth expertise, especially at the local scale. These partnerships provide access to MSMEs through existing trust and knowledge networks and increase the likelihood of activities being sustained by these organizations after project completion.

3. Conclusions

- (a) While not always explicitly engaging them as private sector actors, the GEF has increasingly supported MSMEs over time within a wider spectrum of private sector actors, especially in the biodiversity, climate change, and multifocal areas.
- (b) GEF support has been most additional in engaging MSMEs—and has also been most successfully sustained—in the areas of capacity-building, knowledge and information dissemination, and technological innovations and improvements.
- (c) The majority of MSME projects effectively engaged private sector actors and generated environmental, economic, and social benefits, although the extent of access to benefits varied among MSMEs depending on their constraints.
- (d) Private sector engagement is influenced by several project design characteristics, the quality of project preparation, and the project management team’s and partners’ relevant technical expertise.

4. Recommendations

- (a) **MSMEs vary in their capacities and constraints, and therefore GEF support should address their context-specific needs, barriers, and economic viability related to generating global environmental benefits.** GEF may engage MSMEs not only or necessarily through increasing their access to financing, but also by supporting low-cost, context-appropriate practices, technologies, or facilities they can easily use, and by facilitating regulatory and administrative reforms required to access resources. Increasing access to financing is appropriate where a minimum level of resources already exists, and the higher amount of investment is needed to generate a higher magnitude of global environmental benefits. Partnering with local, established organizations may provide long-term support that increases the likelihood of global environmental benefits being sustained, mainstreamed, and/or scaled up.
- (b) **In addition to tracking environmental outcomes, GEF projects should design for and monitor social and economic benefits that engage the private sector, including MSMEs.**

CHAPTER 1: BACKGROUND AND APPROACH

- 1. The Global Environment Facility (GEF) has a long history of supporting micro, small, and medium enterprises (MSMEs).** As early as 1994, the GEF invested in the first phase of what would become a 20-year Small and Medium Scale Enterprise (SME) Program through the International Finance Corporation (IFC). The program primarily aimed to make long-term, low-interest funding accessible to SMEs for high-risk, innovative projects that contributed to climate change and biodiversity targets. More recent GEF programs have gone beyond climate change and biodiversity as the main areas of SME support to also target MSMEs in other focal areas, such as the Meloy Fund for sustainable fisheries in Indonesia, Moringa Agro-Forestry Fund for Africa, and the regional Water Funds under the \$50 million public-private partnership platform Earth Fund.
2. For the purpose of this evaluation and based on the literature, MSMEs include all micro, small, and medium-scale profit-oriented entities, including individuals, that earn income through the sale of goods and services rather than a salary. Though MSMEs employ fewer than 250 employees (Kushnir et al 2010), the World Bank (2021) estimates that formal MSMEs contribute up to 40 percent of national income and create 7 out of 10 jobs in emerging economies.
3. Alongside the GEF’s targeted engagement of formal MSMEs is its equally long history of working with informal MSMEs – farmers, fishers, artisanal miners and manufacturers, traders, tour operators, and other small business owners who are not formally organized or registered with the government. Informal MSMEs constitute a large part of the private sector in developing countries (Wunsch-Vincent and Kraemer 2016).
4. Many informal MSMEs are direct users of the natural resources that multilateral environmental agreements seek to preserve or restore. These MSMEs have typically been engaged by the GEF not as private sector actors but as community beneficiaries and de facto natural resource managers, recognizing how their behaviors in aggregate directly impact the fate of these resources. Interventions have consisted of participatory natural resource management, formalization of sustainable use rights, as well as livelihood support, payment for ecosystem services, and other forms of economic incentives. Thus MSMEs, whether formal or informal, are both partners and beneficiaries in the GEF’s fulfillment of its mandate to generate global environmental benefits.
- 5. As the GEF has shifted into more integrated approaches, it has also increasingly engaged MSMEs not only as a source of innovation and as beneficiaries, but also as partners in scaling up the generation of global environmental benefits.** The GEF’s latest Private Sector Engagement Strategy, approved in 2020, reflects the GEF’s shift to a more integrated approach that uses value chains as a framework for scaling up interventions. The 2020 Strategy envisions the GEF “supporting private sector partners to incorporate more sustainable forms of production and consumption.” Consistent with this value-chain approach, the 2020 Strategy

for the first time specifically mentions micro and small entrepreneurs such as smallholders, sole traders, artisans, and primary producers to be included in the GEF's private sector engagement initiatives.

6. Multinational corporations are increasingly taking on voluntary commitments to make their supply chains more environmentally sustainable by working with governments and civil society (Lambin and Thorlakson 2018, Haufler 2013). The shift comes from a growing recognition that the sustainability of their business depends on the sustainability of the environment (Hoffman 2018). The GEF now partners with global brands in environmentally high-impact industries, such as fashion and food, in its integrated programs.

7. As the backbone of activity in many of these industries, which includes production, processing, and retailing of goods and services, MSMEs play a critical role in the greening of supply chains (Demmler 2020, Rao 2019). Given their highly diverse composition and continuing growth as a sector, working with formal and informal MSMEs also provides a significant opportunity to meet the Sustainable Development Goals (SDGs) targets while ensuring that poor and marginalized populations are not left behind (UN-DESA 2020).

8. The GEF's Small Grants Programme (SGP), implemented by the United Nations Development Programme (UNDP) since 1992, was specifically created to support community-led approaches to resolving environmental issues while addressing livelihood challenges and actively promoting the role of women in projects. For example, it has supported farmer leaders and organizations to demonstrate climate-smart agro-ecological practices, artisanal fishers to improve their marketing strategy for fishery products while finding ways to stop illegal fishing, and community forest groups to process and market non-timber forest products and community-based ecotourism. The program also connects grant beneficiaries with other private sector actors and reports on this indicator annually (UNDP 2020).

9. **MSMEs are constrained by several issues.** The heterogeneity of MSMEs across countries and sectors in terms of size, structure, function, and other dimensions makes it challenging to provide effective support based on the particular needs of MSMEs versus larger enterprises (IEG 2019). In addition, they have specific constraints to starting up and scaling, which include lack of business plans and guidance, improper understanding of financing requirements, and operational inefficiencies due to a low level of resources (Nagachethan 2020).

10. Lack of access to financial capital and business-related knowledge and skills are widely identified as impediments to MSME growth, particularly in developing countries (World Bank 2012), but solutions need to address the context-specific interconnections among various MSME constraints (Prediger and Gut 2014). The 2020 Strategy identifies multistakeholder platforms and capacity-building as the main entry points for engaging MSMEs rather than finance (GEF 2020).

11. The Evaluation of the GEF-UNIDO Global Cleantech Innovation Programme (GEF IEO 2020) specifically looked at how the GEF has recently helped MSMEs to accelerate innovation in the climate change space. The evaluation found that entrepreneurs supported by the program were able to access much-needed financing and capacity-building support, especially through exposure to private sector experts and investors, to make their start-ups viable. However, the necessary policy and regulatory environment for cleantech innovation was not put into place. Benefits and higher-level outcomes such as job creation were not systematically tracked within the program.

12. **Previous evaluations have demonstrated how GEF support to MSMEs has also resulted in social and economic benefits in addition to environmental benefits.** They found that in many cases, 1) GEF-supported projects do produce synergistic or compensatory social and economic benefits for MSMEs, such as primary producers and smallholders, while generating environmental benefits (GEF IEO 2018), and that 2) a project's economic benefits can serve as an incentive for these MSMEs to adopt and sustain environment-friendly technologies or practices, eventually allowing environmental benefits to be scaled up (GEF IEO 2019). Many projects are designed to produce and report on economic and social benefits to MSMEs. However, these benefits are not systematically tracked across the GEF portfolio because they are not core to the GEF's mandate.

13. This evaluation assesses for the first time how different types of GEF-supported interventions engage MSMEs as a key partner across all focal areas. It aims to assess how these interventions, in the process of creating global environmental benefits, also contribute to generating economic and social benefits for these stakeholders that constitute the larger part of the private sector in the countries that the GEF works in.

1.1. Objective and key questions

14. The objective of this evaluation is to assess the extent to which the GEF engages MSMEs, and the extent to which this engagement creates economic and social benefits in the process of generating global environmental benefits.

15. The key evaluation questions are:

- (a) What types of GEF-supported interventions engage MSMEs?
- (b) What are the intended and unintended economic and social outcomes reported from GEF-supported interventions where positive environmental outcomes were reported?
- (c) Which factors and processes have contributed to or hindered the generation of these economic and social outcomes?
- (d) To what extent has GEF engagement with MSMEs contributed to these outcomes, including through the development of enabling conditions?

- (e) What are the most effective approaches for the GEF to engage MSMEs as a means to generating global environmental benefits?

16. In addition, the evaluation looked into how GEF-supported interventions have taken into account human and labor rights—especially for women, indigenous peoples, youth, and persons with disability—and transparency in governance. The evaluation also looked at the effects of the COVID-19 pandemic on MSMEs and on project outcomes.

1.2. Approach and Limitations

17. The evaluation used a mixed-methods approach to answer key questions at both the portfolio level and the case study level (see evaluation matrix, Table A2 in Annex A: Approach Paper).

Portfolio component

18. Due to the lack of systematic information on MSME involvement in projects, the evaluation first identified broader indicators of private sector involvement in the portfolio reviews, and then subsequently further reviewed these projects to assess the extent of MSME involvement. Of 1,711 GEF-supported projects with terminal evaluations as of June 2020, 18 percent (303 projects) were found to have activities relevant to the private sector. Of these 303, 158 projects (52 percent) were found to involve MSMEs; in 94 projects (31 percent), their involvement could not be conclusively determined. Because of their large number,¹ SGP projects were excluded from this portfolio review.

19. The 158 projects were selected through text analytics using 16 keywords and their derivatives to determine project intent to involve the private sector and MSMEs.² The selection process may have excluded projects that involved MSMEs where they were referred to mainly as community beneficiaries rather than as private sector partners.

20. In coordination with the Evaluation of the Integrated Approach Pilots (IAPs) and Impact Programs (IPs), a formative review of the 40 CEO-endorsed IAP and IP child projects was also undertaken to assess the extent of MSME and private sector involvement in the most recent GEF portfolio. Child projects CEO-endorsed as of January 2020 were included. A more in-depth review was done for the five projects that had midterm evaluations by January 2020.

21. The IAPs and IPs were the focus of the formative review because of their explicit intent to leverage private sector finance and knowledge as a means to mainstream and scale up

¹ Since start-up in 1992, the SGP has supported 25,117 small grants in up to 126 countries (UNDP 2020). The GEF IEO has conducted a separate evaluation of the program.

² The 16 keywords and their derivatives were: artisan/s/al, business/es, company/ies, corporation/s, enterprise/s, farmer/s, formalize/se/ation, fisher/s/folk/men/women, household/s, informal sector, livelihood/s, miner/s, M/SME/s, private sector, PYME, smallholder/s.

environmentally sustainable practices. These programs also exemplify the GEF's shift towards more integrated approaches by working through value chains.

Case study component

22. To complement findings on broader trends from the portfolio review, two case studies were carried out that assessed in greater depth the extent of the GEF's engagement with MSMEs. The first case study is based on the GEF's pilot intervention with artisanal and small-scale gold miners in the Philippines.³ The second case study is based on one of the GEF's interventions to promote the adoption of energy-efficient and renewable energy technologies and practices among MSMEs in energy-intensive sectors in India.

23. Both cases were selected to demonstrate findings from two very different sectors and contexts—the artisanal and small-scale gold mining (ASGM) sector in the Philippines and the energy efficiency sector in India. Lessons from these studies may not necessarily apply to the entire range of contexts of GEF engagement with MSMEs, but provide valuable insights on the how GEF has engaged and can better engage with MSMEs.

24. The case studies used a creative counterfactuals approach to identify the factors and enabling conditions that influenced MSME engagement, as well as the environmental, social, and economic outcomes. Experimental evaluation compares outcomes between treatment and control groups selected ex ante; the creative counterfactual approach makes use of all available data in a data-limited setting ex post, taking into consideration their various degrees of relevance and reliability. Instead of quantitatively comparing the treatment and control groups, the approach examines both quantitative and qualitative differences in outcomes between the intervention and multiple comparison units to identify the most plausible explanations for these differences (see Annex A: Approach Paper, for detailed discussion of methods).

25. Given the travel limitations and safety concerns related to the COVID-19 pandemic, most primary field data for the case studies were collected by phone, email, and video conference between July and October 2020 by consultants based in the case study countries—the Philippines and India. Travel restrictions prevented the local consultants from visiting the project sites, but at the same time provided the opportunity to interview more stakeholder groups because the times and locations were more convenient for the latter. MSMEs that did not normally have phone or internet access were safely convened by a local intermediary in a more accessible location where they could be interviewed via video conference.

³ This case study was carried out in conjunction with the Evaluation of GEF Interventions in the Artisanal and Small-scale Gold Mining (ASGM) Sector, and integrated a post-completion evaluation that assessed the sustainability and broader adoption of the completed project's key outcomes. The ASGM evaluation has a separate case study report on the Philippines.

CHAPTER 2: PROFILE OF MSME INTERVENTIONS

26. This chapter describes trends in the project characteristics and activities across this evaluation’s MSME portfolio. It also reports on the extent to which private sector actors have been engaged in activities toward contributing to global environmental benefits.

27. **About half of the portfolio of completed private sector projects (158 projects) specifically included MSMEs.** Seventeen percent did not involve MSMEs. In the remaining projects, MSME involvement could not be clearly determined. The number of projects involving the private sector has increased from the pilot phase until GEF-5, matched by an overall increase in projects involving MSMEs.

28. **Fifty-five percent of the 31 Integrated Approach Pilot (IAP) child projects under implementation and 67 percent of the 9 Impact Program (IP) child projects involve MSMEs.** All CEO-endorsed IP projects and 81 percent of the IAP projects involved the private sector in some capacity. MSMEs and the private sector in general were least involved in the Sustainable Cities IAP and IP compared to the commodities, food security and land use, and sustainable forest management programs.

2.1. Project Characteristics

Focal Area

29. **MSMEs were most involved in biodiversity, climate change, and multifocal area projects.** Overall private sector involvement was higher in the climate change and chemicals and waste projects (table 1). This differed from the focal area distribution in the overall portfolio of completed projects, where biodiversity projects were more prominent (33 percent) and chemicals and waste projects were lowest (7 percent).

Table 1. Number of completed private sector projects by focal area and involvement of MSMEs

Focal Area	MSMEs involved	No MSMEs involved	Unable to Assess	All completed private sector projects
Biodiversity	17% (52)*	2% (6)	6% (18)	25% (76)
Chemicals & Waste	3% (9)	4% (11)	5% (13)	11% (33)**
Climate Change	23% (69)	10% (30)	18% (54)	50% (153)**
International Waters	3% (8)	1% (3)	2% (5)	5% (16)
Land Degradation	1% (4)	0% (0)	0% (0)	1% (4)
Multi Focal Area	5% (16)*	0% (1)	1% (4)	7% (21)
Grand Total	52% (158)	17% (51)	31% (94)	100% (303)

*Statistically higher within focal area **Statistically higher than the rest of the GEF’s completed projects for that focal area

30. Biodiversity projects involving the private sector commonly addressed protected area management and ecotourism. MSME engagement was more relevant where communities within or adjacent to protected areas were supported in developing existing or alternative

livelihoods as an income source, and in projects that aimed to create or integrate privately owned land as protected areas within the national system.

31. Most climate change projects implemented renewable energy and energy efficiency interventions. Multifocal area and land degradation projects implemented mainly sustainable forest management and sustainable agriculture. For these three focal areas, interventions to engage MSMEs in generating global environmental benefits typically involved introducing technologies and practices that reduced costs or increased profits over business as usual. In many cases, these interventions were delivered through initiatives of GEF Agencies that were designed for longer-term implementation and usually already in existence before GEF support started.

32. Chemicals and waste projects mainly dealt with treatment of ozone-depleting substances and polychlorinated biphenyls (PCBs), and national inventories of persistent organic pollutants. These projects therefore focused on larger industrial companies that more commonly used these chemicals. International waters projects consisted mainly of integrated coastal management and coastal pollution treatment, which required multistakeholder cooperation.

Geography

33. The majority of MSME projects (77 percent) were national projects; 8 percent were global, and 15 percent were regional. This distribution was statistically similar to the overall portfolio of completed private sector projects and the GEF's overall portfolio of completed projects. MSME projects were most common in Asia (33 percent), followed by Africa (23 percent), Eastern Europe and Central Asia (20 percent), and Latin America and the Caribbean (12 percent). The regional distribution was statistically similar to that of other completed private sector projects.

34. **Twenty percent of national MSME projects were implemented in five middle-income countries (MICs).**⁴ Brazil, China, India, Mexico, and South Africa. These countries have historically received the largest GEF grants. This share is consistent with the overall portfolio of private sector projects in these countries but is higher than the share of these countries in the overall portfolio of GEF completed projects (table 2). The higher share of private sector and MSME projects in these MICs reflects the relatively higher capacity to engage the private sector in these countries.

35. **Twenty percent of MSME projects were implemented in 18 least developed countries (LDCs)**²; in comparison, only three private sector projects in LDCs did not include MSMEs. This is consistent with the private sector landscape in LDCs, which predominantly includes MSMEs.

⁴ Out of 61 countries where national MSME projects were implemented. All national private sector projects were implemented in 84 countries, while the rest of the GEF's completed national projects were implemented in 152 countries.

The percentage of projects with private sector involvement in the LDCs and SIDS differs from the distribution of completed projects in the overall GEF portfolio.

Table 2. Number of completed national projects implemented in different country clusters

Country Cluster [number of countries with private sector projects]	MSMEs involved (n=122)	No MSMEs involved (n=40)	Completed private sector projects (n=240)**	Rest of completed GEF projects (n=1070)
MICs [5]	20% (24)	28% (11)	21% (51)*	15% (156)
LDCs [22]	20% (25)*	8% (3)	15% (36)	21% (226)*
SIDS [8]	2% (3)	0% (0)	5% (12)	11% (113)*

*Statistically higher within country cluster. **Includes projects where MSME involvement could not be determined. Two countries in the private sector portfolio were both LDCs and SIDS: Haiti and the Maldives.

Funding

36. **The average cofinancing ratio for private sector projects was significantly higher (5.9) than for the rest of the GEF’s completed projects (4.0)** ($p=0.015$). The average cofinancing ratio for projects involving MSMEs was 5.3. These ratios were similar within focal areas.⁵

37. The higher cofinancing ratio observed in private sector projects is partly driven by the higher percentage of projects implemented in the five MICs. In both private sector and the larger GEF portfolio, projects in these MICs had statistically higher cofinancing ratios, on average. The private sector portfolio also had a lower percentage of medium-size projects (MSPs), which receive lower grant amounts, and a higher percentage of full-size projects (FSPs) compared to the larger portfolio of completed GEF projects ($p=0.00$). The percentage of full-size MSME projects (74 percent) was statistically similar to FSPs that did not involve MSMEs (68 percent).

