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ANNUAL

REPORT

GEF Annual Impact Report 2013

Evaluation Report

gef IEO Independent Evaluation Office
GLOBAL ENVIRONMENT FACILITY

SEPTEMBER 2014

GLOBAL ENVIRONMENT FACILITY
INDEPENDENT EVALUATION OFFICE

GEF Annual Impact Report 2013

September 2014

EVALUATION REPORT NO. 91

This report was presented to the GEF Council in November 2013.

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ISBN-10: 1-933992-50-6
ISBN-13: 978-1-933992-50-1

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A FREE PUBLICATION

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Foreword

This is the seventh annual impact report produced by the Independent Evaluation Office of the Global Environment Facility (GEF). In these reports, the Office consolidates information on completed evaluations as well as on progress of ongoing impact evaluations, methodological developments, and other related efforts.

GEF Annual Impact Report 2013 presents the findings and recommendations of the Climate Change Mitigation Impact Evaluation: GEF Support to Market Change in China, India, Mexico, and Russia; it also provides information on the progress made in the biodiversity impact evaluation of GEF support to protected areas.

The Independent Evaluation Office continues to mainstream impact-related considerations across its other evaluation streams. This year, other efforts on impact evaluation concentrated on producing impact-related evidence for the Fifth Overall Performance Study.

The Office would like to thank all those who collaborated with our impact assessment work: our staff and consultants, national focal points, project management staff, and the GEF Agencies. I would like to thank all those involved for their support and constructive criticism.

The evaluation was conducted and completed when Rob D. van den Berg was the Director of the GEF Independent Evaluation Office. The final responsibility for this report remains firmly with the Office.

Juha I. Uitto
Director, GEF Independent Evaluation Office

Acknowledgments

This report was prepared by Aaron Zazueta, Chief Evaluation Officer and Task Team Leader for impact evaluations with the Independent Evaluation Office of the Global Environment Facility (GEF), and Jeneen Garcia, Evaluation Officer in the GEF Independent Evaluation Office.

Aaron Zazueta is also leading the Impact Evaluation of GEF Support to Biodiversity with Jeneen Garcia and Anupam Anand, Consultant; he and Neeraj Kumar Negi, Senior Evaluation Officer, were co-task managers for the Impact Evaluation on Climate Change Mitigation. Christine Wörlen, Björn Conrad, Odon de Buen Dia, P. R. K. Sobhan Babu, and Shankar Haldar carried out country visits and provided valuable contributions to the evaluation.

Abbreviations

CRESP	China Renewable Energy Scale Up Program
GEF	Global Environment Facility
GHG	greenhouse gas
OPS	overall performance study
STAP	Scientific and Technical Advisory Panel
TVE II	Energy Conservation and GHG Emission Reduction in Chinese Township and Village Enterprises, Phase II
UNDP	United Nations Development Programme

All dollar amounts are U.S. dollars unless otherwise indicated.

1. Overview of Impact Evaluation Work in 2013

This seventh Annual Impact Report of the Global Environment Facility (GEF) covers the period from October 1, 2012, to September 30, 2013. It consists of two chapters, excluding this overview. Chapter 2 consists of the findings and recommendations of the Climate Change Mitigation Impact Evaluation: GEF Support to Market Change in China, India, Mexico, and Russia. The findings of this evaluation also provide a basis to further assess the impacts of GEF support to climate change mitigation at the global scale, which was taken up in the final report of the GEF's Fifth Overall Performance Study (OPS5) and presented to the third replenishment meeting for GEF-6 (2014–18) in December 2013.

Chapter 3 reports on other activities carried out by the Independent Evaluation Office with reference to impact evaluation for the reporting period. Included is the progress made on the joint GEF–United Nations Development Programme (UNDP) impact evaluation of support to protected areas. Not included in this chapter is the substantive work that the impact evaluation team has carried out and is now finalizing to report on progress toward impact of the full GEF portfolio. The first report of OPS5 provided preliminary findings in this regard, and the final report contains the further analysis undertaken. Furthermore, a technical document of OPS5 provides the detailed analysis, including methodological considerations.

The Independent Evaluation Office has also continued to test new evaluation methods and generate knowledge to improve evaluation tools and methods by participating in expert workshops, publications, blogs, and videos. It also participates in the United Nations Evaluation Group impact evaluation task force and in the Evaluation Cooperation Group of multilateral development banks.

2. Climate Change Mitigation Impact Evaluation

2.1 Background

Through its climate change focal area projects, the GEF seeks to support efforts to reduce greenhouse gas (GHG) emissions of developing countries and countries with economies in transition. Major emerging market economies are especially important in terms of their climate change mitigation potential. These countries cover 40 percent of the global population. Most of them are showing rising overall emissions trends and have received a large share of GEF funding in the past.

The evaluation focuses on the impact of completed GEF climate mitigation projects in four large emerging markets: China, India, Mexico, and the Russian Federation. More specifically, the impact evaluation has pursued the following key questions:

- What have been GEF contributions to GHG emissions reduction and avoidance?
- What has been the progress made by GEF-supported activities toward transforming markets for climate change mitigation?
- What are the impact pathways and factors affecting further progress toward market transformation?

The basis for this evaluation consists of 18 completed and fully evaluated GEF mitigation projects in India, Mexico, and Russia. These projects were completed at the start of the study, and each project pertains to the change of a specific market or market segment. They originate from earlier GEF periods up to GEF-3 (2003–06). The projects are listed in the full report. They cover various sectors with opportunities for renewable energy, energy efficiency, and methane emissions reductions (table 2.1).

Many projects in these countries started in the early stages of the GEF and have been completed and fully evaluated by now. As a significant number were terminated several years ago, these projects offer an opportunity to observe post-project impacts and impact pathways. Given that the GEF portfolio in most of these countries spans several sectors and fields of operation, the sample can be used to identify cross-country and cross-sectoral findings.

The evaluation included desk reviews of completed projects and extensive country work to assess progress toward impact since project completion. The evaluation also assessed the relevant contextual country and global factors affecting the markets. The fieldwork for the study took place between August 2012 and January 2013.

The conclusions refer mainly to large countries with emerging markets and specifically to the countries included in the review. Extrapolation of the findings beyond emerging markets would require additional analysis. The evaluation findings are nevertheless important to the GEF given the large contributions of emerging markets to GHG emissions.

TABLE 2.1 **Number of Projects Covered by Evaluation, by Country and Technology/Market**

Technology/market	China	India	Mexico	Russian Federation
Renewables, wind	2	1	1	0
Renewables, biomass or methane	0	2	1	0
Renewables, solar	2	1	1	0
Renewables, hydro	0	2	0	0
Energy efficiency, all	0	1	0	1
Energy efficiency, industry	1	0	0	0
Energy efficiency, lighting	0	0	1	0
Energy efficiency, buildings	0	0	0	2
Transportation	2	0	1	0
Total	5	6	5	2

NOTE: Details do not sum to totals because some projects covered more than one technology.

2.2 Conclusions

CONCLUSION 1: **Sixteen of the 18 projects assessed have resulted in significant direct GHG emissions reduction of about 6 million tons of carbon dioxide equivalent per year. Indirect GHG emissions reduction, achieved through causal links from the projects to other activities, is estimated at 10 times higher than the direct emissions reduction, but could not be verified.**

Projects had significant direct GHG emissions reduction impact. Together, the projects are avoiding about 6 million tons of carbon dioxide equivalent per year. Relative to the magnitude of the challenge of stabilizing the global atmosphere and even measured against the overall emissions of the emerging economies, all direct GHG impacts are very small.

However, most projects did not achieve the levels of direct GHG emissions reduction expected at project approval. Of the 16 projects that did achieve GHG emissions reductions, 3 (all in China) overachieved their targets, and 13 did not reach them.

A single project, the Energy Conservation and GHG Emission Reduction in Chinese Township and Village Enterprises, Phase II (TVE II; GEF ID 622), contributed a third of the emissions reductions, dominating GHG impacts. This project was characterized by a number of supporting factors and constellations, but also approached a unique GHG savings opportunity: the carbon-intensive and inefficient production of construction material in heavily populated rural areas. Because of its uniqueness, the project cannot be seen as representative of GEF operations.

The more representative projects show a large range of GHG impacts, covering several orders of magnitude. The determining factors for the ultimate scale of direct GHG impact are the combination of market size and specific mitigation impact of the technology, the project approach, and the emissions factor of the country. Other times, project GHG emissions objectives were not achieved because they were overly ambitious at the project's start. The lack of a standardized accounting methodology to establish targets and measure results was also a factor.

The analysis of indirect GHG emissions reduction impacts—impacts of country follow-up activities that have a causal link to the project activities but are not part of the project—identified such impacts for 14 projects. The sum of the indirect GHG impacts is around 10 times that of direct impacts. Project design and delineation have had a major impact on whether GHG impacts are

counted as direct or indirect. For example, in the original project design of the TVE II, the replications would have been counted as indirect impacts. Through an approved change in the project design (i.e., the inclusion of a replication mechanism), these indirect impacts were converted into direct impacts, thus reducing indirect impacts but enlarging direct impacts.

Generally, for indirect impacts, two different country contexts were typical. One group of projects—demonstration projects—provided opportunities for learning about technologies. These include India's Coal Bed Methane Capture and Commercial Utilization project (GEF ID 325), Mexico's Methane Capture and Use Landfill Demonstration Project (GEF ID 784), and Mexico's Introduction of Climate Friendly Measures in Transport (GEF ID 1155). Some demonstration projects, such as the High Efficiency Lighting Pilot (GEF ID 575) in Mexico or the TVE II in China, were able to transform significant market segments and achieve large-scale impact. Others did not reach much beyond the proof-of-concept stage (e.g., the coal bed methane project in India). The second group of projects are those that help channel and support a local push for sustainable energy, such as the China Renewable Energy Scale Up Program (CRESP), Phase 1 (GEF ID 943) and Renewable Energy Development in China (GEF ID 446). Thus, although the former approach is riskier, both approaches can achieve large-scale impacts as long as local preconditions are suitable. The most successful project in the sample in terms of GHG impact (China's TVE II) combines aspects of both approaches.

In addition to GHG emissions reductions, significant positive economic development impacts, job impacts, local benefits, and a general awareness of the importance of climate change mitigation and energy savings have been achieved. These impacts have been significant, although there are indications that some projects may also have had disadvantageous effects for some people.