38. Cofinancing is one indicator of stakeholder interest in and commitment to generating global environmental benefits. **MSMEs provided cofinancing in 11 percent of projects where they were involved and could be identified** (table 3). Almost half of MSME projects received cofinancing from private sector actors, similar to the overall private sector portfolio. National corporations were the most common type of private sector cofinancier. Trade and professional associations cofinanced only MSME projects; multinational and state-owned or partially state-owned corporations more frequently cofinanced projects without MSMEs.

Table 3. Types of private sector actors that provided cofinancing to private sector projects

Types of private sector actors providing cofinancing	MSMEs involved (n=158)	No MSMEs involved (n=51)
MSMEs	11%	0%
National corporations	14%	16%
State-owned/ partially state-owned corporations	4%	10%
Multinational corporations	5%	12%

⁵ Average grant and cofinancing amounts were also statistically similar between MSME projects and those that did not involve MSMEs, as well as between the overall private sector portfolio and the larger GEF portfolio of completed projects.

National trade and professional associations and organizations	7%	0%
Chambers of Commerce and Industry/ Crafts	1%	0%
Private foundations	5%	4%
Private sector (unable to assess/ other)*	31%	29%

*Actors identified as belonging to the private sector but difficult to classify under a specific private sector actor type based on the limited information provided

39. Of the 31 IAP child projects under implementation, 7 (23 percent) had indicative private sector cofinancing at CEO endorsement. Four had received the funds as of February 2021. Of the nine CEO-endorsed IP projects, three (33 percent) had indicative private sector cofinancing. These include projects with cofinancing from MSMEs such as smallholder organizations and local entrepreneurs, even though these were not recorded as private sector cofinancing but as cofinancing from beneficiaries.

40. Although the GEF project management information system does not disaggregate MSME cofinancing from overall private sector or beneficiary cofinancing, table 4 indicates that thus far, the amount of indicative private sector and beneficiary cofinancing for the 9 IP projects is already more than double the amount for the 31 IAP projects. The bulk of planned private sector and beneficiary cofinancing for IP projects comes from grants, while in IAP projects, equity and in-kind cofinancing together have a bigger share.

Table 4. Types of private sector and beneficiary cofinancing in CEO-endorsed IAP and IP child projects and share in total amount

Type of Cofinancing	Integrated Approach Pilots (IAPs) – GEF-6			Impact Programs (IPs) – GEF-7			Grand Total
	Beneficiaries	Private Sector	IAP Total	Beneficiaries	Private Sector	IP Total	
Equity	0%	26%	16%	0%	0%	0%	4%
Grant	0%	31%	19%	0%	90%	87%	68%
Guarantee	0%	6%	4%	0%	0%	0%	1%
In-kind	100%	17%	49%	100%	0%	3%	16%
Loans	0%	12%	8%	0%	0%	0%	2%
Other	0%	0%	0%	0%	10%	10%	7%
Unknown at this stage	0%	8%	5%	0%	0%	0%	1%
Total (in million USD)	24.9	38.5	63.4	5.0	156.6	161.6	225.0

Source: GEF Portal

41. In terms of overall cofinancing amounts, planned cofinancing from GEF Agency and government funds constitute the biggest share in both the overall GEF-6 and GEF-7 portfolios, as well as the specific portfolios of CEO-endorsed IAP and IP projects. Thus far, the percentage of planned private sector and beneficiary cofinancing for IP projects (17 percent) is much higher than for IAP projects (2 percent) as well as for GEF-7 projects in general (8 percent).

Lead Implementing Agency

42. UNDP implemented most of the MSME projects (49 percent), followed by the World Bank (26 percent), followed by UNEP and the United Nations Industrial Development

Organization (UNIDO) (11 percent each). This distribution was statistically similar to the rest of the private sector portfolio. UNIDO implemented a higher percentage of private sector projects (11 percent), especially in the climate change and multifocal areas, as compared with its share in the overall GEF portfolio of completed projects (1 percent) ($p=0.003$).

Terminal Evaluation Review Ratings

43. The distribution of outcome and sustainability ratings for MSME projects was statistically similar to those that did not involve MSMEs (figure 1) and the overall private sector portfolio. The same was true between private sector projects in general and the larger portfolio of completed projects, as well as across focal areas. This indicates that merely involving MSMEs or the private sector in general as part of the project’s design is not associated with a higher likelihood of success in outcomes or sustainability.

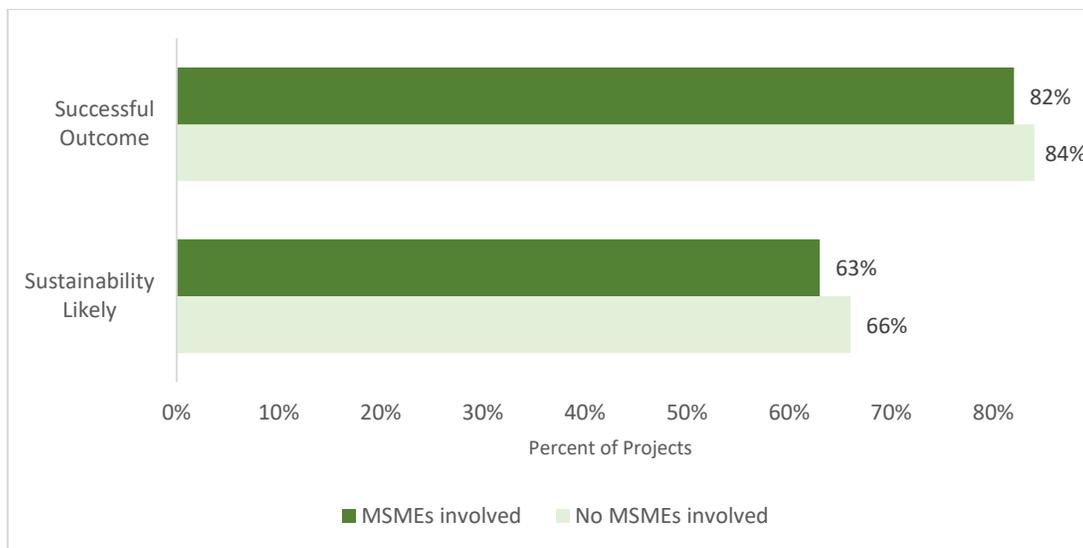


Figure 1. Percent of private sector projects rated to have successful outcomes and likely sustainability, with and without MSME involvement

2.2. Types of actors and areas of engagement

44. MSMEs that could be identified in completed projects consisted mainly of companies with between 10 and 250 employees (SMEs) and individual producers (e.g. farmers, fishers, miners). Another major group consisted of community-based organizations that generated profit (table 5). The most common type of MSME involved in climate change projects were SMEs. In biodiversity projects, individual producers were most common, followed by community-based organizations.

Table 5. Types of MSMEs involved in different focal areas

Types of MSMEs involved	Biodiversity	Chemicals & Waste	Climate Change	International Waters	Land Degradation	Multi Focal Area	All MSME projects
<i>number of projects (n)</i>	52	9	69	8	4	16	158
Individual producers (e.g. farmer, fisher, miner)	69%	11%	32%	88%	50%	75%	51%
Cottage industries and other home-based production	27%	0%	19%	50%	0%	31%	23%
Income-generating community-based organizations (e.g. cooperatives, associations, village groups)	58%	0%	25%	50%	25%	63%	39%
SMEs (with <250 and ≥10 employees)	37%	67%	68%	50%	25%	69%	56%
Other	4%	0%	9%	0%	25%	13%	7%

45. In both the IAP and IP child projects, small and micro enterprises such as individual producers and community-based organizations are most common. The nine IP child projects that have so far been CEO-endorsed focus on supporting community-based organizations rather than individual producers.

46. Projects that involved MSMEs often included a broad spectrum of private sector actors such as national corporations, trade associations, private foundations, as well as multinational corporations (table 6). More than half of MSME projects involved at least three types of private sector actors (figure 2). On the other hand, almost half of private sector projects that did not include MSMEs typically worked with only one actor type (p=0.00).

Table 6. Types of private sector actors with roles in projects involving MSMEs

Types of private sector actors involved in private sector projects	MSMEs involved (n=158)	No MSMEs involved (n=51)
MSMEs	11%	0%
National corporations	37%	43%
State-owned/ partially state-owned corporations	15%	25%
Multinational corporations	14%	25%
National trade and professional associations and organizations	33%	22%
Chambers of Commerce and Industry/ Crafts	5%	8%
Private foundations	7%	6%
Private sector (unable to assess / other)*	75%	65%

*Actors identified as belonging to the private sector but difficult to classify under a specific private sector actor type based on the limited information provided

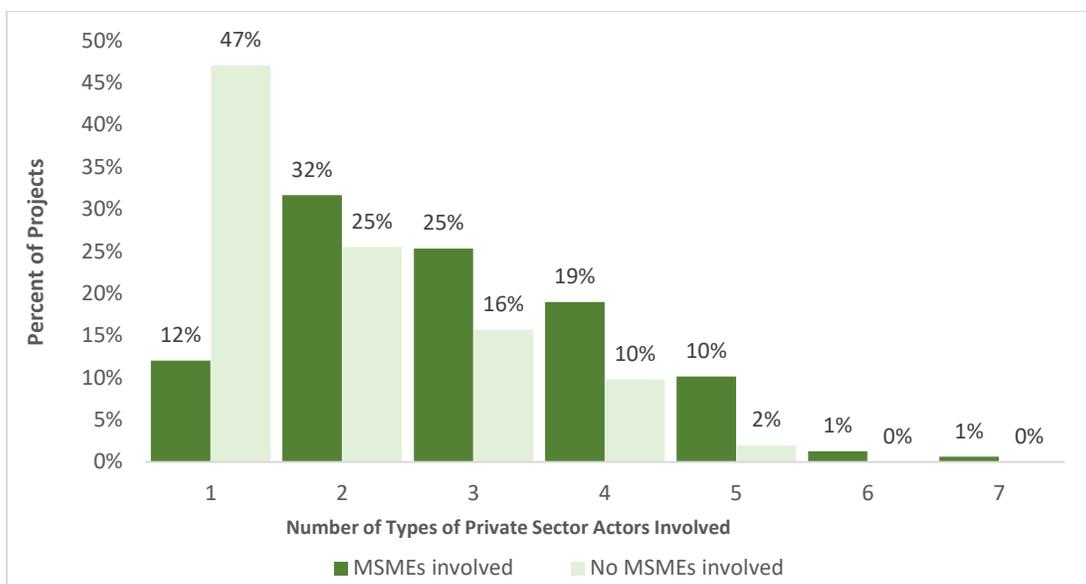


Figure 2. Number of types private sector actors involved in private sector projects

47. **These findings indicate that MSMEs are usually involved in GEF-supported projects as part of an intervention that engages a wider spectrum of private sector actors along the value chain.** On the other hand, projects that do not involve MSMEs engage specific companies that by themselves can generate a large magnitude of global environmental benefits, such as working with large corporations to reduce the use of persistent organic pollutants.

Rationale for engagement

48. The most common reasons for GEF projects to involve MSMEs and the private sector in general are to have them adopt interventions that generate global environmental benefits and to continue funding the implementation of these interventions beyond the project (figure 3). Other reasons to involve MSMEs were as a source of innovation and means to scale up interventions, but these were less common.

49. **In MSME projects, innovation and scaling-up roles for the private sector were more common in the climate change focal area** and less common in chemicals and waste and biodiversity projects ($p=0.007$). In general, a higher percentage of MSME projects involved private sector actors to financially sustain interventions compared to projects that excluded MSMEs, regardless of focal area ($p=0.009$).

50. Two of the five IAP child projects with midterm evaluations, where MSME involvement could be determined, involved the private sector mainly to innovate and scale up interventions, as well as to ensure institutional support and technical capacity. This may indicate a shift in more recent GEF projects toward involving MSMEs in scaling up rather than just pilot demonstrations, which was common in older projects.

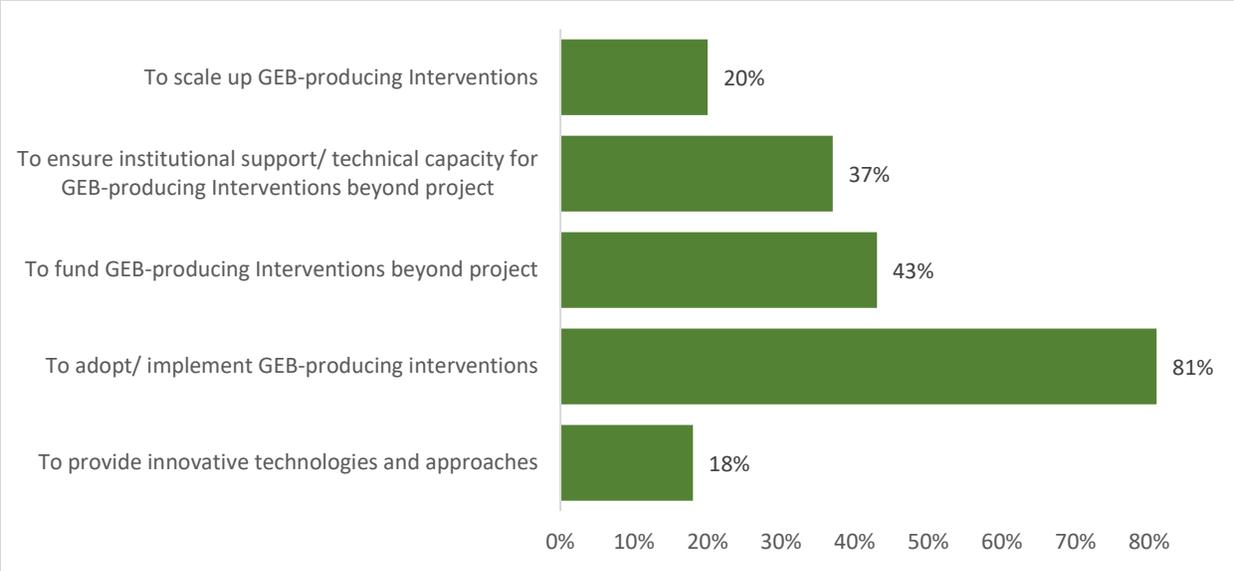


Figure 3. Intended purpose for engaging the private sector in MSME projects (percent of projects, n=158). Note: GEB – global environmental benefits.

Types of Activities

51. The most common GEF interventions that engaged MSMEs included technical knowledge and skills training, technologies or practices, awareness and education initiatives, and access to grants or financing for interventions that generate global environmental benefits (table 7). These activities address the most common constraints that MSMEs face, as noted in the MSME literature in Chapter 1. The same was seen in the five IAP child projects with midterm evaluations, but with more emphasis on awareness and education rather than access to finance. The percentage of completed projects that introduced new technologies and approaches and provided the corresponding training was significantly lower where MSMEs were not involved.

52. While not always directly engaging MSMEs or the private sector in general, support for policy, laws, and regulations was a common activity in both the portfolio of completed projects and the five IAP projects. Support for platforms or mechanisms for interaction and coordination was more prominent among the IAP projects than in the completed projects.

Table 7. Types of project activities that engaged private sector actors

Supported Project Activities in Completed Private Sector Projects	% of MSME projects (n=158)	% of projects excluding MSMEs (n=51)
Technical knowledge and skills training to implement intervention	77%	57%*
New or improved hardware, software, method, or practice for producing GEBs	61%	39%*
Awareness and education/ research studies	68%	57%
Access to grants or financing	56%	45%

Policy, laws, and regulations	34%	37%
Access to technical service providers	30%	22%
Guidelines or manuals for implementation of intervention	30%	24%
Multistakeholder partnership agreements	25%	24%
Physical infrastructure to enable implementation (e.g. buildings, equipment)	24%	18%
Management planning	22%	12%
Platform/ mechanism/ venue for connection, interaction and coordination	20%	20%
M&E systems/ data on environmental, social, or economic outcomes	19%	16%
Decision-making, advisory or implementing Body	11%	8%
Trust-building/ conflict resolution mechanisms	4%	2%

*Statistically lower within row. Note: M&E = monitoring and evaluation.

2.3. Extent of Engagement

53. Private sector engagement in this evaluation refers to the participation of private sector actors in activities that directly or indirectly generate global environmental benefits, such as the adoption of technologies or membership in multistakeholder groups. Engagement was considered effective when private sector actors adapted their behavior, and ineffective when no private sector actors meaningfully participated in project activities even though they were invited to do so. Because projects in the portfolio most commonly intended for private sector actors to adopt and fund interventions that generate global environmental benefits (figure 3), effective private sector engagement was key in many of these projects to achieving environmental targets.

54. **Eighty-five percent of MSME projects effectively engaged private sector actors to some extent; 11 percent failed to engage any private sector actors.**⁶ In the rest of the MSME projects, it was difficult to assess whether private sector actors were effectively engaged or not, based on the available information. About half the MSME projects that effectively engaged private sector actors also reported generating some environmental, social, and economic benefits (table 8). The extent of private sector engagement could not be determined in IAP child projects that had reached midterm.

Table 8. Percentage of projects by extent of engagement and achievement of benefits

Intended to Generate GEBs (n=146)*	With Environmental Benefits	
	With Social & Economic Benefits	No Social & Economic Benefits
Effective engagement	57%	20%
Ineffective engagement	5%	4%

⁶ Extent of private sector engagement in MSME projects was statistically similar across focal areas, project size, geographical scope (i.e. national, regional or global), and country clusters. The results were similar for the overall private sector portfolio.

*Excludes MSME projects that did not intend to directly generate GEBs and where extent of private sector engagement could not be determined. Note: GEB = global environmental benefit.

55. MSME projects that effectively engaged the private sector were associated with successful project outcome ratings ($p=0.015$). In the overall private sector portfolio, a higher percentage of projects that effectively engaged the private sector were rated as likely to be sustainable ($p=0.001$). This suggests that effective private sector engagement in project activities, and not mere involvement as part of the project's design, is a key contributor to achieving outcomes both during and after the project.

CHAPTER 3: OUTCOMES

56. This chapter presents the extent to which MSME projects generated environmental, social, and economic outcomes. It also presents the extent to which project activities were sustained, mainstreamed, replicated, and scaled up, which indicates progress toward achieving environmental impacts beyond project completion.

3.1. Environmental outcomes

57. **Eighty-five percent of MSME projects met their environmental targets to some extent.** The most common environmental targets involved reducing greenhouse gas (GHG) emissions and improving practices in landscape management.⁷ The five IAP projects with midterm evaluations aimed to achieve these same environmental targets.

58. Almost half of completed MSME projects (42 percent) aimed to mitigate GHG emissions, and of these, 91 percent reported doing so to some extent. These consisted mainly of climate change projects, followed by multifocal area projects. Thirty-nine percent of projects aimed to place landscapes under improved practices, and of these 80 percent succeeded to some extent. These were mainly biodiversity and multifocal area projects. While only 18 percent of projects had targets directly related to terrestrial protected areas, 79 percent of these reported some successful outcomes.