CONCLUSION 2: **Broader adoption of technologies, approaches, and strategies tested by GEF projects was observed in 17 cases, and they included pathways of broader adoption identified in the GEF theory of change framework.**

In previous studies and in its theory of change framework, the GEF Independent Evaluation Office has identified five pathways for broader impact of GEF projects. All five could be traced and analyzed in this evaluation.

- **Sustaining the outcomes and benefits of GEF investment was achieved in 13 cases.** Sustaining takes place when technologies or approaches originally supported through the GEF continue to be implemented beyond actual project duration through clear budget allocations, implementing structures, and institutional frameworks defined by the government or other project stakeholders. Most projects had technologies or approaches that were sustained. The exceptions were one of two projects that did not include any investment (Mexico's Action Plan for Removing Barriers to the Full-scale Implementation of Wind Power, GEF ID 1284) and the three projects that were first proofs-of-concept in a country (Capacity Building to Reduce Key Barriers to Energy Efficiency in Russian Residential Buildings and Heat Supply, GEF ID 292; and Demonstration of Fuel Cell Bus Commercialization in China, GEF IDs 941 and 2257). On the India Energy Efficiency Project (GEF ID 404), insufficient information on sustaining individual investments was available. However, as the investments were relatively small compared to the size of the challenge and the size of the emerging markets, the resulting impacts of sustaining them were also relatively small.
- **Broader adoption through mainstreaming was observed in many GEF projects.** Mainstreaming takes place when information, lessons, or specific results of the GEF are incorporated into broader stakeholder mandates and

initiatives, such as laws, policies, regulations, or programs. This may occur not only through governments but also in development organizations and other sectors. As mainstreaming covers a variety of impacts of GEF projects, not all of these dimensions could be quantified in the evaluation. Mainstreaming is taking place through energy-specific policies and capacity-building initiatives; for example, these initiatives have supported institutions—such as the Mexican Agricultural Fund (FIRCO) and several entities in India—in sufficiently enhancing their capacities to become knowledge centers. Capacity building with public institutions has taken place in 16 projects. The private sector, too, has benefited from capacity building in 12 projects. In addition, four projects have resulted in nonenergy-specific policies that support climate mitigation in the fields of waste management and public transit as well as in areas such as rural development.

- **Replication of the technologies and approaches tested by GEF projects was observed in relation to 15 projects.** Replication takes place when GEF-supported initiatives are reproduced or adopted at a comparable administrative or ecological scale, often in another geographical area or region. All projects that ultimately claimed large GHG impacts had replication factored in as a concern in their project design. Similarly, if replication had been a concern in the project design, some replication activity did take place during or after the project, if the project succeeded with its core tasks. Some projects, most notably China's TVE II, included an active replication component as an approved change after project approval. This component in itself has been sustained after the project, ensuring that the project had not only very large direct GHG emissions reduction impacts but also continued promoting industrial energy efficiency after project closure. Nine projects were experiencing replication through the private sector. These were all supported by national institutions, strategies, or policies. Eight projects encountered replication through further official development assistance activities (GEF and non-GEF) or national budgetary support. Three public service–oriented projects were replicated in the public sector. The evaluation did not link any replication to three projects.

- **Broader adoption through scaling-up was observed with regard to 10 projects.** Scaling-up takes place when, in addition to replication, broader adoption includes dimensions that go beyond those initially introduced by the project. Scaling-up includes cases where GEF-supported initiatives are implemented at a larger geographical scale; or these initiatives are expanded to include new aspects or concerns that may be political, economic, administrative, or ecological in nature. No evidence of scaling-up was found in five projects. In three—India's energy efficiency project, Mexico's wind power project, and Russia's capacity-building project—technologies or approaches for climate mitigation promoted by GEF projects were scaled up, but with no causal links to the projects. In 10 cases, evidence of scaling-up of the approaches and technologies promoted by GEF projects was causally linked to the project. Where causal links could be established, they were often rooted in the capacity-building activities of the projects, such as India's Alternate Energy project (GEF ID 76), CRESP, and Cost Effective Energy Efficiency Measures in the Russian Educational Sector (GEF ID 1646). An interesting avenue for this was capacity building with the private sector, which was observed in India's Optimizing Development of Small Hydel Resources in Hilly Areas project (GEF ID 386) and China's renewable energy development project. The four countries also

played a role as regional leaders. For three of the Mexican projects—those involving landfill demonstration, climate-friendly transport measures, and high-efficiency lighting—replication was identified with significant scale-up effects in other Latin American countries. The most important aspects for significant broader adoption through scaling-up of technologies were government policies and the establishment of standards. Six projects led to government policies, including in renewable energy or energy efficiency; and the evaluation established a causal link for these changes to the GEF projects. It also found that higher levels of scale decreased attribution of causality to GEF projects as the influence of other factors and actors becomes more prominent.

- **Broader adoption through market change was observed in relation to 13 projects.** Market change is an important pathway for broader impact. Its extreme case—market transformation—was observed in one project. The High Efficiency Lighting Pilot in Mexico, initiated in the early 1990s, has significantly contributed to compact fluorescent light bulbs completely substituting for the old technology: incandescent light bulbs were outlawed as of December 2013 in Mexico.

  Market changes were found to include one or more of four different dimensions: improved product quality, more and better suppliers, increased demand, and long-term cost reduction. Each of these four dimensions also responded to different barriers.

  Products and technologies were improved qualitatively in eight projects, and their costs sank in seven. Yet in some cases, even highly cost-effective technologies were difficult to introduce into the markets. Quality enhancement of local products was observed to help broader diffusion in several projects, but the adoption of new technologies was difficult in at least three projects when safety concerns could not be mitigated (even for technologies that were used in other geographic contexts, such as autonomous boilers in multistory buildings). Introducing technical standards, enhancing the number and technical capacities of the supply chain, and promoting local production and bulk sales were assisted by global market development for sustainable energy technologies and led to reduced costs.

  Other observations of market change related to the stakeholders in the market: suppliers and consumers. Overall, in 17 different markets, GEF projects made specific efforts to improve the capabilities of businesses that provided hardware or services to climate-friendly technologies; in 14 markets (12 projects), this contributed to market change. In China's renewable energy development project and CRESP, a GEF financial incentive was contingent on manufacturing quality, requiring that Chinese manufacturers had to adhere to international standards. As the GEF's was the only project that focused on the quality aspect, it has contributed to the current situation where Chinese manufacturers export renewable energy equipment to many other countries, including members of the Organisation for Economic Co-operation and Development.

  On the consumer side, while almost all projects had identified significant barriers to technology adoption at project outset, most were able to reduce these. Of the 18 projects, 8 were able to increase demand significantly so that a stable market pull could develop. This includes projects with continued support through ongoing government subsidies—such as Mexico's Renewable Energy for Agriculture project (GEF ID 643) and High Efficiency Lighting Pilot. This indicates that market change on the demand side and complete market transformation were processes that are considerably longer than the

implementation period of a GEF project. Market transformation in the High Efficiency Lighting Pilot took more than 15 years. Most changes took place over a very long time.

Financing was one of the major barriers at the outset for 14 projects. Mostly, new technologies are more expensive than established ones and not sufficiently established to secure bank loans. Apart from financing demonstration installations in 13 of the 18 projects, 11 projects included specific financing components, providing subsidies, bank loans, or investment guarantees. Many of these mechanisms—as well as some of the technical assistance and capacity-building support—helped facilitate financing through banks; for example, by helping prepare bankable project documents or providing partial loans that reduced the bank loan size.

CONCLUSION 3: **Projects demonstrating high progress toward impact are those that have adopted comprehensive approaches to address market barriers and specifically targeted supportive policy frameworks.**

As indicated in table 2.2, the five projects that demonstrated the greatest progress toward impact have worked through multiple pathways and tended to include the most mechanisms for market change. All projects with a high progress to impact rating have supportive policy frameworks. Broad impact through national-level support policies was observed in many projects. Stated national targets did not suffice to ensure broader adoption of a technology. In all nine projects in which private sector replication was observed, this was supported by national institutions, strategies, or policies. In six projects, national support policies were causally linked to GEF support, indicating that the latter was able to influence key contextual policy conditions that favored broader adoption of technologies and market change. In some cases where subsidies were critical—such as China's Renewable Energy Development project and Mexico's Renewable Energy for Agriculture—the subsidies were continued by the national government after GEF support ended. In some projects, such as China's TVE II, co-evolution of technical standards, market development, and technology development were included; and the project was able to reach significant impact with that strategy. In five projects, similar developments were linked directly to GEF support. Often nonenergy-specific legislation (such as safety standards, grid regulations, or tariffs) posed a barrier for broader adoption. These barriers were successfully removed in some projects (e.g., in the Mexican landfill demonstration project); in other projects, they were responsible for a lack of sustained project results (e.g., Russia's capacity-building project and CRESP).

Many projects used local agencies as implementation hubs. In several cases, these entities were able to strengthen their role as local champions and knowledge centers. For example, Mexico's Agricultural Fund is now nationally recognized as an important source of information on renewable energy. China's TVE II project resulted in the creation of a technology advisory service company that continues to support industrial companies in energy efficiency efforts. India's Development of High Rate BioMethanation Processes as Means of Reducing Greenhouse Gas Emissions (GEF ID 370) and coal bed methane projects worked with research and sector-specific institutions that had good access to and good credibility with the industrial enterprises that were expected to use these technologies.

The pathways of scaling-up and market change are of particular importance for broad impact. These pathways are able to leverage the most pervasive broader impacts. Mainstreaming, when enabling national policies, has also proved to be fundamental to broader adoption. Market change, in particular, has been achieved through working with technology suppliers, improving product quality, and lowering costs. Several markets for renewable energy technologies and energy savings