59. A few terminal evaluations highlighted potential environmental trade-offs in the pursuit of some focal area objectives, which may occur years after project end and were not accounted for in the project design. For example, projects that introduced new technologies to replace mercury or reduce carbon emissions did not consider recycling and disposal of the subsequent electronic waste in their design (GEF IDs 2947, 4442). Some projects that promoted tree planting to mitigate climate change and land degradation introduced exotic species that could replace endemic species (GEF IDs 381, 3472).

60. The majority of completed projects that monitored quantitative indicators reported achieving 100 percent or more of their stated targets; this was true for all GEF core indicators except for water- and marine-related indicators, including fisheries, for which quantitative outcomes were typically not available.

3.2. Social and economic outcomes

61. **Eighty-two percent of completed MSME projects intended to create social and economic benefits** as indicated in their results framework. Of these, 67 percent achieved their target to some extent. As noted in Chapter 1, social and economic benefits can serve as an

⁷ Out of 10 GEF core indicators for environmental targets: area of land restored; GHG emissions mitigated; landscapes under improved practices; marine habitat under improved practices; marine protected areas; over-exploited fisheries moved to more sustainable levels; reduction, avoidance of emissions of POPs; reduction, disposal, destruction, phase out, elimination, and avoidance of chemicals and their waste; shared water ecosystems under new or improved cooperative management; terrestrial protected areas.

incentive for MSMEs to adopt and sustain interventions that generate global environmental benefits.

62. More than 60 percent of projects that intended to create social and economic benefits aimed to improve access to financing, of which two-thirds were successful to some extent (table 9). Other common targets were increases in income and jobs (44 percent), improved technical standards and processes (35 percent), and improved access to markets (34 percent). Income increased and technical standards improved to some extent in about 75 percent of projects each. Sixty-eight percent of projects improved access to markets to some extent.

63. Most benefits were reported to occur at the level of individual direct beneficiaries. At the SME level, changes were seen in the form of improved ease of compliance with government regulations, and improved financial, human resource management, or business systems.

64. Private sector projects which did not include MSMEs less commonly aimed to generate social and economic benefits, and also had a lower percentage of projects that achieved these targets ($p=0.000$). In the overall private sector portfolio, more projects that failed to engage the private sector had failed to generate social and economic benefits ($p=0.004$). Despite the private sector being involved in all five IAP projects with midterm evaluations, only one project explicitly aimed to achieve an economic benefit, which was an increase in income.

Table 9. Social and economic benefits intended to be generated by MSME projects and extent of achievement

SOCIAL AND ECONOMIC BENEFITS REPORTED IN MSME PROJECTS	% INTENDED (n=130)	% ACHIEVED (n = intended per row)
Improved access to finance/ capital	51%	69%
Increase in income/ sources of income/ number of jobs	44%	74%
Improved technical quality standards or processes/ production efficiency	35%	75%
Improved access to (larger) markets	34%	68%
Women empowerment	24%	50%
Reduced costs/ increased savings	21%	94%
Improved financial, HR or business management systems	20%	78%
Improved access to education/ information/ technology (for social & economic well-being)	17%	96%
Improved health/ access to healthcare/ working conditions	13%	71%
Improved / easier compliance with government regulations	12%	74%
Stronger social cohesion (higher cooperation, lower conflict, reduced out-migration/ turnover, etc.)	11%	88%
Improved access to natural resources/ availability of food sources & medicinal plants	9%	73%
Increased participation in decision-making/ governance	9%	86%
Improved corporate social responsibility and/or "green" image	8%	77%
More equitable access to benefits/ sharing of social and economic costs	8%	54%
Increased safety and security (e.g. from natural hazards, crime)	8%	92%
Stronger land tenure/ natural resource property rights	6%	20%

Unintended effects

65. A few projects reported on unintended positive effects of adopting new technologies and approaches, such as environmental certification processes that reduced child labor in farms (GEF ID 3077). A few projects also reported unintended negative effects, such as some income sources that were lost to more efficient and waste-reducing technologies in the fisheries sector (GEF ID 3619), and an increase in alcohol abuse in one site as a result of higher disposable income from the project's introduced enterprise (GEF ID 3472).

66. Risks of increasing hazardous behavior were also flagged by terminal evaluations in a few projects as a potential consequence of environmental regulations being passed. Examples included improper discreet disposal of PCBs by companies to avoid legal and financial obligations (GEF ID 3270), and indoor use of mercury by gold miners to avoid fines or imprisonment (GEF ID 4799). The projects were not designed to address or mitigate such risks.

67. Lack of equity in the distribution of project benefits was a concern in a few projects, where poorer farmers, for example, were not able to access project support because they were not part of elite community groups (GEF IDs 1929, 2371). Case studies revealed that micro and small enterprises may not necessarily benefit from project support as much as medium enterprises do (see Chapter 5). Increasing access to financing for this group of MSMEs was not always cost-effective because of the higher perceived risks and costs to funding institutions, including not only logistical but also transactional costs. Instead, in the two cases, lower-cost practices and technologies provided a viable option for addressing the need to generate both environmental and economic benefits.

Benefits to marginalized populations

68. Based on their results frameworks, 24 percent of completed MSME projects aimed to empower women; of these, half succeeded to some extent (table 9). Outcomes that were noted to benefit women were found in 37 percent of completed projects that aimed to create social and economic benefits. One example was improved health as a benefit of switching to more energy-efficient and sustainable cookstoves, which were mostly used by women (GEF IDs 2870, 2918).

69. Less than 15 percent of completed MSME projects reported on outcomes for indigenous groups, youth, and stakeholders with disabilities. Little information was reported on negative social and economic effects or trade-offs. In a few projects, terminal evaluations noted a failure to engage or consistently represent women and indigenous groups whose rights and livelihoods were within the scope of project activities. This suggests that the limited information on marginalized populations in the portfolio reflects a lack of attention from projects to the needs of these stakeholder groups rather than the absence of these populations in project sites.

70. In the Philippines ASGM case study, 46 percent of project beneficiaries were women actively involved in trainings and awareness-raising activities. This led to a number of women

miners becoming active members of local ASGM associations. Income inequality and disproportionate health and safety risks to women continue to be issues in the ASGM sector, such as among miners interviewed in comparison sites not covered by the GEF pilot project. Members of the youth organization established by the project were said to now be youth leaders who continue to advocate against mercury use. The GEF pilot project did not aim to directly address child labor issues.

71. In the energy efficiency case study in India, most MSMEs in the beneficiary clusters either did not employ any women or employed women in positions not directly involved in production. Although gender-specific indicators were not tracked, MSME owners said that any women who were involved in production benefited in the same way as men from any cost savings that resulted from switching to energy-efficient technologies. This was highlighted in the dairy sector, where MSMEs were organized in a cooperative structure. Owners interviewed said they did not have any workers with disabilities.

3.3. Broader adoption of interventions

72. Broader adoption refers to the sustaining, mainstreaming, replication, and/or scaling-up of project-supported technologies, practices, approaches, and enabling conditions by stakeholders. Broader adoption of interventions by the end of the project indicates progress toward achieving long-term environmental impacts.

73. In 72 percent of projects, at least one type of intervention had been broadly adopted by stakeholders by project end; 28 percent had taken some action toward broader adoption. More specifically, sustainability or progress toward sustainability was achieved by the majority of projects in the areas of capacity-building, knowledge and information dissemination, and adoption of technological innovations and improvements.

74. Stakeholders trained to provide support for interventions continued to do so (87 percent), and introduced technologies or approaches continued to be used (85 percent), both without project funds, or were in the process of being sustainable. Some behavior change as an effect of knowledge and information dissemination initiatives was observed in 73 percent of projects. Formal adoption of policies, laws, or regulations, or at least some progress in this area, was reported in 59 percent of projects.

75. Information on scaling-up of technologies or approaches, sustainability of financing mechanisms, and mainstreaming of multistakeholder platforms was the least reported on, likely because more time was needed to see evidence of broader adoption by stakeholders in these areas. Sustained adoption of new technologies and approaches and their corresponding training were less common in projects where MSMEs were not involved.

3.4. The GEF's additionality

76. The analysis based on the review of terminal evaluations shows that the GEF intervenes in economic markets in two distinct ways: as a catalyst and as a creator of change.

77. **As a catalyst, the GEF mainstreams environmental considerations into existing programs for MSME support.** It aligns project support with existing market forces and then incentivizes MSMEs and other private sector actors to engage in activities that generate global environmental benefits. For example, by partnering with IFC, which implements programs exclusively with the private sector, the GEF attracted SMEs by building the capacities of financial institutions to finance business ventures that would not only generate profits but also maintain biodiversity and reduce GHG emissions (*Small and Medium Scale Enterprise Program*, GEF ID 91 and 135, and the subsequent *Environmental Business Finance Program*, GEF ID 2000). The program ran from 1994 to 2014, receiving almost \$50 million in GEF grants.

78. **As a creator of change, the GEF provides a package of interventions that simultaneously supports multiple enabling conditions.** In this portfolio, GEF support was found to particularly make a difference in the areas of technical capacity building, pilot demonstrations, policy development, and multistakeholder interactions. GEF support for multistakeholder interactions has especially been known to integrate more sectors beyond those directly involved in a value chain, enabling knowledge exchange and dialogue that further strengthen support for an intervention and increase sustainability of benefits.

79. Through these different areas of support, the GEF in addition creates knowledge for MSMEs and other private sector actors on what interventions to adopt and how to implement them. This is knowledge that financial institutions and other funding facilities, for example, also typically lack, i.e., they may have funds available but not necessarily know what to invest in.

80. Supporting a package of interventions may be a more expensive approach in terms of both grant amount and transaction costs. Implementing different types of interventions requires coordinating more stakeholder groups from a wider range of sectors and expertise, and not all interventions may receive the same level of support from all stakeholders (e.g. national versus local governments). However, this approach can create new markets for products and services that generate global environmental benefits under conditions where the risks would otherwise be too high for stakeholders or other donors to participate, when there is a lack of evidence on effectiveness and/or financial return (see Box 1 on Lighting Africa).

BOX 1: Lighting Africa

In IFC's *Lighting the "Bottom of the Pyramid"* project (GEF ID 2950), better known as "Lighting Africa," small and medium-sized enterprises (SMEs) and other private sector actors along the supply chain—which included designers, manufacturers, importers, distributors, and retailers—were incentivized to supply solar lamps through access to financing, business development services, and market intelligence.

Technical capacity building allows micro, small, and medium enterprises (MSMEs) to develop their businesses over time to a level where they can invest in new technologies and approaches and take advantage of policy-based economic incentives for producing global environmental benefits. At the same time, the project also worked on increasing consumer demand for the solar lamps through public education campaigns, a quality assurance certification for the products, and micro loans for those who could not afford to buy the lamps outright.

The project was piloted in Kenya and Ghana, where the market for off-grid lighting solutions was already determined to be present. The project then used the pilot to demonstrate the business case for MSMEs and the social and economic benefits to consumers, which then catalyzed sustainable financing through the market itself paying for the manufacture and use of solar lamps. In other GEF projects, pilots have also been used to test sustainable financing modalities, or to demonstrate how the private sector can participate in environmental interventions, such as in partnership with communities and nongovernmental organizations.

Lighting Africa worked with the government to address policy barriers for solar lamp manufacturers and importers. It then created information products to inform the supply chain actors of relevant policy and regulatory measures in each country. In general, the GEF supports policy and regulatory frameworks that seek to promote private sector participation and uptake of interventions, as well as designate the means for financing these interventions. These policy and regulatory frameworks enable pilots to be more widely adopted.

Instead of just being a technical project that introduced environmentally sustainable technologies, which other donors had also done in their own projects, Lighting Africa promoted knowledge exchange and therefore increased the market's sustainability by bringing together multiple stakeholders along the supply chain. For example, the project connected solar lamp manufacturers entering the lower-income consumer market with existing distributors to create a critical distribution network.

By establishing a quality assurance certification for solar lamp products and demonstrating the business case for investing in the solar lamp industry, the project created knowledge for designers and manufacturers on what products to invest in. It also created knowledge for financial institutions to fund the various actors in the supply chain, removing a key barrier for MSMEs to participate in the market.

By working with both the wide range of actors in the supply chain and the different types of consumers, the project succeeded in transforming the market for solar lamps in Kenya and Ghana, as well as in other African countries. The project also eventually supported the development of solar home systems and has been replicated in India and in the Middle East and North Africa region.

The project ran from 2007 to 2013 and received a \$22 million GEF grant. The terminal evaluation estimated the economic rate of return to be as high as 2,000 percent (Castalia Limited 2014). In post-project data reported for the period from 2015 to 2018, more than 32,000 Africans were using off-grid solar products that had met the quality standards developed by the project, proving that the market had become sustainable. This translated to 1.8 million metric tons of greenhouse gas emissions avoided in 2017 alone (Lighting Africa, 2021).

CHAPTER 4: INFLUENCING FACTORS

81. While the majority of projects in the MSME and overall private sector portfolios largely achieved their targeted outcomes and effectively engaged private sector actors, this chapter presents the main factors that strengthen private sector engagement, broadly, and MSMEs in particular. These factors are similar for the MSME portfolio of 158 projects and for the overall sample of 303 projects that aimed to involve the private sector.

82. **Including a broad and diverse set of private sector partners in project activities beyond a cofinancing role, and good project preparation, most consistently predicted effective private sector engagement.** Conversely, in the 14 percent of projects which failed to effectively engage the private sector (43 out of 303), absence of a relevant project design and insufficient project preparation were obstacles. In this portfolio, large-scale economic and political shifts or shocks within the country or regional context were not common and did not affect outcomes or the extent of private sector engagement.

4.1. Project Design

83. Nearly 9 out of 10 MSME projects and private sector projects that effectively engaged the private sector without having major implementation issues had a relevant project design, which included: the inclusion of diverse private sector actors in project activities beyond a cofinancing role, context-appropriate economic incentives and a business case for adopting or supporting GEF-supported interventions, follow-up support for broader adoption, and partnering with established support organizations.

Inclusion of key and diverse types of private sector actors

84. **Including key and diverse private sector actors in a project's intended reach creates the enabling environment for other private sector actors to engage in project activities.**

85. The project *Mainstreaming Sustainable Management of Tea Production* (GEF ID 5750) worked with both government and a wide spectrum of private sector actors across the value chain to mainstream sustainable land management, integrated natural resource management, and integrated pest management in five major tea-producing regions in Asia. The project engaged tea farmers, smallholders, tea associations, agricultural SME technicians, a network of sustainable agriculture professionals, and multinational corporations leading in the industry, as well as non-tea stakeholders, to successfully achieve its larger objective of reducing land degradation in these regions. The terminal evaluation notes that the project benefited from a longer and more comprehensive project design process.

86. **Key actors may be excluded when MSMEs are not linked with other private sector actors at different scales.** For example, in the *Energy Efficiency in New Construction in the Residential and Commercial Buildings Sector in Mongolia* (GEF ID 3010), the project successfully engaged small construction firms and local associations of building materials manufacturers.

However, at least within the project implementation period, no meaningful connections with larger companies were made that would allow the project to scale nationally. Similarly, the *Cleantech Programme for Small and Medium Enterprises in India* (GEF ID 5218) had limited engagement with the international cleantech community, which among other things led to gaps in marketing and investment banking skills in the mentor pool for local cleantech start-ups.

87. Inclusion also requires interventions that serve the needs of different target groups.

The Cleantech Programme for SMEs in South Africa (GEF ID 5515) achieved its objective of not only establishing but also scaling a mechanism to support cleantech start-ups in the country. However, the initial application itself had a 55 percent attrition rate because of the complexity of the process, which among other things required access to computers that many applicants did not have. This led to certain groups being excluded, particularly micro and small entrepreneurs who needed more support because they had fewer resources to begin with.

88. The project *Central American Markets for Biodiversity (CAMBio): Mainstreaming Biodiversity Conservation and Sustainable Use within Micro, Small, and Medium-sized Enterprise Development and Financing* (GEF ID 2670) subsidized a highly competitive interest rate, which engaged financial institutions and their clients in biodiversity-friendly business ventures. The involvement of microfinance institutions and credit cooperatives was crucial in reaching target MSMEs. But because the project did not use socioeconomic indicators to differentiate beneficiary groups, a large amount of lending went to existing clients, and an opportunity was missed to increase access to credit and first-time lending to groups that never had access to cheaper finance.

89. Differences in the extent of engagement among micro and small versus medium enterprises resulting from differences in the barriers to participation not considered in project design were also observed in the case studies (see Chapter 5).

Incentives and business case

90. Providing incentives that account for differences in target groups' needs, capacities, motivations, and barriers are crucial for creating a business case for MSMEs and other private sector actors to participate in activities that generate global environmental benefits.

91. For example, the *Payment for Watershed Services in the Chishui River Basin for the Conservation of Globally Significant Biodiversity project in China* (GEF ID 5096) introduced different incentives to engage the range of upstream and downstream private sector actors it had to work with. Manufacturing companies, water utility companies, liquor companies, and tourism companies were incentivized to pay for watershed services through the introduction of an eco-labeling scheme. Water-consuming companies that used refined traditional processing techniques were not required to adopt engineering solutions for water purification. Farmers upstream received payments from SMEs and larger companies for shifting to more biodiversity-friendly land uses.

92. In contrast, the *Household Energy and Universal Access Project* (GEF ID 1274) in Mali had a high level of engagement among local SMEs in its smaller rural electrification scheme concessions, but very low uptake among international investors who were reluctant to engage in larger concessions in rural areas. Photovoltaic companies were also unmotivated to improve the performance of their equipment, in part due to lack of regulations to ensure minimum performance standards, but largely because local energy service companies and microenterprises lacked financing options to invest in this equipment.

93. In the case studies in the Philippines and India, pilots and information dissemination activities were instrumental in making MSMEs aware of the benefits of switching to practices and technologies that contributed to global environmental benefits. However, in both cases, what ultimately determined behavior change was economic viability and ease of switching (see Chapter 5).

Follow-up support for broader adoption

94. MSMEs often do not continue participating in interventions introduced by the project when they do not receive sufficient follow-up technical and financial support.

95. **A common shortcoming observed in projects without follow-up support for broader adoption was the absence of activities to put in place a policy, plan, or financing for sustainability, replication, or scaling of the interventions.** This lack of an “exit strategy” to ensure that the benefits would continue beyond the project was more common in smaller projects that were designed only to build awareness and demonstrate a new approach or technology. These projects with lower funding levels and shorter implementation periods did not build the necessary capacity for broader adoption, such as creating local markets, connecting MSMEs with larger markets, or enabling banks to support and finance the interventions introduced by the project. In many pilot projects, economic incentives and benefits were provided through project subsidies, but no business model had been developed to sustain these economic benefits beyond the project.