TABLE 2.2 **Summary of Pathways to Broader Impact**

Country	GEF ID	Short name	Impact rating	Sustaining	Replication	Scaling-up	Market change: Product quality	Market change: More & better suppliers	Market change: Increased demand	Market change: Cost reduction
Mexico	575	High Efficiency Lighting Pilot	High	x	x	x	x	x	x	x
Mexico	1155	Climate Friendly Measures in Transport	High	x	x	x	x	x		
China	446	Renewable Energy Development	High	x	x	x	x	x		x
China	622	TVE II	High	x	x	x			x	
China	943	CRESP	High	x	x	x	x	x		x
India	325	Coal Bed Methane	Significant	x	x				x	
India	370	Biomethanation	Significant	x	x				x	x
India	386	Hilly Hydel	Significant	x	x	x	x	x	x	x
Mexico	784	Landfill Demonstration	Significant	x	x	x				
India	76	Alternate Energy	Significant	x	x	x		x		x
India	112	Photovoltaic Market Transformation	Moderate	x	x	x	x	x		
Mexico	643	Renewable Energy for Agriculture	Moderate	x	x		x	x	x	
India	404	Energy Efficiency	Moderate		x				x	
Russian Federation	1646	Educational Sector	Moderate	x	x					
China	941	Fuel Cell Bus I	Unable to assess		x					
China	2257	Fuel Cell Bus II	Unable to assess							
Russian Federation	292	Capacity Building	Low to negligible							
Mexico	1284	Wind Power	Low to negligible							

NOTE: Projects sorted from high to low on impact ratings.

technologies were thus significantly changed. In many cases, the GEF contribution to this change was substantial; in a few cases, the markets changed without any traceable impact of the GEF.

CONCLUSION 4: **Expert and stakeholder opinions on counterfactuals indicate that GEF support initiated processes toward impact in eight projects; in seven projects, GEF support speeded existing processes; and in two projects, GEF support ensured that existing processes were improved to reach international standards.**

The evaluation established that the GEF has contributed to progress made by confirming the causal links between GEF support and observed impacts and broader adoption. But impact and progress to broader adoption cannot be attributed to the GEF alone. In most cases after GEF projects ended, broader adoption was continued, largely supported by the country's government and private sector agents. Overall, the last 15 years show a global trend toward more energy efficiency and more systematic use of renewable energies. GEF efforts went hand in hand with this global trend and the efforts of many other agents. In consequence, the distinction of the effects between

GEF projects and of other activities or factors is somewhat blurred. This makes it more difficult to answer the counterfactual question: what would have happened without GEF support?

The markets targeted by GEF projects are unique, and randomized studies are not possible. Therefore, this question was addressed by posing it to diverse stakeholders and experts who were familiar with GEF projects and the projects' broader contextual conditions and by cross-referencing these perspectives with other evidence obtained during evaluations. For four cases, stakeholders held that the projects would very likely have taken place without the GEF (table 2.3). In five cases, they felt it likely that the activities would have taken place. Nevertheless, in seven of these nine cases, stakeholders confirmed that the GEF's role was to significantly accelerate the movement toward more sustainable use and provision of energy (table 2.4). In two of these nine cases, the change would have happened with less emphasis on quality because of a lack of international involvement. Thus, in six out of nine cases in which country stakeholders felt that change would have taken place without GEF support, the GEF was found to have contributed to the process. In

TABLE 2.3 **The Role of the GEF: Counterfactual Analysis**

How likely is it that the activity would have taken place without the GEF?	No. of projects	Project short name
Very unlikely	2	**Mexico:** Climate Friendly Measures in Transport, Renewable Energy for Agriculture
Not likely	6	**India:** Energy Efficiency, Coal Bed Methane, Biomethanation, Photovoltaic Market Transformation **Mexico:** High Efficiency Lighting Pilot, Wind Power
Likely	5	**China:** Fuel Cell Bus I and II; CRESP **Mexico:** Landfill Demonstration **Russian Federation:** Educational Sector
Likely, but slower	4	**China:** Fuel Cell Bus I and II; CRESP **Mexico:** Landfill Demonstration
Likely, but not at international standards	2	**China:** CRESP **Russian Federation:** Educational Sector
Very likely	4	**India:** Alternate Energy **China:** TVE II, Renewable Energy Development **Russian Federation:** Capacity Building
Very likely, but not at international standards	3	**India:** Alternate Energy **China:** TVE II, Renewable Energy Development
Not known	1	**India:** Hilly Hydel

TABLE 2.4 **What Can Be Attributed to the GEF**

GEF role	Number of projects
Catalytic: Without GEF, activities would not have occurred	8
GEF speeded up existing progress toward impact	7
GEF enhanced quality of progress toward impact	2

NOTE: "Very unlikely" and "not likely" have been combined as catalytic role of the GEF.

eight other cases, stakeholder and expert opinion held that without the GEF, the activities would not have taken place. In these cases, the GEF can be attributed with "causing" the change.

There are multiple forms in which GEF impact took place. GEF projects resulted in actual emissions reductions and thus had a direct, but relatively small, effect in reducing stress on global climate. Most significant and relevant to the GEF's mandate was GEF support to countries to speed up and improve the quality of approaches to change emissions behavior, support the adoption of new technologies, and change markets to more sustainable forms of energy.

CONCLUSION 5: **The methodology to measure GHG emissions and calculate ex post emissions reduction at project completion is not robust and contains uncertainties.**

Partially to blame for the fact that most projects did not demonstrate the GHG impacts that were envisioned at project outset is the lack of a standardized GHG accounting methodology in the GEF's early years. In 2008, a methodology was officially announced, and it has been used in projects that have been endorsed by the GEF Chief Executive Officer at least since then. This evaluation has not included enough of such projects, so it is uncertain to what degree the monitoring and evaluation findings presented here are applicable to projects approved since 2008.

The GHG accounting results for the 18 projects included in the evaluation are briefly reviewed with respect to the influence of the accounting methodology (or lack thereof). The methodology defines clear rules for GHG impact assessment based on project log frames. At least one of the projects (Mexico's Introduction of Climate Friendly Measures in Transport project) would not have achieved any direct emissions reduction impact under the stricter terms of the methodology. This is because the investment in itself was not part of the project, and the impacts were not counted toward the direct impacts of the project, even though these would not have been feasible without the project. So while the methodology has the benefit of clarifying the attribution of GHG impacts to project activities, the results of this attribution rule are sometimes counterintuitive and depend on the wording in the project document.

In several other ways, the methodology to measure results did not prove robust. Typical challenges included the following:

- GEF outcomes were difficult or expensive to measure or monitor (e.g., exact energy production or utilization).
- Key parameters of the methodology, such as the national grid emissions factors, have changed over time.
- Calculations were needed to make uncertain assumptions about the future, such as the likely benefit period.

The last point alone can potentially influence results for cumulative and indirect GHG emissions reductions by orders of magnitude. The 2008 methodology has taken steps to improve this by introducing the use of benchmarks and other criteria applicable to specific types of interventions, but it has not removed uncertainties when assessing completed projects. The other two sources of errors cannot be fully eliminated as long as a methodology for GHG emissions accounting is required and resources for measuring and validation are limited. Note that the methodology has been designed for planning purposes, and includes assumptions about the future that might change rapidly because of factors internal or external to the project. Consequently, an ex post assessment is almost bound to lead to different results—in some cases, widely different results. The current methodology also lacks provisions for ex post verification.

2.3 Recommendations

RECOMMENDATION 1: **The current focus on interventions that tackle barriers to broader adoption in a comprehensive way should be continued and where necessary further strengthened in GEF-6.**

Although many of the projects demonstrated a series of activities designed to introduce new technologies, demonstrate effectiveness, and tackle barriers to further adoption of these technologies, in several cases barriers were analyzed and recognized but not specifically targeted in the projects. As a result, progress toward impact was slow or halted. Not all barriers may be within a project's sphere of control, but certainly projects could take initiatives that would put these barriers on political or economic agendas, or make stakeholders aware that these barriers exist. The Independent Evaluation Office found in its focal area strategy work for the first report of OPS5 that a shift toward tackling broader adoption in a more comprehensive way is visible in project concepts for GEF-5 (2010–14). This promising development should continue in GEF-6.

Where possible, this could be further strengthened by looking at design and implementation issues from the perspective of breaking down barriers and promoting broader adoption as identified in OPS5; a detailed analysis will be provided in the OPS5 final report. More sophisticated tools have become available, such as the diagnostic tool for analysis of barriers developed by the Climate-Eval community of practice; this tool can be used to identify whether a project is taking all barriers into account and setting activities in motion that could potentially ensure that the barriers are removed over time.

Ensuring quicker progress toward impact is in the final analysis more important than somewhat elusive perspectives on high promised levels of indirect impact. A high level of expected indirect impact is, after all, an indicator of what market change or transformation may achieve, but it is the market change or transformation that should be the focus of the intervention. It is essential that the focus on removing barriers through mainstreaming, replication, and scaling-up to lead to market change or transformation—already amply demonstrated in the projects evaluated—is continued in GEF-6 and, where possible, strengthened.

RECOMMENDATION 2: **The measurement of GHG emissions reduction, both direct and indirect, needs to be further improved. The STAP should be requested to formulate a targeted research project to ensure that over time assessments of direct and indirect GHG emissions reductions can be verified.**

The GEF Scientific and Technical Advisory Panel (STAP) has provided advice on GHG emissions reduction measurement and analysis. The GEF Secretariat has adopted new standards since the projects included in this evaluation were designed. Yet uncertainties remain, especially when reporting on indirect GHG emissions reduction. The levels of direct reduction are impressive in themselves and to be applauded, but are potentially increased tenfold through indirect GHG emissions reduction, which at the moment cannot be verified as too many assumptions and uncertainties are involved. The STAP and the GEF Secretariat should continue to work at adapting methodologies to solve uncertainties, make methodologies more suitable for ex post evaluation, include verification instruments, and become more sensitive to the contextual challenges that are identified in the full report of this evaluation.

3. Progress on Other Impact-Related Work

3.1 Impact Evaluation of GEF Support to Biodiversity

The GEF serves as a financial mechanism for implementing guidance from the United Nations Convention on Biological Diversity. In this capacity, it has funded more than 900 projects in more than 150 countries and provided support to more than 1,800 protected areas through 251 projects since 1991. The Independent Evaluation Offices of the GEF and UNDP are undertaking a joint impact evaluation of GEF support for biodiversity, assessing impact from an environmental as well as a socioeconomic perspective. The intent is to assess the extent to which existing strategies, programs, and interventions have been able to enhance species and habitat protection and restoration, while securing livelihoods, good health, and resilience for poor people. Given the structure and maturity of the GEF biodiversity portfolio, the evaluation will focus on the contribution of GEF support to the protection of biodiversity through protected areas and examine how projects have mainstreamed into landscape management frameworks. The approach paper of the evaluation was approved by the Directors of the Independent Evaluation Offices of the GEF and UNDP in June 2013.