96. The *Conservation of Globally Significant Biodiversity in the Landscape of Bulgaria’s Rhodope Mountains Project* (GEF ID 1042) engaged MSMEs in forestry, agriculture, and tourism by providing small livelihood grants to re-align their practices with conservation goals. However, the project did not create the business case for corporate actors to engage in biodiversity conservation; in particular, no activities were dedicated to developing the market for organic agriculture, which would make this sector financially viable and sustainable for both the grant beneficiaries and other private sector actors. At the same time, the start-up costs for converting to organic agriculture precluded poorer farmers from engaging in biodiversity-friendly practices.

97. In comparison, the *ASEAN Peatland Forests Project: Rehabilitation and Sustainable Use of Peatland Forests in South East Asia* (GEF ID 2751) was designed to mainstream and scale up

integrated peatland management principles in several countries. From the outset, it deliberately took a context-specific multistakeholder approach that engaged not only MSMEs that depended on peatlands for their livelihood but also corporations that owned oil palm plantations, nongovernmental organizations (NGOs), and other donors. This collaborative approach catalyzed sustainable financing for MSMEs to continue sustainable peatland management practices even after the project ended.

98. The *GEF UNIDO Cleantech Programme for Small and Medium Enterprises (SMEs) in Pakistan* (GEF ID 5553) established a platform for startups to access business development expertise and showcase their innovations to investors through a competition. But beyond this, the project also piloted an industry challenge award that generated private sector resources for their innovations to be adopted at scale. It also introduced a national Investor Connect event that brought startups into meaningful contact with industry leaders and investors. Both activities, which enable broader adoption of the innovations, were designed to themselves be adopted by private companies and the Chamber of Commerce using their own resources, thus allowing support to cleantech star-ups to be sustained and scaled up.

Partnering with established organizations

99. **Engaging and building the capacity of well-established organizations is a way to enable long-term follow-up support.** In the portfolio, follow-up support from these organizations allowed MSMEs and other private sector actors to slowly change their behavior and build their business skills over time at a realistic pace. Usually, these organizations were already working with MSMEs and did not need incentives to continue doing so.

100. The global *Greening the Cocoa Industry* project (GEF ID 3077) worked with the global NGO Rainforest Alliance, which prior to GEF support had already made extensive efforts in promoting a certification process for sustainable agriculture, forestry, and tourism products. Rainforest Alliance's previous engagement with multinational corporations helped the project engage farmers and other MSMEs in the supply chain to adopt a landscape approach to preserve biodiversity, soil fertility, and water purity at the farm level, while also increasing cocoa production and linkages with other actors in the supply chain.

101. The Pakistan Cleantech project and other national cleantech projects each engaged their target MSME groups by working with a "national host" that had existing capacity to work with these groups, as well as the mandate to continue this work after the project. Projects in the two case studies specifically partnered with established organizations at the local scale, which allowed them to access MSMEs through existing trust and knowledge networks, as well as increase the likelihood of activities being sustained after project completion (see Chapter 5).

4.2. Project preparation

102. **Project design becomes more relevant for engaging MSMEs and other private sector actors through good project preparation.** Good project preparation includes consulting a wide

range of stakeholders and conducting a sufficient assessment of the context—such as market research—as inputs to project design.

103. **In projects where GEF support was not as effective in engaging the private sector, many shortcomings stemmed from an insufficient assessment of the existing context prior to engaging the private sector.** Often no assessment was made as to the market’s readiness to take up an intervention in terms of the private sector’s existing capacities (e.g. skills, administrative qualifications) and enabling conditions (e.g. legal framework). Thus, interventions to build the necessary capacity or develop the policy environment were not part of the project design.

104. In the *Reducing Greenhouse Gas Emissions through Improved Energy Efficiency in the Industrial Sector* project (GEF ID 3976) in Cambodia, the lack of a regulatory regime for industrial energy efficiency reduced the interest of foreign suppliers in partnering with local SME vendors. The *Capacity Building to Remove Barriers to Renewable Energy Development (CBRED) Project* (GEF ID 1264) in the Philippines attracted private sector interest, but the market in isolated communities was not ready for investments to be viable. For example, no available local renewable energy technology had been tested, and there was no capacity to maintain and repair this technology.

105. An assessment of the level of demand for products and services is also necessary for creating the business case for MSMEs and other private sector actors to then engage in supplying that service or product. Even more crucial is the insufficient understanding of barriers and motivations for both the supply and demand for the service or product, and not just the lack of a business model.

106. For example, the project *Encouraging the Establishment and Consolidation of an Energy Services Market in Chile* (GEF ID 4176) established a partial credit guarantee program to reduce the technical risks for small engineering companies to develop and implement energy efficiency projects. However, the project failed to include education and technical capacity-building activities for banks to provide the additional financing required, and for engineering companies to carry out the energy efficiency projects. As a result, only 2 out of the 120 planned partial credit guarantees were realized.

107. The *Promotion of Energy Efficient Lighting in Kazakhstan* project (GEF ID 4166), on the other hand, capitalized on worldwide trends such as the steep rise of LED availability in global markets and the adoption of lighting standards and regulations in many countries worldwide. The project preparation process specifically included research, stakeholder outreach, and consultations, which incentivized the government to accelerate the adoption of a law that would phase out inefficient and mercury-containing lighting prior to the start of project implementation. These activities also contributed to municipal and regional investment in energy-efficient lighting, accelerating market transformation nationwide.

4.3. Project Management

108. Project delays, and limited capacity in the project team to engage MSMEs and the private sector in general, and/or to implement business- and finance-related interventions, contributed to ineffective private sector engagement.

109. Project delays commonly stemmed from an overly ambitious design that made implementation more complex and protracted, and from turnover in the project management team. Project delays often led to loss of interest on the part of the private sector, or key stakeholders no longer being available to participate in the project.

110. Lack of capacity in the project management team often resulted from staff having only environmental expertise rather than the relevant business or finance skills. This lack of capacity often extended to government counterparts of the project team, where, for example, forest rangers of national parks were tapped to train micro-entrepreneurs in livelihoods despite having no experience in business development.

CHAPTER 5: EVIDENCE AND LESSONS FROM CASE STUDIES

111. This chapter summarizes the types of interventions, outcomes, and factors influencing GEF engagement of artisanal and small-scale gold miners in the Philippines and MSMEs in energy-intensive sectors in India. The case studies focus on the outcomes of GEF engagement in two projects and may not necessarily reflect the current challenges and developments of other MSMEs in these same sectors in these two countries.

5.1. GEF engagement with artisanal and small-scale gold miners in the Philippines

112. For many in the Philippines, artisanal and small-scale gold mining (ASGM) is a traditional source of livelihood. An estimated 500,000 workers, mainly informal micro-entrepreneurs, are involved in ASGM in 40 out of 81 provinces (EITI 2016). ASGM is also one of the country's major sources of mercury emissions into the air, soil, and water bodies, putting human health at risk. Despite a national ban on its use, mercury is often used in ASGM communities to help separate gold from sediments. Awareness of the health risks of mercury is low and knowledge of mercury-free alternatives is limited. Formalizing the ASGM sector is widely acknowledged as essential for ASGM communities to access the training and livelihood support they need (SDC 2011).

113. From 2013 to 2016, the GEF funded the medium-size project *Improve the Health and Environment of ASGM in the Philippines by Reducing Mercury Emissions* (GEF ID 5216). The project's overall objective was to improve the health and environment of ASGM communities in the Philippines by reducing mercury use, emissions, and exposure. It was designed to test mercury-free methods for mining that could be scaled up in anticipation of the Philippines' implementation of the Minamata Convention, which the country signed in 2013. The project was implemented by UNIDO and executed by Ban Toxics, a national NGO with ASGM project experience.

Profile of Intervention

114. The project introduced gravity concentration method (GCM), a mercury-free alternative for extracting gold, in two pilot areas, Diwalwal and Labo. Apart from awareness-raising and training activities for miners and their families, the project organized a youth organization to engage children and teens in environmental education activities in schools. Mercury-free ball mill stations and ball mill stations in transition to the mercury-free method were established.

115. The project also supported the creation of a national-level ASGM institution to help ASGM associations formalize their sector, which would legalize their mining activities and give them access to government support services.

116. Ban Toxics implemented a two-phase ASGM project as well as smaller grants prior to and in parallel with the GEF project (2011–17), with support from the Danish NGO Dialogos and others. The Dialogos project funded the same activities as the GEF, with Labo being a common

project site. Ban Toxics also implemented a subsequent ASGM project focused on eliminating child labor (2016–20), funded by the U.S. Department of Labor through the International Labour Organization (ILO), also in Labo and other sites. From 2013 until the present, Ban Toxics has also used funds from the Swedish Society for Nature Conservation to support formalization activities at the national level.

117. The former Ban Toxics executive director noted in an interview that the GEF-funded project differed from previous ASGM projects in that it took a development-focused rather than environmental issue-based approach, which created trust in both ASGM communities and local governments. The GEF currently has a second ASGM project in the Philippines (GEF ID 9695) that started in 2019 under its global planetGOLD program (GEF ID 9602). It is focused on formalization and increasing access to financing but is implemented in new sites by a different executing agency.

118. Figure 4 illustrates the project logic and the key outcome indicators assessed in this case study, as well as the groups compared using a creative counterfactuals approach. Other stakeholders such as youth group members, mining financiers, a local government official, project management staff of both GEF- and non-GEF supported ASGM projects, and national government officials from different bureaus of the Department of Environment and Natural Resources (DENR) were also interviewed. Beneficiary miners interviewed included both those who no longer use mercury in mining and those who continue to use it.

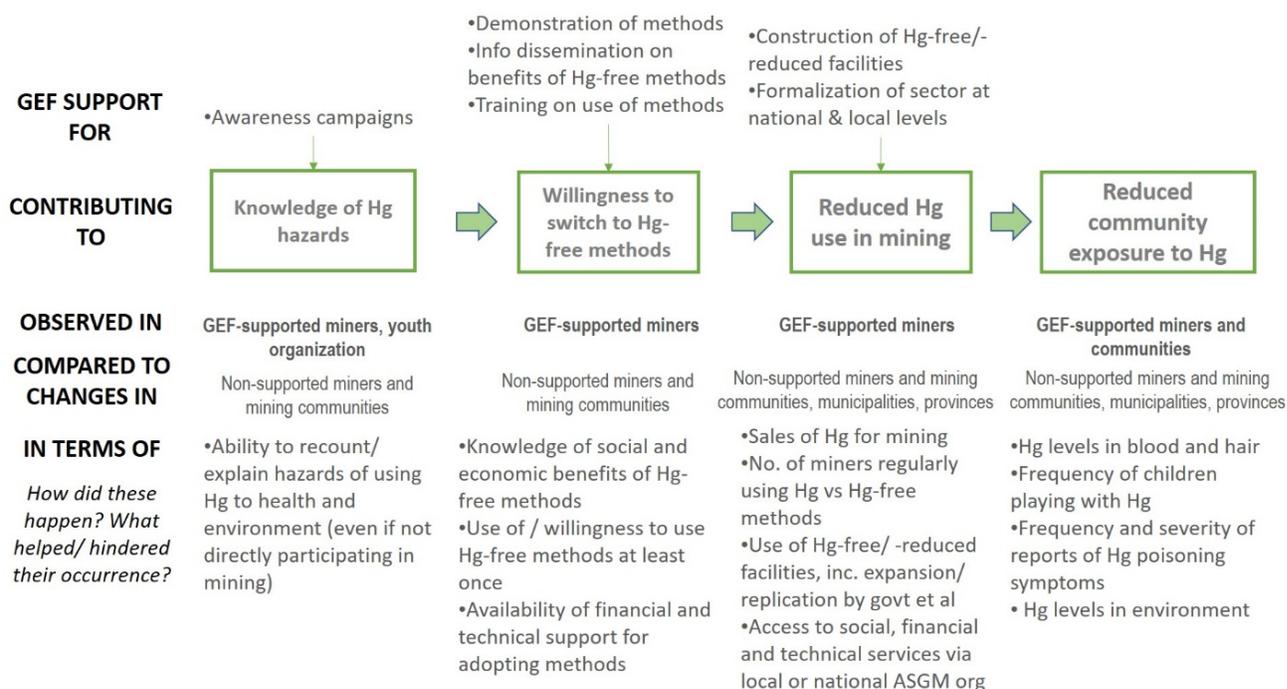


Figure 4. Project logic and outcome indicators assessed by the Philippines case study

Outcomes

1. Knowledge of mercury hazards and mercury-free mining methods

119. Through the project, miners and other stakeholders at local and national levels increased their awareness on the hazards of mercury, and knowledge of mercury-free mining.

120. All beneficiary miners interviewed said that their knowledge of the environmental and health benefits of shifting to mercury-free methods had increased due to the project's awareness-raising activities. Former project management and national government staff likewise said that through technical working group meetings, the project had raised awareness among different stakeholder groups—such as local governments, NGOs, academe, and bureaus from the ministries of health, labor, trade, and industry—on the need to address mercury use in mining.

121. While aware, all of the interviewed non-beneficiaries in Diwalwal and the province of Camarines Norte, where Labo is located, generally had less knowledge on the specific negative effects of mercury use. They also lacked knowledge on how to use the mercury-free GCM introduced by the project compared to beneficiaries. Even miners within the same municipalities as the project sites but residing in non-beneficiary villages reported no knowledge of how to use GCM. This indicates that no knowledge transfer has taken place within the area beyond project-supported trainings. Non-beneficiary miners with knowledge of GCM benefited from subsequent Ban Toxics-implemented projects.

2. Willingness to shift to mercury-free methods

122. Though increased knowledge of mercury hazards made miners willing to shift to mercury-free mining methods, they did not get sufficient technical and financial support to sustain the shift to the new method or adopt it beyond the project sites. In addition to the lack of support, miners found it difficult to sustain the shift because the introduced method was inappropriate to their context.

123. Despite the increased knowledge of GCM among beneficiary miners, interviewees from national government, project management, and national ASGM coalition staff noted that the project was not designed to provide follow-up support to enable miners to continue mercury-free mining beyond the project. All beneficiary and non-beneficiary miners interviewed expressed their willingness to use mercury-free methods, provided that appropriate technical and financial assistance is provided. The project-supported facilities required ASGM miners to pool their ores with others' to meet the volume needed to operate the ball mill, which they were not willing to do, because it would not allow them to distinguish the quality and volume of ores they produced from others'.

124. The terminal evaluation noted that the project's GCM demonstration failed to convince most of the miners in Labo that it was as effective as mercury in extracting gold, likely because

the method is not suited to some types of ore in the province. In addition, miners had concerns about GCM being time-consuming and laborious. The current GEF-funded ASGM project in the country plans to introduce site-appropriate mercury-free methods using a participatory approach as one way to address this.

125. GCM is only planned to be used by one ASGM association in Camarines Norte that has obtained enough capital to apply for a small-scale mining permit, because they say it is cheaper than the mercury-free carbon-in-pulp (CIP)/ cyanide method and yields higher-quality ores. However, the application process to mine legally has been expensive and time-consuming, exacerbated by governance issues in the local government and the regional office of the environment ministry.

3. Mercury use in mining

126. Most miners in Diwalwal have shifted away from mercury in favor of cyanide, which has its own environmental and health risks, while mercury use in Labo has remained the same.

127. All interviewed miners in Diwalwal estimate that mercury use has steadily decreased to less than half of users over the period from 2016, when the project ended, to 2020, when the interviews were conducted. According to them, a multi-agency government task force has confiscated set-ups using mercury in the area. The COVID-19 lockdown, however, has reduced the ability of government staff to enforce the mercury ban. The lockdown has similarly delayed the field activities of the current GEF ASGM project in the country.

128. The GCM facility provided by the local government as its project cofinancing is no longer in use after the national government ordered the transfer of ball mill operators to a relocation site that uses the mercury-free CIP/ cyanide method. The government-funded relocation site was deemed environmentally safer for CIP, being downstream from the watershed and further away from residential areas. Though it has its own environmental and health risks that will need to be addressed and monitored, the shift to CIP/ cyanide has nonetheless significantly reduced mercury use in the area.

129. All miners and other stakeholder groups interviewed at the project site in Labo and at comparison sites across the province of Camarines Norte confirmed the widespread use of mercury in their respective mining areas. A former youth organization member said that miners perceive GCM to be time-consuming and labor-intensive, and therefore revert to mercury use despite knowing its dangers. ASGM association heads in Labo and national government officials attributed the continued use of mercury to lax enforcement of the national mercury ban, alleged governance issues that generate profit from continued illegal use of mercury, and widely available mercury supply in the area.

4. Community exposure to mercury

130. Community exposure to mercury has decreased to some extent, as evidenced in reports that children no longer play with mercury, mainly because of sustained awareness-raising through a subsequent non-GEF project.

131. All miners interviewed in the province of Camarines Norte at the site, village, and provincial levels reported that children are no longer seen playing with mercury as before. This indicates that outcomes achieved on this indicator at project completion in 2016 have been sustained and even expanded beyond the project site. However, only one of four miners interviewed in Diwalwal reported the same; the three others did not have any observations either confirming or contradicting this outcome but mentioned that miners no longer store mercury inside their refrigerators or houses as a result of the project's awareness-raising activities.

132. The difference in the extent of outcomes in the two sites may be attributed to the subsequent Ban Toxics–implemented project supported by ILO. One of the four-year project's primary objectives was to reduce child labor in mining. It also continued the GEF-supported project's activities, such as awareness-raising and education on the dangers of mercury to health and environment. The GEF-funded project was not designed to sustain or scale up such activities. However, the COVID-19 pandemic has aggravated the economic situation of artisanal miners, pushing many children to return to mining in Camarines Norte.

133. Though the project showed mercury levels to have significantly decreased in blood and hair samples of beneficiary miners in both Labo and Diwalwal two years after shifting to GCM, both logistical and ethical constraints prevented this evaluation from collecting more current data.

5. Access to services through formalization

134. Project support toward formalization at the national and local levels has helped miners access government services that they otherwise would not have, as well as successfully advocate for ASGM issues with relevant national stakeholders.

135. According to the terminal evaluation report, ASGM associations organized by Ban Toxics in Diwalwal, Labo, and other locations generated the momentum to organize national ASGM summits during the project period. These developments paved the way for the establishment of the national ASGM coalition by the end of the project, with follow-up formalization support from subsequent Ban Toxics projects.

136. National government officials and national coalition leaders said that the annual summits have brought together not just miners but also relevant national and regional agencies, local governments, academe, civil society organizations, partners, and other stakeholders to a dialogue on ASGM concerns. The national ASGM coalition has successfully

lobbied for the removal of taxes imposed on ASGM miners, which has discouraged miners from selling their gold through formal channels. According to the GEF operational focal point in the Philippines and other national government staff interviewed, the national ASGM coalition has facilitated an increased understanding of the ASGM sector's situation and needs as distinct from those of large-scale mining corporations.

137. ASGM association heads at the village level and miners in Labo said they have been able to access government support as a result of being formalized. Support includes livelihood, technical skills training, and agricultural development services from various government ministries. On the other hand, ASGM associations that had not benefited from any ASGM project's formalization support said they had no access to these government services or did not know about them.