From the GEF perspective, this evaluation fits within an ongoing set of impact evaluations covering each of its focal areas. Its first phase will provide an important set of findings for OPS5. For UNDP, this constitutes the first in a set of impact evaluations of UNDP programming, and builds on the findings and conclusions of a recent thematic evaluation focused on the nexus of poverty and environmental issues in UNDP's support to countries. The bulk of UNDP's biodiversity portfolio has been implemented through GEF support.

The evaluation addresses the following main questions:

- What have been the impacts and contributions of GEF or UNDP support (positive or negative, intended or unintended) in biodiversity conservation in protected areas and their immediately adjacent landscapes?
- What have been the contributions of GEF or UNDP support to the broader adoption of biodiversity management measures at the country level through protected areas and protected area systems, and what are the key factors at play?
- Which GEF-supported approaches and contextual conditions, especially those affecting human well-being, are most significant in enabling and hindering the achievement of biodiversity management objectives in protected areas and their immediately adjacent landscapes?

The evaluation is composed of two phases. The first phase has focused on assessing biodiversity parameters before and after GEF support. This includes an assessment of the chains of causality between the objectives and outcomes of GEF projects and changes in biodiversity parameters in

specific protected areas. Findings from this phase will be included in the final OPS5 report. This evaluation is taking place in collaboration with the World Commission on Protected Areas and the Species Survival Commission of the International Union for Conservation of Nature (IUCN) Joint Task Force, which provides the evaluation with access to both the most complete global data sets of species population time series in protected areas and management effectiveness tracking tools.

Building on specific issues and methodological frameworks developed in Phase 1, Phase 2 includes an in-depth analysis of the factors and conditions contributing to impact. It focuses particularly on assessment of the factors enabling biodiversity conservation and sustainable livelihoods to be mutually reinforcing. This phase will also identify areas of mutual benefit, trade-off, and loss for biodiversity conservation and human welfare; and examine the factors that contribute to these different scenarios. The status and impact of alternative livelihoods supported by GEF or UNDP projects will be given particular attention. During this phase, the evaluation will also further assess the extent to which biodiversity outcomes at the local scale may be attributed to GEF support through the identification of counterfactuals. It will further refine the assessment of impact by comparing different strategies for community engagement and comparing against sites that have not received GEF support.

The findings of this evaluation relevant to the GEF will be presented at the GEF Council Meeting in November 2014 by the GEF Independent Evaluation Office; findings relevant for UNDP will be presented at the UNDP Executive Board Meeting in January 2015 by the UNDP Evaluation Office.

3.2 Assessment of Arrangements to Measure Environmental Impact at Project Completion

Evaluating the impact of GEF support relies to a large extent on the availability of data that allow measurement of changes in the environment. However, as evidenced by several field visits, data are often not collected or compiled in a way that makes them accessible for use and analysis—or are not collected at all. The quality of information that is available to assess the impact of GEF support on stress reduction and environmental status depends to a large extent on the quality of monitoring and evaluation arrangements integrated into project design, and the extent to which these arrangements are implemented and remain functional after GEF support ends.

GEF Annual Impact Report 2012 included a report on the evaluation of monitoring and evaluation arrangements at project design. Since then, the Independent Evaluation Office has carried out a review of arrangements to measure impact at project completion. This review aims to assess the extent to which arrangements were in place to monitor and report on environmental impact during project implementation and at project completion. The likelihood of monitoring arrangements being implemented after project completion is assessed based on the availability of permanent institutions that had the mandate and capacity to conduct environmental monitoring, as well as mechanisms for the use and reporting of data collected.

A separate review on the submission and use of management effectiveness tracking tools by GEF projects providing support to protected areas is being undertaken as an input to OPS5. The results of these reviews will be combined with an earlier review on reliability, feasibility, and practicality of arrangements and sufficiency of resources for impact monitoring in project design. These reviews will be included in the final OPS5 report.

3.3 Mainstreaming of Impact Evaluation

The Independent Evaluation Office continues to mainstream impact-related considerations across its other evaluation streams. This year, other

efforts on impact evaluation concentrated on producing impact-related evidence for OPS5.

The Independent Evaluation Office held a webinar on the Impact Evaluation of GEF Support in the South China Sea and Adjacent Areas, and presented the results of this evaluation at the STAP knowledge exchange workshop on regional organizations and international waters. It also contributed to publications relevant to impact evaluation, started a blog on impact evaluation approaches, and produced a video for the Independent Evaluation Office's website explaining the GEF's approach to impact evaluation.

The Office continued to reflect on its experience and to generate and share knowledge to improve evaluation tools and methods in impact evaluation. This was done through ongoing participation in the United Nations Evaluation Group impact evaluation task force and the Evaluation Cooperation Group, and through participation in workshops and collaborative work with the Institute for Development Studies.

Annex: Management Response

This annex presents the management response to this report, which was presented to the GEF Council in November 2013 as GEF/ME/C.45/01. Minor editorial corrections have been made.