Influencing factors

138. Differences in the level of mercury use between the two pilot sites have resulted from various incentives and disincentives which make the continued use of mercury either difficult or easy for miners. The appropriateness of the mercury-free method to each context was key to the degree of adoption.

139. Strict government enforcement of the mercury ban, the option of using CIP as a more efficient mining method, and government support for CIP in the form of a relocation facility, among others, in combination have made it easier for miners in Diwalwal to stop mercury use. The high costs of applying for legalization, easily accessible mercury supply, lack of site-appropriate mercury-free facilities, and the low costs of using mercury in terms of time and money relative to mercury-free methods in combination make the continued use of mercury more attractive to miners in Labo.

140. Beneficiary miners in Diwalwal see CIP as the most practical mercury-free method, even though it has its own environmental and health risks. The process is faster and less labor-intensive than GCM and was said by miners to have a 90 percent gold recovery rate compared to mercury's 35 percent, even though it requires a higher financial investment. In Labo, the most common alternative to mercury is also CIP. However, several factors have led to miners still preferring mercury over CIP.

141. To legally build the CIP or any type of ore-processing plant, the area needs to first be declared as a mineral processing zone. Miners also have to obtain a small-scale mining contract. The application process is not only expensive and logistically complicated, it is also impeded by alleged governance issues. When authorities visit their area to monitor illegal mining activities, it is easier for miners who use mercury rather than CIP to disassemble or hide their mining equipment until the authorities leave. One mining financier added that most miners cannot afford to construct CIP facilities.

142. Using mercury in mining is cheaper than CIP and faster than GCM. Both processing speed and financial cost are important considerations for miners who depend on their mining income on a day-to-day basis, even though mercury use has been proven to be the least efficient method for extracting ores. The volume of ore needed to operate the mercury-free facilities supported by the project was also unsuited for their small scale of operations.

143. **Partnering with Ban Toxics, an established local organization, facilitated building trust with stakeholders and allowed activities to be expanded beyond the project.**

144. The existing relationship between Ban Toxics and local stakeholders from the previous Dialogos-supported ASGM project helped allay community fears about the project's intentions. This trust also helped obtain local government funding for the construction of a mercury-free facility. At the same time, Ban Toxics' partnerships with other donors allowed it to carry out follow-up awareness-raising, training, and formalization activities in Labo and other ASGM communities beyond.

5.2. GEF engagement with MSMEs in energy-intensive sectors in India

145. Despite their small scale of operations, energy use by MSMEs in some of India's industrial sectors can be 33 percent to 75 percent of the total industrial energy consumption (World Bank 2019). Large numbers of Indian MSMEs are resource-intensive, employing inefficient and outmoded technologies that result in rising energy consumption and costs. Thus, the sector holds immense potential in fostering energy efficiency by upgrading technologies in routine processes. At the same time, as part of its voluntary climate change targets, the Government of India released the National Action Plan on Climate Change in 2008, which among others includes the development and promotion of energy-efficient and renewable energy technologies.

146. The full-size project *Promoting Energy Efficiency and Renewable Energy in Selected MSME Clusters in India* (GEF ID 3553) started in 2011 and is currently implemented by UNIDO. It is part of the *Programmatic Framework Project for Energy Efficiency in India* (GEF ID 3538), which was approved in 2008. The project aims to develop and promote a market environment for introducing energy efficiencies and enhancing the use of renewable energy technologies in process applications. The Bureau of Energy Efficiency (BEE) is the main executing agency of the project.

Profile of intervention

147. The project works with more than 300 MSMEs to reduce carbon emissions and improve energy efficiency in 12 clusters in the foundry, dairy, ceramic, hand tools, and brass sectors. At the time of the case study, it had started expansion activities in 11 more clusters.

148. The project has supported awareness creation, information dissemination, and capacity-building activities. These activities are intended for MSMEs to adopt the energy-efficient and

renewable energy technologies and best operating practices, and for local service providers (LSPs) to supply the technologies and related services.

149. The project works with each cluster’s local industry association to promote energy-efficient technologies at the cluster level because most of the MSMEs are members of the local association. Apart from awareness and education activities, the project also provides technical support services through energy management cells (EMCs) within each cluster. The EMCs are hosted by the local industry association of each cluster, which also maintains the instruments given by the project to the EMCs for energy audits. EMCs are led by cluster leaders who are engineers hired by the project.

150. Figure 5 illustrates the project logic and the key outcome indicators assessed in this case study, as well as the groups compared using a creative counterfactuals approach. Apart from MSME owners, interviews were done with local industry associations, LSPs, cluster leaders, project management staff of this and two other GEF-supported energy efficiency projects targeting MSMEs under the same programmatic framework (GEF IDs 3551 and 4893), and the BEE director.

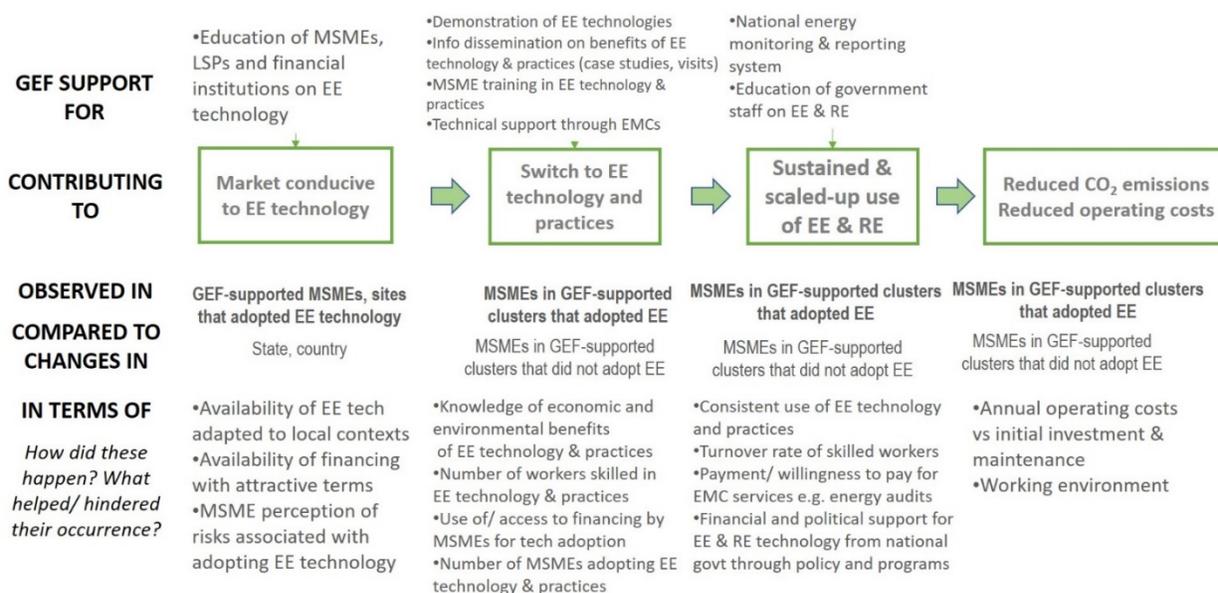


Figure 5. Project logic and outcome indicators assessed by the India case study

Outcomes

151. Quantitative estimates of annual carbon emissions reduction, monetary savings, and initial investments for 457 energy-efficient and renewable energy technologies and practices adopted in 11 participating clusters were compiled from energy audit reports submitted by cluster leaders as of January 31, 2020. Each enterprise adopted an average of 1.5 technologies or practices. No micro enterprises had adopted any of the introduced energy-efficient and renewable energy technologies and practices as of January 2020.

1. Carbon emissions reduction

152. **Annual carbon emissions reduction varies across enterprise sizes and sectors.**

153. Annual carbon emissions reduction ranged from zero to 11,184 tonnes per technology or practice adopted. A total of 49,516.2 tonnes of carbon was reduced through the adoption of 449 energy-efficient and renewable energy technologies and practices in 11 clusters. The dairy sector had the highest total annual carbon emissions reduction at 32,746.3 tonnes, or 66 percent of the total annual carbon emissions reduction projected for all the technologies and practices adopted so far. Almost all technologies in this sector (97 percent) were adopted by a few dairy cooperatives with more than 100 employees, which are considered medium enterprises by the Indian government. On average, the dairy and ceramics sectors had the highest average annual carbon emissions reduction per technology or practice adopted, at an order of magnitude higher than the three other sectors. None of the introduced technologies or practices had been adopted by small enterprises in these two sectors as of January 2020.

2. Cost savings from adoption of technologies and practices

154. **Average net monetary savings was highest in the dairy and ceramics sectors. Small enterprises in the hand tools sector had the highest percentage of zero-investment changes. Cost savings were positively correlated with emissions reductions but not investment amount.**

155. Annual net monetary savings⁸ was reported to be as much as INR 45.6 million (\$0.62 million) for a single technology or practice. Across all sectors and clusters, high correlation was found between annual carbon emissions reduction and annual net monetary savings ($r=0.81$), but not between emissions reduction and investment amount ($r=0.31$). This suggests that both environmental and economic benefits may be achieved without necessarily high costs.

156. The dairy sector had the highest total net monetary savings per year at 63 percent of the INR 329.3 million (\$4.49 million) total annual net monetary savings estimated for the 11 clusters. While requiring the highest total initial investment, technology shifts in the dairy and ceramics sectors also yielded the highest average net monetary savings, at an order of magnitude higher than in other sectors.

157. The hand tools sector, while having lower average net savings relative to other sectors, appeared to have the greatest potential for savings with zero initial investment, simply by switching to more energy-efficient practices; 46 percent of changes mainly by small enterprises

⁸ Annual net monetary savings was calculated over five years (i.e., initial investment amount divided by five years and subtracted from projected annual net savings), as interviewed MSME owners across sectors commonly cited this time frame as their basis for deciding on whether it was worth investing in something or not. Also, typically, equipment would have to be upgraded after five years, requiring new investment.

required no investments and saved INR 0.19 million (\$2,600) per year on average, which was similar to net savings from technologies adopted in the same sector that required investment.

158. The project team noted that the potential for savings and the availability of zero- or low-cost technologies may not necessarily be related to opportunities in the sector itself, but rather a reflection of the different levels of awareness and adoption of energy-efficient technologies across sectors prior to GEF intervention.

159. All MSME owners interviewed who have adopted energy-efficient technologies and practices in five clusters within three sectors reported seeing monetary savings in the form of lower energy bills. Monthly savings ranged from INR 6,000 for a small enterprise to INR 625,000 for a large enterprise within the same cluster in the foundry sector.

3. Other social and economic benefits from adoption

160. In addition to monetary savings, MSME owners who adopted energy-efficient technology also reported higher productivity; a few reported better working conditions due to reduced pollution, and social and economic benefits beyond their own business.

161. Most stakeholders interviewed said productivity had also increased as a result of switching to energy-efficient technology due to the upgraded equipment having higher production efficiency and capacity. Other benefits mentioned included reduced dust, heat, eye irritation, and fatigue in the workplace. Cost savings and increased productivity were reported to have a spillover effect to other MSMEs in the value chain, such as farmers and sub-vendors.

4. Sustained use of technologies and practices

162. All beneficiary MSMEs plan to continue using energy-efficient technology and practices because of the economic benefits they have gained so far, though some face human resource and logistical challenges.

163. All beneficiary MSME owners interviewed said that monetary savings was the main reason they decided to switch to energy-efficient technology. Others mentioned their increased competitiveness in the market, the effect of maintaining efficiency and environmental standards. Because of these economic benefits, they said that they planned to continue using energy-efficient technology.

164. While most owners said that the equipment and maintenance they need are easily available in the local market, the BEE director observed that in some clusters, LSPs do not keep an inventory of energy-efficient technologies because these generate less profit; therefore the technologies have to be ordered.

165. In the Belgaum cluster of the foundry sector, one owner said it was difficult to retain engineers that they had trained in the new technology, because they were easily hired by other

companies. Another owner said some workers did not want to use the new technology because the automation reduced their earnings.

Influencing factors

166. As already mentioned, various social and economic benefits have incentivized MSME owners to adopt and continue using energy-efficient and renewable energy technologies. Logistical, economic, and human resource challenges put limitations on some MSMEs' sustained use of these technologies. The UNIDO team in India highlighted that the extent of adoption and availability of economically viable technologies—and thus the magnitude of carbon emissions reduction and annual net savings—was also influenced by the maturity of energy-efficient solutions in each sector prior to project start, and the length of project implementation time within a cluster and sector.

167. Apart from these factors, initial technology adoption itself appears to be influenced by MSME owners' awareness of the economic benefits, the project's approach of working through local organizations, the viability of the investment under the specific MSME's circumstances, and MSMEs' ability to meet financing requirements.

168. The project's awareness-raising and education activities and energy audit services provided information to MSME owners on potential economic benefits that helped them decide to switch to EE technology.

169. Most MSME owners said they first learned about energy-efficient technology from project activities such as workshops, seminars, and visits from cluster leaders and their local industry association. Energy audits were particularly effective in convincing MSME owners to make the switch. The audit helps the owners detect energy losses and know whether they are using the right type and capacity of equipment, and consequently provide the financial basis for investing in energy-efficient and renewable energy technology.

170. Most MSME owners who have not adopted any energy-efficient and renewable energy technology have not attended project workshops and are unaware of the energy audits. This suggests the importance of knowledge dissemination activities—rather than relying on diffusion—for making MSMEs aware of benefits, which help them decide to make the shift.

171. The project's approach of disseminating knowledge through established organizations at the cluster level helped address context-specific concerns and build capacity for localized peer support.

172. Both the BEE director and the national project manager pointed to the important role of the local industry association, which facilitates access to MSMEs within their cluster. The project has also mapped and built capacities of cluster-specific LSPs to provide energy-efficient and renewable energy technologies adapted to the local context. With their increased capacities, LSPs help disseminate knowledge by visiting MSMEs to explain the benefits of using

the new technologies, and the costs and benefits of acquiring them, such as investment amount and payback period.

173. Economic viability based on low investment costs, short payback period, and high technology use were the main reasons MSMEs adopted energy-efficient and renewable energy technologies. Despite being aware of the benefits, some MSME owners did not adopt the technologies mainly because their investments would not be viable due to their low production capacity and current economic and financial conditions.

174. Interviews revealed that higher savings are linked with industries where most of the production processes can be replaced by energy-efficient technology, as well as with how many units of equipment are replaced. Owners of various sized enterprises that made low-cost investments with a shorter payback period said their decision to keep using energy-efficient technologies was not affected by COVID-19.

175. MSME owners who did not adopt any of the energy-efficient and renewable energy technologies offered were aware of the potential monetary savings, but did not believe they would create significant benefits in their case. This particularly applied to smaller enterprises whose production volume would be insufficient to yield enough savings to make the investment viable. They also said their energy consumption was already too low to justify the investment.

176. LSPs noted that small enterprises required more visits from them before deciding how much capital they could invest. A cluster leader said small enterprises were less willing to pay for energy audits. The national project manager likewise observed that micro and small enterprises are not as interested in adopting energy-efficient technology, in part because of lack of viability. The project team noted that the larger medium enterprises more readily engaged in trainings and energy audits, while smaller enterprises usually only did so after observing benefits from pilot demonstrations.

177. MSME owners who have not adopted energy-efficient technologies said their immediate priority was to get their business operations back to normal after COVID-19. Some said they could not afford to make the investment in energy-efficient technology because of outstanding loans with banks and their present financial condition. Interviewees in the foundry sector also pointed out that with the Indian automobile industry in recession over the past few years, market demand in the foundry sector was lower, which reduced production and, in turn, the viability of such investments. The project's progress in scaling up was itself hampered by the lockdown. In contrast, the dairy sector has seen steady demand despite the COVID-19 lockdown.

178. Requirements to obtain financing limit the adoption of energy-efficient technology, especially for smaller enterprises. At the same time, projects are less willing to support micro and small enterprises because of higher risks associated with these enterprises' inability to meet legal requirements for financing.

179. Interviews revealed that MSME owners prefer to take loans from a bank they have already borrowed from, because they are already familiar with the requirements and procedures. If the investment cost is low enough, they prefer to use their own capital because they find the loan application process to be longer than the payback period for investing in energy-efficient technology using their own funds.

180. For those that take loans, they prefer private banks, even at higher interest rates because public banks have more documentary requirements. Cluster leaders and LSPs noted that banks typically require a lot of documentation that MSMEs—especially smaller ones—cannot provide. Smaller enterprises are also less likely to have property that they can use as collateral.

181. The project managers of the two other GEF-supported MSME projects explained that working with smaller enterprises has higher transaction costs because of higher risks, often due to their informal nature. The completed World Bank-GEF project (GEF ID 3551) prioritized giving technical and financial support to MSMEs that met its preestablished threshold for energy efficiency potential, based on energy audits. MSMEs that were interested in adopting energy-efficient technology could apply for a loan with a lower, project-subsidized interest rate if they met the legal requirements for financing. If they had enough capital, MSMEs could also invest their own funds to acquire energy-efficient technology, which could then be complemented by the project's performance-based financial incentives. The project manager cited serious credit and reputational risks to the World Bank had they supported any MSMEs that did not or could not abide by the country's laws and regulations. A similar concern was cited by the project manager of the other ongoing UNIDO-GEF MSME project (GEF ID 4893).

182. While the BEE and the three GEF-supported MSME projects have implemented activities intended to build the capacity of financial institutions to fund energy-efficient and renewable energy loans, the BEE director observed that many institutions still fall back on conventional evaluation criteria and processes, which often are not suited for such loans nor for the diversity of MSME needs and forms.

5.3. Synthesis of lessons

183. **The case studies show that the GEF succeeded in engaging MSMEs to some extent in their respective sectors in both the Philippines and India. However, they also show that even within the MSME sector, different enterprises have very different needs and constraints arising from their size, subsector, and specific circumstances, leading to different degrees of engagement.** Similarly, their potential for generating global environmental benefits also differs. Project designs therefore need to consider these differences in terms of the magnitude and types of environmental outcomes that MSMEs can realistically generate, given the scale of their operations and the specific needs and constraints that prevent MSMEs from generating global environmental benefits.

184. **Regardless of enterprise size and sector, MSMEs are generally interested in initiatives that create more profit, reduce costs, or address their constraints, such as meeting legal requirements or industry standards.** Because MSME needs and constraints are often very specific to their market and geographical location, enabling conditions (e.g. access to technical and financial support) need to be established or strengthened at the appropriate local scale, and not just at the national scale through policy, legal, and regulatory reforms. This can be facilitated by building the capacities of established organizations at the local scale to provide context-appropriate support to MSMEs.

185. This section summarizes the key strengths and challenges of GEF support in the two cases: their awareness-raising and education activities, partnership with local organizations, and context-specific barriers, especially for micro and small enterprises, to shifting to new technologies (table 10). It also provides potential lessons for future projects.