A.1 Introduction

This is the management response prepared by the GEF Secretariat with reference to document GEF/ME/C.45/01, "Annual Report on Impact," undertaken by the GEF Independent Evaluation Office. The management response is directed toward the evaluation report's primary focus on the impacts of GEF support through climate change mitigation projects in four countries (China, India, Mexico, and Russia).

The GEF Secretariat welcomes the evaluation assessment, which highlights the progress made by the Secretariat to address barriers to broader adoption in a comprehensive way and improve the measurement of greenhouse gas emissions reductions linked to GEF projects. The Secretariat also agrees with the recommendations of the evaluation to continue the current focus on interventions that tackle barriers to broader adoption in a comprehensive way. The Secretariat is concerned by the recommendation to develop ex post GHG emissions reduction verification.

The response to the specific conclusions and recommendations of the evaluation is provided below.

A.2 Conclusions

The GEF Secretariat welcomes the conclusion that the assessed projects achieved significant emissions reductions, both direct and indirect (Conclusion 1). The GEF Secretariat is pleased that significant positive economic development impacts, job impacts, local benefits, a general awareness of the importance of climate change mitigation, and energy savings have been achieved, in addition to the GHG emissions reductions.

The GEF Secretariat is pleased that almost all the projects assessed facilitated and experienced broader adoption of technologies (Conclusion 2). It is noteworthy that all five pathways for broader impact of GEF projects could be traced in the assessed projects.

The GEF Secretariat welcomes the finding that among the 14 projects with ratings above moderate impact all included multiple pathways ranging from sustaining, replication, and scaling-up to market change. The GEF Secretariat is encouraged that several projects, including the Introduction of Climate Friendly Measures in Transport project in Mexico, achieved replication with significant scale-up effects at the regional level.

The GEF Secretariat is pleased that many projects experienced replication through the private sector, all supported by national institutions, strategies, or policies.

The GEF Secretariat concurs with Conclusion 3, that comprehensive approaches addressing

market barriers are necessary to facilitate market transformation. The details provided in the full report are informative and appreciated.

The GEF Secretariat welcomes the conclusion that GEF-financed projects, by and large, have been instrumental in initiating processes toward impacts, speeding up existing processes, and/or helping reach international standards (Conclusion 4).

As acknowledged by the evaluation, standardized GHG accounting methodologies were introduced beginning in 2008. The projects that have been endorsed by the GEF Chief Executive Officer since then use these methodologies to estimate direct and indirect GHG emissions reductions prior to project implementation. This effort has been pursued with further improvement of methodologies and introduction of new ones.

The GEF Secretariat acknowledges Conclusion 5, that methodologies for the verification of emissions reductions after project completion would be useful. The Secretariat, however, is of the opinion that verifying ex post emissions reductions, particularly indirect GHG emissions reductions, will also entail policy and organizational changes that need to be addressed along with methodology improvements. The current reporting requirement for GEF projects does not extend beyond project completion; therefore, it cannot capture all emissions reductions that could occur beyond project lifetime.

A.3 Recommendations

The GEF Secretariat appreciates and welcomes the acknowledgment in Recommendation 1 that the shift toward tackling broader adoption in a more comprehensive way is visible in GEF-5 projects. The GEF Secretariat agrees that this effort should be continued, especially toward ensuring quicker progress toward impact. The GEF Secretariat looks forward to the final report of OPS5 on how to further strengthen the ongoing effort. The GEF Secretariat also agrees with the conclusion on the continued need to tackle barriers to broader adoption in a comprehensive way.

The GEF Secretariat recognizes the usefulness of developing ex post GHG emissions reductions verification (Recommendation 2). As stated in the response to Conclusion 5, however, verifying ex post emissions reductions will entail policy and organizational changes, along with methodological improvement. To address the need to improve the measurements of GHG emissions reduction and verification, the GEF Secretariat suggests initiation of a dialogue, including with the STAP, on how direct and indirect GHG emissions reductions from GEF projects may be verified.

A.4 Response from the STAP

The STAP welcomes Recommendation 2 and the related draft Council decision of document GEF/ME/C.45/01, "Annual Report on Impact," which invites the STAP to take a significant role in providing further scientific and technical inputs to improve assessment of direct and indirect GHG emissions reductions in GEF projects. The STAP is pleased to see independent support for evidence-based project and program design, and recognition of the role of targeted research to achieve this end. The STAP also concurs with the observations of the GEF Independent Evaluation Office that there are at present methodological limitations in estimating GHG emissions reductions.

The STAP will, in consultation with the GEF Secretariat, determine the best way of providing scientific and technical inputs, whether through a dedicated targeted research project, a STAP synthesis activity, a specific commissioned technical paper, or some other approach. In preparation, the STAP will review available GHG tools and develop an appropriate response plan during an upcoming STAP retreat in January 2014. In addition, while evaluating possible improvements to existing tools and methodologies, there will be careful consideration, among others, of the following:

1. There should be a review of the fit and complementarities of preexisting sector-related tools and methodologies in order to reduce duplication of effort and ensure best use of GEF and STAP resources in the exercise.

2. There should be careful assessment of likely end users of the tool, since both the GEF and the Agencies already have tools in use to measure similar parameters. One should also consider burden on the user, and have buy-in for collaborative improvement of any areas deemed lacking.

The STAP looks forward to taking this work forward with GEF partners.

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