Table 10. Cross-case comparison of strengths and limitations in case studies

Case Characteristics	Philippines ASGM Case Study (completed project)	India EE & RE Case Study (ongoing project)
Awareness-raising and Education on New Technologies	GCM training for miners and awareness-raising campaigns among families and schools Technical working group meetings with national-level stakeholders	Workshops, energy audits, and visits by cluster leaders, LSPs and local industry associations
Partnership with Established Organizations at Local Scale	Ban Toxics, with extensive ASGM project experience, capitalized on existing trust relationships with local stakeholders, and sustained/ mainstreamed activities in other projects	Local industry associations and LSPs help disseminate knowledge at a trusted peer level that addresses cluster-specific concerns, with high potential for sustainability and mainstreaming after project
Barriers for Micro and Small Enterprises to Shift to New Technologies		
<i>Appropriateness of introduced technology to context</i>	GCM not suited to ore type in Labo and to fast turnaround time needed	Energy-efficient and renewable energy technologies customized to cluster-level needs through LSPs
<i>Production volume needed to use and benefit from introduced technology</i>	Mercury-free ball mills need large volume to operate, unrealistically requiring artisanal miners to pool ores	Volume too small and hours of operation too few for technology to be cost-efficient for many micro and small
<i>Cost of introduced technology</i>	Cheaper and yields higher-quality ores than mercury but slower and more labor-intensive	More expensive than traditional equipment; savings does not justify cost for many micro and small Zero-cost practices available
<i>Available capital and cashflow to purchase introduced technology</i>	Income of artisanal miners usually on daily basis, no capital to build mercury-free facilities No follow-up technical and financial support from project	Lower capital and cashflow of micro and small enterprises usually reserved for urgent business needs rather than new technology or energy audits
<i>Financing requirements to invest in introduced technology</i>	Many artisanal miners have no required documentation and funds to apply for small-scale mining permits and therefore financing	Many micro and small enterprises have no required documentation and collateral to apply for financing Other projects limited in supporting informal enterprises due to perceived risks and costs

Note: ASGM = artisanal small-scale gold mining; GCM = gravity concentration method; LSP = local service provider.

Awareness-raising and education on new technologies

186. In both cases, project activities successfully raised awareness of the need to shift to environment-friendly technologies that also generated social and economic benefits. Higher

awareness increased the willingness of MSMEs to engage in other project activities and, ultimately, to try out new technologies.

187. In the Philippines, GEF-supported awareness-raising campaigns, training on the mercury-free gravity concentration method, and formalization efforts increased the knowledge of artisanal and small-scale miners on mercury-free alternatives. These activities not only made miners receptive to adopting GCM, given sufficient support, but also to reducing household and children's exposure to mercury. In India, workshops, seminars and visits increased knowledge about the economic benefits of energy-efficient and renewable energy technologies and practices, which motivated MSMEs to have energy audits done. Findings from these energy audits in turn gave MSMEs the business case to adopt energy-efficient technologies.

188. Awareness-raising activities and multistakeholder meetings in the Philippines also increased the capacity of government and other key stakeholders in related sectors to understand how the needs and concerns of the ASGM sector are different from those of larger-scale mining corporations. Implementing similar multistakeholder activities in future projects to facilitate understanding of such differences can provide the foundation for systemic changes in how MSMEs are engaged to generate global environmental benefits.

Partnership with established organizations at local scale

189. Projects in the two case studies partnered with established organizations at the local scale. This choice of partners allowed them to access MSMEs through existing trust and knowledge networks, and increase the likelihood of activities being sustained after project completion.

190. In the Philippines case study, partnering with an established organization allowed the project to capitalize on Ban Toxics' accumulated in-depth knowledge of and trust relationships with ASGM communities at the project sites and beyond. Working with such organizations would be particularly critical in sectors such as ASGM, where there is limited trust in government and other actors external to the community.

191. At the same time, by partnering with Ban Toxics, which has a track record in implementing other ASGM projects, the GEF project increased the likelihood that the activities and outcomes would be sustained and mainstreamed in future Ban Toxics projects. Sustained reduction in community exposure to mercury and expanded formalization efforts were made possible through subsequent non-GEF projects implemented by Ban Toxics.

192. In the India case study, working through existing local industry associations provides access to educate MSMEs within their respective clusters in a peer-to-peer setting. The project has also built the capacities of cluster-specific LSPs, who help explain the costs and benefits of energy-efficient technologies, and also customize the technologies to MSME needs. In some cases, they help MSMEs apply for financing. The long-term presence of both local industry associations and LSPs in the clusters even before the project began increases the potential for

these stakeholders to continue education initiatives and support for energy-efficient and renewable energy technologies beyond project completion.

Barriers to Shifting to New Technologies

193. Micro and small enterprises have barriers that are different from those of medium enterprises due to their inherent production volume and financial limitations, as well as their often informal nature. These differences have limited their opportunities to benefit from project support.

194. In the Philippines case study, mercury continued to be cheaper than the mercury-free CIP method and faster than the GCM introduced through GEF support. Both processing speed and financial cost are important considerations for smaller-scale miners who depend on their mining income on a day-to-day basis. Particularly in Labo, GCM was found to be less efficient than mercury for the type of ore in the area.

195. While the project also provided support for mercury-free ore processing facilities, the volume of ore required by these facilities to operate required ASGM miners to pool their ores with others', which would make it impossible to distinguish the quality and volume extracted from the individual miners' original ores. The project was not designed to provide follow-up technical or financial support for these miners to adopt GCM at a scale that would be both economically and logistically feasible.

196. The project also provided support for formalization, which would allow ASGM miners to mine legally through small-scale mining permits. However, a permit can take several years, documents, and tens of thousands of dollars to process, apart from logistical challenges to following up with government agencies in urban centers and obstacles posed by alleged governance issues among local law enforcers and officials. Formalized ASGM associations need members with large amounts of capital, themselves usually financiers for other miners; otherwise typical ASGM miners would be unable to undertake this legalization process. The same documentation and, often, formalization would be required to access financing from banks.

197. In the India case study, the limited cashflow of micro and small enterprises makes some of them hesitant to spend for the new technologies and services offered by the project such as energy audits, which have been key to identifying areas for cost savings. COVID-19 has further affected the finances of those who have yet to adopt new technologies, especially in sectors where the market was already in recession prior to COVID-19.

198. Some micro and small enterprise owners said the available technology itself was too expensive relative to the economic benefits, given their low production volume and slim profit margin. Due to the often informal nature of these enterprises, it is more difficult for them to obtain loans to purchase energy-efficient and renewable energy technology because of their inability to meet documentation or collateral requirements of financial institutions.

199. At the same time, similar GEF projects in the country could only provide limited support to some micro and small enterprises because of higher risks associated with these enterprises' inability to meet legal requirements for financing. Despite various efforts by the government and the GEF projects to build the capacity of financial institutions to fund energy efficiency and renewable energy loans, many institutions still use loan evaluation criteria and processes that do not account for the diverse needs and forms of MSMEs, such as informal enterprises.

200. GEF Agencies and the GEF Secretariat have also raised the issue of higher transactional and logistical costs when providing support to MSMEs. These include more human resources, longer travel times, and more extensive consultation and capacity-building processes required when dealing with MSMEs than for larger enterprises or governments. MSMEs are more numerous and diverse, less able to access information and other capacity-building resources on their own, and often located in geographically less accessible areas.

201. Despite the financial barriers, energy audits showed that some small enterprises could achieve both cost savings and carbon emissions reduction through energy-efficient practices that required zero investment. When engaging smaller enterprises, especially informal ones, GEF-funded efforts may be better directed toward providing options for low-cost or no-cost shifts that generate global environmental benefits—such as the energy-efficient practices adopted in India's hand tools sector—or for common-use facilities at a scale that is both economically viable and logistically practical, rather than just building their capacity to access formal financing channels.

202. For medium enterprises that have more sizeable operations and available capital, GEF engagement may be better focused on facilitating access to financing for technologies that generate a higher magnitude of global environmental benefits. In such cases, partnering with the appropriate funding institutions or platforms with the widest reach and lowest financial and transaction costs would be an advantage.

203. Ensuring that both GEF and government support facilitate administrative processes that will allow access to essential financial and technical inputs—such as in the efforts to formalize the ASGM sector—helps reduce barriers to MSME engagement and increase incentives for it. This type of support is particularly important for micro and small enterprises that have fewer financial, technical, and human resources at their disposal to ensure their survival, much less contribute to environmental outcomes.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

204. This chapter presents the conclusions and recommendations derived from the portfolio review and case study findings.

6.1. Conclusions

- (a) While not always explicitly engaging them as private sector actors, the GEF has increasingly supported MSMEs over time within a wider spectrum of private sector actors, especially in the biodiversity, climate change, and multifocal areas.**

205. About half of projects involving the private sector specifically involved MSMEs, mainly in the biodiversity and multifocal areas, as well as in climate change projects. Likewise, more than half of CEO-endorsed IAPs and IPs involve MSMEs, particularly in the commodities, food security and land use, and sustainable forest management programs. The most common type of MSME involved in climate change projects were SMEs. In biodiversity projects, individual producers were most common, followed by community-based organizations that generated profit. IP child projects tended to involve community-based organizations rather than individual producers. Projects that involved MSMEs typically involved more types of private sector actors, suggesting that these projects engage a wider spectrum of private sector actors across the value chain.

- (b) GEF support has been most additional in engaging MSMEs—and has also been most successfully sustained—in the areas of capacity-building, knowledge and information dissemination, and technological innovations and improvements.**

206. The GEF intervenes in economic markets in two distinct ways: as a catalyst working with market forces, or as a creator of change through a package of interventions that can create or transform markets. Projects involved MSMEs primarily to adopt more environmentally sustainable technologies and practices, and to continue adopting these interventions using their own funds after project completion.

207. The most common GEF interventions that engaged MSMEs included technical knowledge and skills training, technologies or practices, awareness and education initiatives, and access to grants or financing for interventions that generate global environmental benefits. These activities address the most common constraints that MSMEs face, as reported in the literature. In the case studies, awareness and education initiatives increased the willingness of MSMEs to engage in other project activities and, ultimately, to adopt new technologies, with sufficient financial and technical support.

208. In more than 80 percent of MSME projects, stakeholders trained to provide support for interventions continued to do so, introduced technologies or practices continued to be used without project funding or were in the process of doing so, and some behavior change as an effect of awareness and education initiatives was reported by project end. In the ASGM case study, mercury use had mostly stopped in one site five years after project completion, but no

miners in the two sites continued using the introduced technology because of lack of follow-up support.

(c) The majority of MSME projects effectively engaged private sector actors and generated environmental, economic, and social benefits, although the extent of access to benefits varied among MSMEs depending on their constraints.

209. More than half the MSME projects effectively engaged private sector actors and generated environmental, social and, economic benefits. The most common environmental targets were GHG emissions reductions and landscapes placed under improved practices. These targets were fully achieved or exceeded in the majority of projects. The most common social and economic targets were improved access to financing and increase in income, achieved to some extent in more than 60 percent of projects that aimed to generate these benefits. In the case studies, economic and social benefits such as reduced costs, higher savings or income, and healthier environmental conditions incentivized MSMEs to adopt environmentally sustainable technologies and practices.

210. Even within the MSME sector, different enterprises had very different needs and barriers arising from their size, subsector, and specific circumstances, leading to different degrees of engagement and magnitude of environmental benefits generated. Micro and small enterprises tend not to economically benefit as much as medium enterprises because they have a lower level of resources to begin with, and inherent size constraints that limit the applicability of project support to their context. Increasing access to financing for this group of MSMEs was not always cost-effective, but lower-cost practices and technologies provided a viable option for addressing the need to generate both environmental and economic benefits.

(d) Private sector engagement is influenced by several project design characteristics, the quality of project preparation, and the project management team's and partners' relevant technical expertise.

211. A relevant project design that contributes to effective private sector engagement has several characteristics, including: the inclusion of diverse private sector actors in project activities beyond a cofinancing role, context-appropriate economic incentives and a business case for adopting or supporting GEF-supported interventions, follow-up support for broader adoption, and partnering with established support organizations. Good project preparation includes consulting a wide range of stakeholders and conducting sufficient assessment of the context as inputs to project design. Involving diverse private sector partners beyond a cofinancing role, and good project preparation, most consistently predicted effective private sector engagement across all private sector projects.

212. Projects in the portfolio and case studies demonstrated the advantages of partnering with established organizations with in-depth expertise, especially at the local scale. These partnerships provide access to MSMEs through existing trust and knowledge networks, as well as increase the likelihood of activities being sustained by these organizations after project

completion. Economic viability and support for removing logistical, administrative, and financial barriers to switching to the introduced technologies ultimately determines the extent to which these technologies are adopted.

6.2. Recommendations

- (a) **MSMEs vary in their capacities and constraints, and therefore GEF support should address their context-specific needs, barriers, and economic viability related to generating global environmental benefits.** GEF may engage MSMEs not only or necessarily through increasing their access to financing, but also by supporting low-cost, context-appropriate practices, technologies, or facilities they can easily use, and by facilitating regulatory and administrative reforms required to access resources. Increasing access to financing is appropriate where a minimum level of resources already exists, and the higher amount of investment is needed to generate a higher magnitude of global environmental benefits. Partnering with local, established organizations may provide long-term support that increases the likelihood of global environmental benefits being sustained, mainstreamed, and/or scaled up.

- (b) **In addition to tracking environmental outcomes, GEF projects should design for and monitor social and economic benefits that engage the private sector, including MSMEs.**

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ANNEX A: APPROACH PAPER

BACKGROUND

Since its inception, the Global Environment Facility (GEF) has recognized the private sector as a key stakeholder in fulfilling its mandate. Strategies that have evolved with every replenishment period from 1996 to the present show how the GEF has sought to engage private sector funds and technological innovation through various mechanisms ranging from funding platforms to non-grant instruments to competitions.

As the GEF has shifted into more integrated approaches, it has also increasingly engaged the private sector not only as a source of sustainable financing or innovative technologies, but more important as a critical partner in scaling up the generation of global environmental benefits (GEBs). Programming in the last two GEF replenishment phases – particularly through the Integrated Approach Pilots (IAPs) and Impact Programs (IPs) – directly addresses environmental drivers in part through working with private sector stakeholders, using value chains as an organizing framework for delivering interventions.

The “private sector” is defined by the Organisation for Economic Co-operation and Development’s Development Assistance Committee (OECD DAC) as *“Organisations that engage in profit-seeking activities and have a majority private ownership (i.e. not owned or operated by a government). This term includes financial institutions and intermediaries, multinational companies, micro, small and medium-sized enterprises (MSMEs), co-operatives, individual entrepreneurs, and farmers who operate in the formal and informal sectors. It excludes actors with a non-profit focus, such as private foundations and civil society organisations.”* (OECD DAC 2016).

Different GEF Independent Evaluation Office (IEO) evaluations have found that the GEF works with a wide range of private sector stakeholders, from multinational corporations to MSMEs and individual entrepreneurs. As early as 1995, the GEF invested close to \$30 million over three phases in a Small and Medium Scale Enterprise Program implemented by the World Bank Group’s International Finance Corporation (IFC). The program primarily aimed to make long-term, low-interest funding accessible to MSMEs for high-risk, innovative projects. The [World Bank](#) estimates that formal MSMEs contribute up to 40% of the Gross Domestic Product (GDP) and create 7 out of 10 jobs in emerging economies. Other similar initiatives such as the Earth Fund have since been launched to support innovative financial instruments to encourage MSME participation in GEB-generating commercial activities, especially in the climate change and biodiversity focal areas.

The most recent Evaluation of GEF Engagement with the Private Sector (GEF IEO 2017) found that the GEF’s comparative advantage has been in “upstream” interventions, such as strengthening institutions and transforming policy and regulatory environments that promote an environment for private sector participation in generating GEBs. The Evaluation of the GEF-UNIDO Global Cleantech Innovation Programme (GEF IEO 2020) specifically looked at how the

GEF has recently supported MSMEs in the climate change space. The evaluation found that while entrepreneurs supported by the program were able to access much needed financing and capacity-building support to make their start-ups viable, the necessary policy and regulatory environment for cleantech innovation was not put into place; benefits and higher-level outcomes such as job creation were not systematically tracked within the program.

Alongside the GEF's targeted engagement of formal MSMEs is its equally long history of working with informal MSMEs – farmers, fishers, artisanal miners, traders, smallholders, tour operators and other small business owners in local communities who are not formally organized or registered with the government. These informal entities constitute a large part of the private sector in developing countries (Wunsch-Vincent & Kraemer 2016); they are also typically the direct users of the natural resources that multilateral environmental agreements seek to preserve or restore. Thus, rather than as co-financers or technological innovators, these MSMEs are often engaged by GEF-supported projects in their capacity as *de facto* managers of these natural resources, given that their behaviors in aggregate directly impact the fate of these resources. This engagement often takes on the form of environmental awareness and education, support for alternative livelihoods, payment for environmental services, and formalization of natural resource access and use rights, among other interventions that promote protection and/or more sustainable use of natural resources.

The GEF's latest draft Private Sector Engagement Strategy, reflecting the GEF's shift to a more integrated value-chain approach, for the first time specifically mentions smallholders as well as artisans and “primary producers” to be included in the GEF's private sector initiatives, such as through multistakeholder platforms and capacity-building.

Previous evaluations of the GEF IEO have found that in many cases, 1) GEF-supported projects do produce synergistic or compensatory economic benefits for these community-level entities while generating GEBs (GEF IEO 2018), and that 2) a project's economic benefits can serve as an incentive for these entities to adopt and even sustain environment-friendly technologies or practices that then allows GEBs to be scaled up (GEF IEO 2019a). Thus MSMEs, whether formal or informal, are both partners and beneficiaries in the GEF's fulfillment of its mandate to generate GEBs. Indeed, many projects include the creation and tracking of economic and social benefits to these entities by design; however, these benefits are not systematically tracked across the GEF portfolio due to their not being core to the GEF's mandate.

This evaluation will for the first time assess how different types of GEF-supported interventions – many of which are delivered at higher levels of governance – engage MSMEs as a key partner in the generation of GEBs. It aims to quantify how these interventions, in the process of creating positive environmental impacts, also contribute to generating economic and social impacts for these stakeholders that constitute the larger part of the private sector in the countries that the GEF works in.

PURPOSE AND KEY QUESTIONS

The purpose of this evaluation is to assess the extent to which the GEF engages MSMEs, and the extent to which this engagement creates economic and social benefits in the process of generating GEBs.

The key evaluation questions are:

- 1) What types of GEF-supported interventions engage MSMEs?
- 2) What are the intended and unintended economic and social outcomes reported from GEF-supported interventions where positive environmental outcomes were reported?
- 3) Which factors and processes have contributed to or hindered the generation of these economic and social outcomes?
- 4) To what extent has GEF engagement with MSMEs contributed to these outcomes, including through the development of enabling conditions?
- 5) What are the most effective approaches for the GEF to engage MSMEs as a means to generating global environmental benefits?

To address GEF Council concerns, the evaluation will pay particular attention to how GEF-supported interventions have mitigated negative impacts on and advanced human and labor rights, especially for women, indigenous peoples, and persons with disability; and transparency in different scales of governance within the relevant sectors. The evaluation will also look at the extent to which the types of interventions supported and outcomes generated facilitate a green recovery from the economic and social effects of the COVID-19 pandemic, and enhance resilience to similar future shocks. Annex 1 lists the indicators to be assessed for each evaluation question.

The primary audience for the evaluation's findings is the GEF Council. The GEF Secretariat, GEF Agencies, and evaluation offices of the GEF Agencies are also anticipated to be primary users of the evaluation's conclusions and recommendations, particularly findings on the influencing factors, as well as on the feasibility of monitoring and assessment methods of economic and social outcomes.

METHODOLOGY

The evaluation will use a mixed methods approach to answer the key questions at both the portfolio level and case study level. A separate assessment will be done at a global level on how the GEF can better engage with the private sector more broadly, as a follow-up to the GEF IEO's 2017 evaluation on private sector engagement and as input to the latest draft of the GEF's Private Sector Engagement Strategy.

Portfolio Component

The evaluation will assess the GEF's contributions to environmental, social and economic benefits for MSMEs at the portfolio level using two approaches: 1) *ex post*, through an

examination of results reported at project completion, and 2) *ex ante*, through a review of the design of newly implemented programs and their respective child projects.

The *ex post* portfolio will consist of all GEF-supported projects that have accessible terminal evaluations, as of June 2020. These projects will be systematically scanned with text analytics software using relevant keywords to identify projects that specifically worked with the private sector to implement interventions. The *ex ante* portfolio will consist of child projects CEO-endorsed as part of the GEF-6 IAPs and GEF-7 IPs, and/or their corresponding program framework documents (PFDs). Further analyses will be applied on the two subsets of projects that explicitly engaged the private sector as part of their activities, to assess the extent to which specific interventions generated or are intended to generate benefits for MSMEs.

Case Study Component

The evaluation will use in-depth cases covering different focal areas, e.g. chemicals and waste, climate change, and land degradation⁹. The total number of cases will depend on access to and availability of information, given the constraints placed by the current COVID-19 pandemic, among others. The focal areas and case study countries will be selected based on opportunities for synergies in field data collection with other IEO evaluations being undertaken in parallel.¹⁰

To assess and quantify the extent of economic and social outcomes, the case study component will use quasi-experimental analysis to the extent possible. This entails the comparison of similar populations that have received and not received GEF support (“with” and “without” populations, respectively), both before and after an intervention has been implemented (Figure 1).

Tracking the same indicators in a comparison group over time serves as a proxy for the counterfactual, or what would have happened without GEF support. Comparing the GEF-supported population with the counterfactual allows the

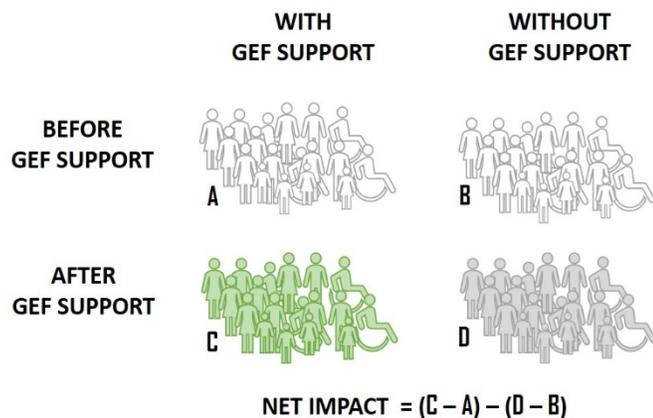


Figure A1. An experimental or quasi-experimental design entails comparing two similar populations, one that receives GEF support and one that does not, both before and after the period of GEF support.

⁹ As quasi-experimental analysis has been used by the GEF IEO mainly in biodiversity-related interventions thus far, the biodiversity focal area is not planned to be a focus of this evaluation.

¹⁰ These are the evaluation of the planetGOLD Program, the IP/IAP review, the knowledge product on fisheries, and the post-completion and formative evaluations of a sample of the GEF portfolio that will feed into OPS7, as well as any knowledge dissemination and stakeholder engagement activities.

estimation of “net impact”, or results that were achieved only where a GEF-supported intervention was implemented.

To be evaluable through a quasi-experimental design, the cases have to meet the following conditions:

- 1) Does the project support at least one concrete activity or set of activities that directly engage MSME stakeholders, implemented within clearly defined spatial and temporal boundaries, and expected to directly result in a target outcome?
- 2) Has the project been reported to have achieved some environmental outcome?
- 3) Does the project identify at least one specific, measurable economic or social indicator as an outcome in its results framework?
- 4) Has the activity or set of activities been previously demonstrated to directly generate the economic or social indicators in this or other contexts?
- 5) Are baseline data available for the economic or social indicators for populations engaged in the activity’s implementation (“with” populations)?
 - Collected by project
 - Collected through external research studies
- 6) Are endline or current data available for the economic or social indicators for populations engaged in the activity’s implementation (“with” populations)?
 - Collected by project
 - Collected through external research studies
 - Feasible to be collected by this evaluation
- 7) Do similar populations exist that did NOT implement the activity (“without” populations)?
- 8) Do data for the economic or social indicators exist for populations NOT engaged in the activity’s implementation (“without” populations)?
 - Baseline and endline or at least current data for similar population collected by project or other research study
 - Baseline and endline, or at least mid- to long-term trends for larger-scale unit in which the population belongs e.g. municipality, province, country, accessible through government or other databases, satellite imagery, etc.
 - Results for scenario without the intervention that can be estimated by experts and/or stakeholders

Annex 2 shows the extent to which each case selected through parallel evaluations meet these conditions.

Given the limitations of finding comparable populations in the complex systems in which the GEF works, the quasi-experimental design will be embedded in the theory-based “creative counterfactuals” approach developed by the GEF IEO in previous evaluations (see Annex 3 for more details on the IEO’s impact evaluation methods). This involves selecting multiple comparison units to serve as benchmarks for the various expected intermediate outcomes

along the targeted impact's causal chain (Figure 2). Apart from estimating the extent of difference in outcomes between "with" and "without" units of analysis, this approach aims to verify the pathways and mechanisms by which GEF support contributed wholly or in part to generating any reported outcomes. It also serves to either rule out or account for any other variables that may explain the effects for both GEF-supported and non-supported units. Annex 2 illustrates the specific application of the approach to each of the selected case studies, including the potential comparison units at different stages of the causal chain.

Key economic and social indicators to be assessed in the cases will be selected according to the results that a specific intervention is expected to produce within a realistic time frame. Examples of key indicators would be income level, number of sources of livelihood, health conditions, distribution of social benefits among marginalized groups (e.g. women, indigenous people), and participation in governance processes. Annex 2 provides a list of potential indicators to be used at each stage of the causal chain linked to each case's set of interventions. Data will also be collected on other intended and unintended outcomes that may emerge as significant during the course of the evaluation, such as those related to special GEF Council concerns, as mentioned above.

One of the biggest different differences between the "creative counterfactuals" approach and the more conventional quasi-experimental design typically used as a stand-alone method is that the "creative counterfactuals" approach allows for the use of any available and emerging data in a data-limited setting, with a strong emphasis on accounting for differences in outcomes through a systematic examination and elimination of possible explanations for these differences. The conventional quasi-experimental design requires a specific set of data to be available at the outset to allow the rigorous application of statistical analysis, and thus is dependent on data-rich and homogeneous environments; in addition, due to its assumption of homogeneity between "with" and "without" populations, it also assumes that the differences in outcomes are explained only by the presence or absence of the intervention being evaluated.

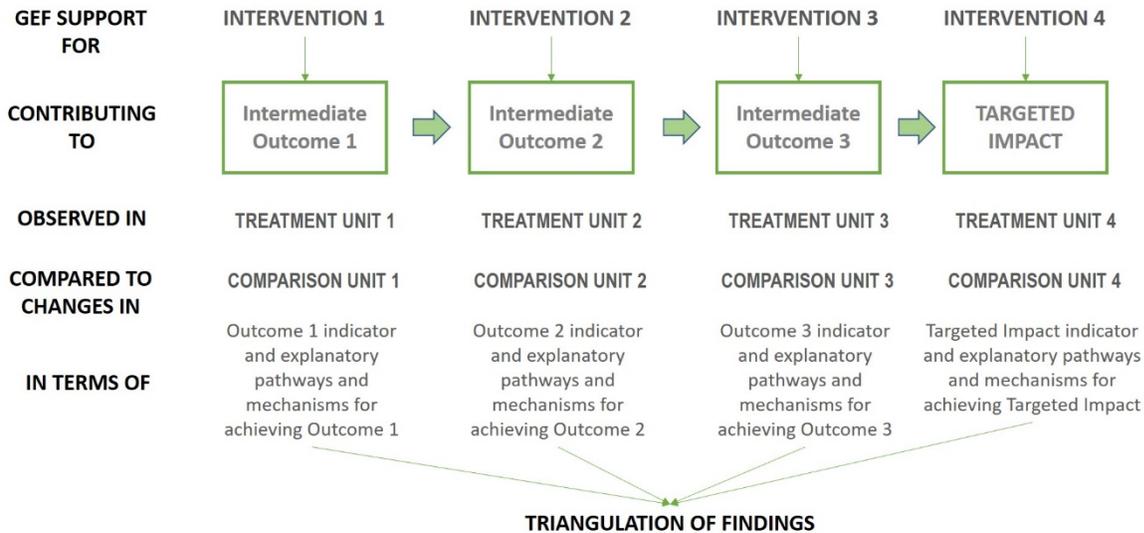


Figure A2. Illustration of the "creative counterfactuals" approach of selecting multiple comparison units to compare with the various expected intermediate outcomes of GEF-supported interventions along a targeted impact's causal chain

Global Assessment Component

Building on the previous GEF IEO evaluation on private sector engagement, the evaluation will also look at the GEF's constraints to private sector engagement more broadly, as an input to the latest draft of the GEF's Private Sector Engagement Strategy. This will be done through consultations with the GEF's Private Sector Advisory Group, complemented by a survey of a sample of MSMEs that GEF Agencies already work with.

Data Collection and Analysis

Two types of indicators will be identified at both the portfolio and case study levels: those that can be objectively and quantitatively measured, and those that can only be assessed through stakeholder perceptions and qualitative evidence. Below is a summary of data collection methods to be used in this evaluation. The evaluation matrix in Annex 1 provides more details on indicators, data sources and data analysis methods to be used.

- Project document review.** Identify the key interventions that engage MSMEs, and the extent to which quantitative and qualitative environmental, social and economic benefits have been generated in completed projects or are planned to be generated in newer projects. At the case study level, identify the key quantitative environmental, economic and social outcomes to focus on in each case; develop theories of change for each case based on project activities to serve as bases for assessing the extent of GEF's contribution to these outcomes.
- Interviews / online survey at global level.** Identify the barriers to GEF engagement with the private sector and especially MSMEs, and the extent to which the GEF is addressing them in its current strategy and programming.

- **Preparatory interviews and focus group discussions at case study level.** Verify with stakeholders the key quantitative and qualitative outcomes to focus on, as well as the locations and number of the populations to be included in the quasi-experimental design. Availability of access to target populations and relevant databases will also be confirmed during these field visits.
- **Focus group discussions (FGDs) / surveys at case study level.** Depending on the size of the population and the key indicators to be assessed, either FGDs or surveys or both may be used to assess the magnitude and distribution of economic and social effects as well as the relative importance of previously identified influencing factors. These will also be used to triangulate findings on other indicators.
- **Objective and quantitative measures.** Indicators will be selected according to specific case characteristics, and will measure key environmental, economic and social outcomes. These will be used to triangulate stakeholder perceptions. Annex 2 presents the available and potential indicators and data sources for each selected case.

At the case study level, statistical analyses will be used to determine quantitative impacts to the extent possible. Working with the same populations that are part of the quantitative analyses, interviews, focus group discussions and surveys will be used to identify and assess other effects that are not quantifiable. Qualitative data gathered from these methods will also be analyzed to identify factors that have influenced the observed outcomes, including the extent to which GEF support has contributed to the generation of these outcomes in relation to other contributing factors and processes. Qualitative analysis software such as NVivo will be used to identify patterns and trends in qualitative indicators and influencing factors. Geospatial and other statistical analyses may be used depending on the indicators to be used and on the relevant local, national and global datasets available.

Limitations

At the portfolio level, the main limitation will be in systematically identifying projects that involve the private sector and more specifically MSMEs, due their not being explicitly labeled in the GEF's Project Management Information System.¹¹ The use of text analytics to do this task is still in its pilot stages in the GEF IEO; the accuracy and reliability of results may be difficult to verify, given the high number of documents to be processed.

At the case study level, one of the biggest challenges will be identifying “without” populations and obtaining data on them. GEF-funded projects typically do not collect baseline or endline data for populations that are not beneficiaries of the project. To collect data directly from “without” populations (i.e., not supported by GEF-funded projects), the evaluation team will need to identify and work with appropriate organizations or government agencies that have established long-term relationships with these populations. These organizations and agencies

¹¹ This limitation was also identified in previous GEF IEO evaluations, and is planned to be addressed through the GEF Private Sector Engagement Strategy Implementation Plan to be approved by the GEF Council.

will be necessary to facilitate access to and help gain the trust of such populations in providing social and economic information. The extent to which there is “spillover” of the intervention to “without” populations (e.g. through knowledge exchange or migration) also needs to be determined, as this is often difficult to control in real-world settings, and will affect the interpretation of findings. Even more important will be identifying the extent to which the selected “with” and “without” populations are different on key variables, and how these differences contribute to any differences in outcomes. The “creative counterfactuals” approach allows the analyses to be adapted to whatever data becomes available and accessible, while also assessing the GEF’s contributions (rather than attribution) in these complex systems.

Obtaining quantitative economic and social data to cover pre- and post-project periods may also be a challenge, as project reporting on such data tends to be qualitative. We will need to map the presence of relevant research institutions and government agencies in each country to have a list of possible data sources. For projects that have been completed, there may be a greater challenge in identifying contacts who can assist in gaining access to the populations of interest. Cases will be selected in part based on the availability of contacts that can provide information about GEF-supported interventions and access to relevant populations for data collection. The cases will therefore be biased towards data-rich environments by design rather than being representative of the GEF portfolio; the cases however are valuable for providing in-depth information on factors and mechanisms by which outcomes take place.

Given the travel limitations and safety concerns arising from the COVID-19 pandemic, fieldwork will be conducted by local consultants according to guidelines and regulations applicable to the respective case study countries and specific project sites. In the event that field visits cannot be completed, data will be collected remotely by phone, online surveys, or other appropriate means; existing local and national datasets will also be used to the extent possible to supplement primary data collection. Any limitations associated with the inability to travel will be presented in the final evaluation report.

The above logistical and other concerns constrain this evaluation’s scope to a small number of cases that are selected based mainly on availability and accessibility of data. Therefore it does not aim to generalize the findings of the case studies to the larger GEF portfolio, but rather to present the results of a few typical GEF-supported interventions within the context of specific industries, sites and focal areas, and the corresponding explanatory variables and mechanisms in depth. The portfolio component will provide a more representative assessment of the types and extent of outcomes reported from GEF-supported interventions.

Quality Assurance

At least two private sector and evaluation experts, particularly specializing in MSMEs, will be selected as external peer reviewers. The peer reviewers will provide feedback at various stages of the evaluation, beginning at design until the formulation of conclusions and

recommendations. Apart from these, the evaluation will also be reviewed internally by GEF IEO staff at design stage and prior to circulation to stakeholders.

STAKEHOLDER ENGAGEMENT AND KNOWLEDGE MANAGEMENT

This approach paper and the draft report will be circulated to GEFSEC and Agencies. A Reference Group of private sector specialists from the GEF Secretariat and GEF Agencies will be formed to provide support for and verification of case study selection, field missions, and any preliminary evaluation products. Beneficiaries in the countries will be engaged through participatory exercises so they may provide inputs on the key indicators to be measured, whether positive or negative, intended or unintended. Findings from each case will be shared with all stakeholders involved for verification and feedback prior to presentation to Council.

Four-page briefs will also be published, with the GEF Replenishment Group as the main audience. Apart from the final report, the findings and methodology will be disseminated in shorter formats more easily accessible and absorbed by a wider audience of project designers, managers and evaluators, such as through conference presentations, webinars, videos and infographics.

RESOURCES

The evaluation will be led by Jeneen R. Garcia, Evaluation Officer with overall guidance from Geeta Batra, Chief Evaluation Officer of the IEO, and support from teams of the individual evaluations which the case studies are associated with. Consultants will conduct the bulk of the data collection and analysis, especially in the case study countries. The required competencies include skills in mixed-methods impact evaluation, including qualitative data collection and analysis methods, as well as in-depth knowledge of the specific industries in the case study countries of which the selected MSMEs are part.

Timeline

The evaluation is intended to be completed in a phased approach between June 2020 and June 2021. The case studies will be conducted and presented to the GEF Council as they are completed, in line with the timelines of their associated individual evaluations.

Table A1. Timeline of evaluation

TASKS	2020							2021					
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Start-up of Evaluation													
Approach Paper circulated and approved	█												
Recruitment of peer reviewers and Reference Group	█	█											
Hiring of consultants	█	█											
Portfolio Component													
Definition of portfolios for review	█	█											
Design of project document review tools (TE and child projects)		█											
Project document reviews			█	█	█	█							
Analysis of portfolio data					█	█							
Design of interviews/ online survey of MSMEs		█											
Administration of interviews/ online survey			█	█									
Analysis of interviews/ survey results				█	█	█							
Write-up of results						█	█						
Case Study Component													
Review of project documents and other literature		█	█										
Preparatory interviews & FGDs – CC & CW cases (including post-completion and formative evaluations for CW case)		█	█	█									
Design of data collection framework and tools		█	█										
Data collection for CC & CW cases			█	█									
Analysis and write-up of CC and CW cases				█	█	█							
Presentation to Council of CC and CW cases							█						
Preparatory interviews & FGDs – LD case (TBD) (including post-completion and formative evaluations)													
Data collection for LD case (TBD)													

Analysis and write-up of LD case														
Synthesis of Evaluation Components														
Four-pagers of portfolio and case study results for Replenishment Group														
Write-up of draft report														
Circulation of draft report to stakeholders														
Revision of report														
Presentation to Council of Final Report														

Annex 1: Evaluation Matrix

Table A2. Evaluation matrix

EVALUATION QUESTION	INDICATORS	DATA COLLECTION METHODS	POTENTIAL DATA ANALYSIS METHODS
1) What types of GEF-supported interventions engage MSMEs?	<ul style="list-style-type: none"> • Project components and types of project activities • Results for each project activity • Types of interventions and outcomes that mitigate negative effects on and advance human and labor rights (especially on marginalized groups), transparency in governance at multiple scales, green recovery from COVID-19, and resilience to future shocks • Sources of cofinancing 	<ul style="list-style-type: none"> • Programming and strategy document review • Project document review • Interviews with project managers and national and local stakeholders 	<ul style="list-style-type: none"> • Portfolio analysis • Mapping of project activities and results to theory of change in relevant value chain • Statistical and content analysis of survey results
2) What are the intended and unintended economic and social outcomes reported from GEF-supported interventions where positive environmental outcomes were reported?	<ul style="list-style-type: none"> • Environmental, economic and social outcomes, both quantitative and qualitative (as identified per case, see Annex 2), including reports of sustainability and scaling • Any outcomes related to human and labor rights (especially on marginalized groups), transparency in governance at multiple scales, green recovery from COVID-19, and resilience to future shocks, depending on relevance to particular sector in case study 	<ul style="list-style-type: none"> • Project document review • Global, national and local databases • Interviews with project managers and national and local stakeholders • FGDs • Surveys 	<ul style="list-style-type: none"> • Difference-in-difference • Geospatial analysis • Word frequencies and networks • Content analysis
3) Which factors and processes have contributed to or hindered the generation of these economic and social outcomes?	<ul style="list-style-type: none"> • Contributing factors • Hindering factors • Lessons learned and recommendations for engaging MSMEs and achieving outcomes 	<ul style="list-style-type: none"> • Project document review • Review of other literature • Global, national and local databases • Interviews with project managers and national and local stakeholders 	<ul style="list-style-type: none"> • Word frequencies and networks • Content analysis/ Grounded theory analysis

	<ul style="list-style-type: none"> Contextual conditions, e.g. economic, social, legal, political at local, national and regional levels particularly affecting the specific industry that may explain outcomes Timeline of events leading to generation of results 	<ul style="list-style-type: none"> FGDs Surveys 	<ul style="list-style-type: none"> Contribution analysis / Process tracing/ Comparative analysis as appropriate Statistical analysis of trends where quantitative data is available
4) To what extent has GEF support contributed to these outcomes, including through the development of enabling conditions?	<ul style="list-style-type: none"> Enabling conditions supported by the GEF (e.g. legal frameworks, service providers, equipment, financing) Project implementation process and conditions Contextual conditions, e.g. economic, social, legal, political at local, national and regional levels particularly affecting the specific industry that may explain outcomes Timeline of events leading to generation of results 	<ul style="list-style-type: none"> Project document review Review of other literature Global, national and local databases Interviews with project managers and national and local stakeholders FGDs Surveys 	<ul style="list-style-type: none"> Word frequencies and networks Content analysis/ Grounded theory analysis Contribution analysis / Process tracing/ Comparative analysis as appropriate Statistical analysis of trends where quantitative data is available
5) What are the most effective approaches for the GEF to engage MSMEs as a means to generating global environmental benefits?	<ul style="list-style-type: none"> Lessons learned and recommendations for engaging MSMEs and achieving outcomes Constraints to GEF engagement with private sector, especially MSMEs 	<ul style="list-style-type: none"> Project document review Interviews with GEF Private Sector Advisory Group members Online survey of MSMEs 	<ul style="list-style-type: none"> Word frequencies and networks Content analysis/ Grounded theory analysis

Annex 2: Profile of Cases

The case profiles provide project information for each case, particularly on the interventions and outcomes most relevant for this evaluation. Known and potential “with” and “without” populations are identified, as well as known and potential data sources. Theories of change for key outcomes are presented as a framework for assessment; these include proposed outcomes and corresponding indicators to be assessed. However, the details of these theories of change will be verified and are expected to be iteratively revised as more information is obtained through this evaluation.

Case #1: Climate Change Mitigation: Energy Efficient and Renewable Energy Technology in Energy-intensive MSMEs

The aim of the project is to develop and promote a market environment for introducing energy efficiencies (EE) and enhanced use of renewable energy (RE) technologies in process applications in 12 selected energy-intensive MSME clusters in India, with expansion to more clusters later, in order to improve the productivity and competitiveness of units as well as to reduce overall carbon emissions and improve the local environment.

The project has supported information dissemination and training initiatives for both providers of EE and RE technologies (“local service providers” or LSPs) and MSMEs that are expected to adopt these technologies and best operating practices. At the cluster level, it has created energy management cells (EMCs) staffed with certified engineers that provide energy audit services as well as other technical advisory support to MSMEs. The project has also financed both the demonstration of larger-scale EE and RE investments (“pilot projects”) in a few MSMEs, and the development of direct project reports (DPRs) that function as feasibility studies to be used to apply for loans for EE and RE technologies at financial institutions. It is also working at the national level to make policies more favorable to adopting EE and RE technologies.

Table A3. Profile and Conditions of CCM Case

GEF ID	3553
Project Title	Promoting Energy Efficiency and Renewable Energy in Selected Micro, Small and Medium Enterprises (MSME) Clusters in India
Country/ Countries	India
GEF Agency/ Agencies	UNIDO
GEF grant amount (at CEO endorsement)	USD 7,172,097
Co-financing total (at CEO endorsement)	USD 26,200,000
Implementation Start Date (actual)	February 2011
Implementation End Date (actual)	Ongoing
Concrete activity/ set of activities with clearly defined spatial and temporal boundaries	EE & RE technology and practices adopted by MSMEs organized into clusters within sectors; includes training on practices, financial assistance, and advisory services through energy management cells
Direct target outcome	GHG reduction

	Cost savings for MSMEs
Direct social or economic indicator	Estimated annual savings vs investment (monetary + other resources) (Changes in working conditions e.g. temperature)
Baseline of social or economic indicator	Energy audits and monitoring done by project
Endline of social or economic indicator	Energy audits and monitoring done by project
Potential “without” populations	MSMEs within same clusters and receiving project support that did not adopt any EE / RE changes
Data potentially available for “without” populations	National or municipal records on specific clusters or industries BEE study on energy use of industrial sectors To be collected by this evaluation

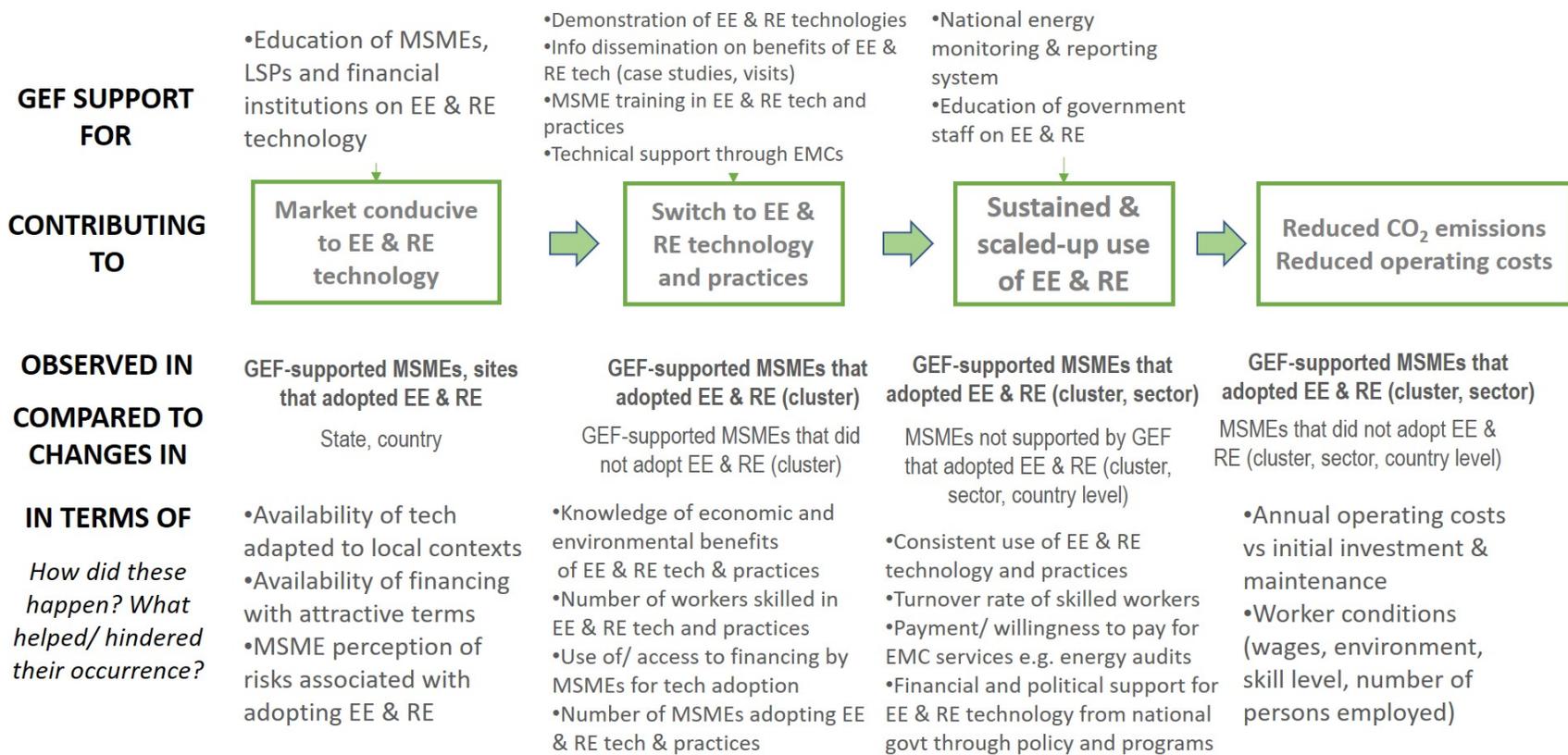


Figure A3. Initial framework for assessing extent of contribution of GEF support in reducing CO₂ emissions and operating costs among MSMEs in India

Case #2: Chemicals and Waste: Mercury Reduction in Artisanal-scale Gold Mining

The overall objective of the project was to improve the health and environment of artisanal gold mining (ASGM) communities in the Philippines by reducing mercury emissions. In particular, the project aimed to introduce mercury-free technology in two small-scale mining areas, and to supplement this effort by providing health training to rural health care workers in the proper diagnosis of mercury poisoning.

The project supported information dissemination activities that made miners aware of the hazards of mercury to both health and environment, which increased their willingness to use mercury-free technology. The project supported the piloting of mercury-free technology using low-cost, locally available materials through training on techniques and cofinancing from local governments to build mercury-free facilities. It also supported the creation of a national-level ASGM institution to allow ASGM associations to formalize their sector and gain access to government support for social and technical services.

Table A4. Profile and Conditions of CW Case

GEF ID	5216
Project Title	Improve the health and environment of artisanal gold mining communities in the Philippines by reducing mercury emissions
Country/ Countries	Philippines
GEF Agency/ Agencies	UNIDO
GEF grant amount (actual)	USD 550,000
Co-financing total (final committed)	USD 1,631,070
Implementation Start Date (actual)	March 2013
Implementation End Date (actual)	June 2016
Concrete activity/ set of activities with clearly defined spatial and temporal boundaries	Gravity-based, mercury-free technology for ASGM piloted in 2 communities in Diwalwal, Compostela Valley and Labo, Camarines Norte; included awareness-raising on health risks of Hg and formalization of sector at local and national levels
Direct target outcome	Reduction in mercury use, emissions and exposure

Direct social or economic indicator	Mercury levels in blood and hair Other health concerns (Income level)
Baseline of social or economic indicator	Collected by project
Endline of social or economic indicator	Collected by project Municipal or village health records To be collected by this evaluation
Potential “Without” cases	Nearby communities in same provinces that have not adopted the technology Community of Pasil, Kalinga, initially selected as pilot site but LGU withdrew support due to entry of large-scale mining
Data potentially available for “without” cases	Baseline for Kalinga collected by project Provincial, municipal or village health records To be collected by evaluation

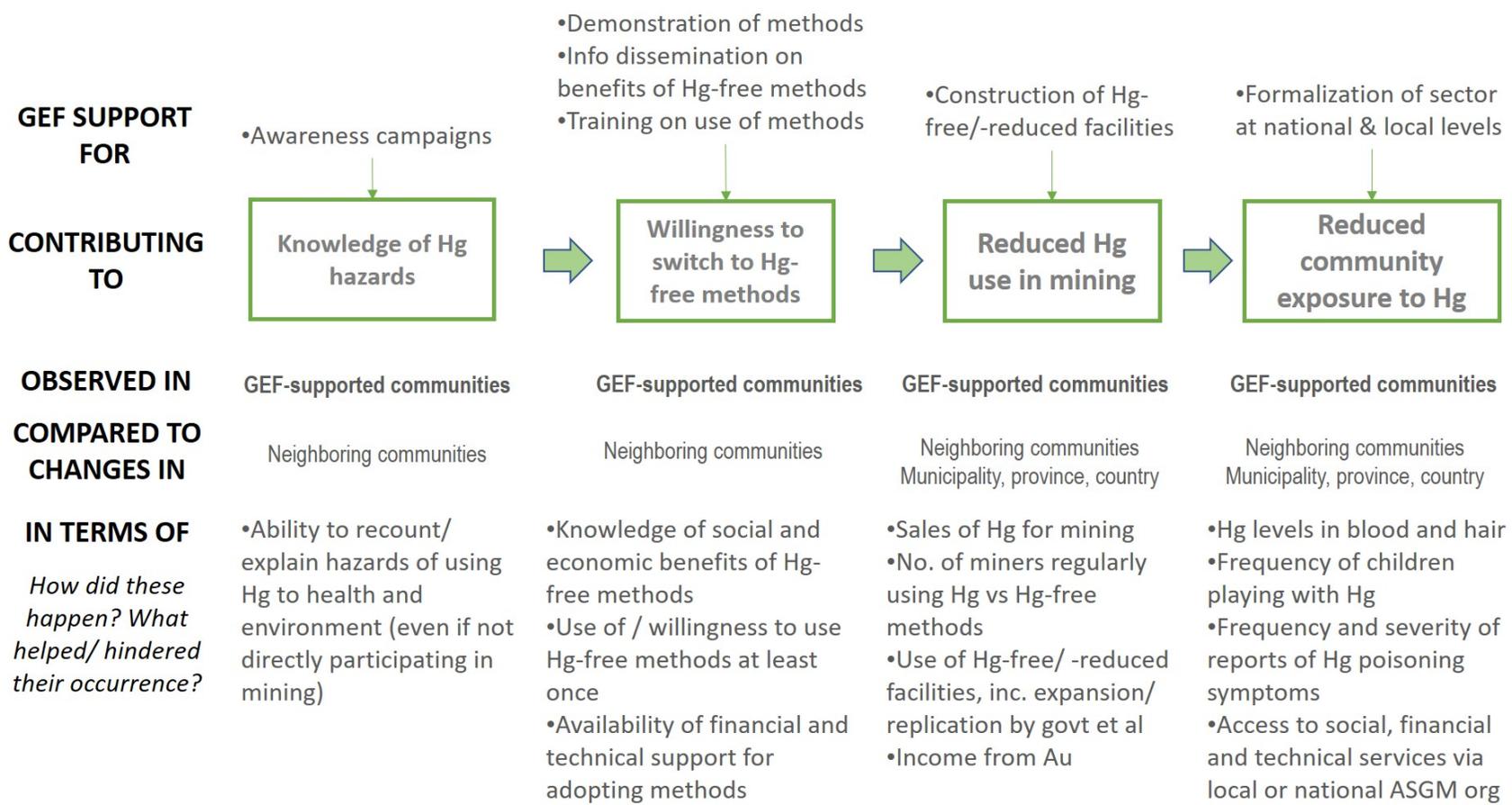


Figure A4. Initial framework for assessing extent of contribution of GEF support in reducing community exposure to Hg in ASGM communities in the Philippines

ANNEX 3: IMPACT EVALUATION METHODS IN THE GEF IEO

Impact evaluations previously undertaken by the GEF IEO have used a mixed methods approach (i.e., combining quantitative and qualitative analyses, Bamberger 2012) to assess the environmental results of GEF support. In some sectors such as health and development economics, evaluating impacts of interventions is typically equated with the use of experimental methods. In essence, this entails randomly designating comparison and treatment groups within the target population prior to implementation, implementing the intervention only in the treatment group, and then measuring the difference in outcomes between the comparison and treatment groups after implementation. This difference is considered the “net impact” of the intervention, as it is presumed to be the only difference between the two statistically similar groups.

Where it has not been possible to designate treatment and comparison groups *ex ante*, quasi-experimental analyses are used to measure outcome differences between treatment and comparison groups created *ex post* using statistical methods (White and Sabarwal 2014).

Quasi-experimental analyses, while not often used due to the lack of statistically viable samples and quantitative data, are not new to the GEF IEO. In 2008, three quasi-experimental studies assessed the socioeconomic effects of biodiversity-related interventions on populations living in protected areas and agricultural landscapes. The case studies were done in collaboration with the GEF’s Scientific and Technical Advisory panel (STAP) as part of a series of impact evaluation papers (GEF EO 2008). Advancements in open-access geospatial technology have allowed the GEF IEO to do more sophisticated, lower-cost quasi-experimental analyses, such as through spatial propensity score matching to create treatment and comparison groups. Pixels of satellite images at 30-m resolution were matched based on similarities on nine socioeconomic and biophysical variables, with the only difference being their classification as protected area (treatment) or not (comparison); the outcome assessed was avoided forest cover loss (GEF IEO 2016).

Most recently, the GEF IEO matched socioeconomic data from the World Bank’s Living Standards Measurement Survey (LSMS) with satellite data to determine correlations between changes in household assets and the implementation of GEF-supported sustainable forest management interventions in Uganda over a two-year period (GEF IEO 2019b). The method used, quasi-experimental geospatial interpolation (QGI), builds on spatial propensity score matching methods by iteratively testing the extent to which effects can be detected at increasing distances from the intervention; the maximum distance and intervals to be tested are specified *a priori* (Runfola et al 2020).

One limitation of quasi-experimental methods, apart from statistical assumptions requiring large homogeneous populations, is that they normally do not account for the causal mechanisms between interventions and observed effects (IIED 2017). In the coupled human and natural systems that the GEF seeks to influence, differences in outcomes often cannot be directly and wholly attributed to GEF support, as many other actors and factors are also at play at multiple interacting scales (Zazueta and Garcia 2014; Garcia and Zazueta 2015).

Since 2010, GEF IEO impact evaluations have built on theory-based approaches and methods more appropriate for such complex systems (Vaessen et al 2016); instead of using a single comparison group statistically similar to the treatment group, the former of which often does not exist, multiple units of analysis with respective comparison and treatment units are assessed for various outcomes along an intervention’s theory of change (GEF EO 2012). This approach then triangulates results from the

different units of analysis to better assess the extent to which GEF support has indeed influenced the outcome. To contrast with the concept of a statistically similar comparison group being conventionally defined as the “counterfactual”, or what would have happened without the intervention, these alternative comparison units are dubbed as “creative counterfactuals” (Garcia and Zazueta 2017).

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